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Policies for encouraging healthier food choices

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Jonathan Brooks



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POLICIES FOR ENCOURAGING HEALTHIER FOOD CHOICES

Céline Giner and Jonathan Brooks, OECD

What is the role of government policies in encouraging healthier food choices to fight the current overweight and obesity epidemics? This report briefly examines the evidence base on unhealthy diets, including the associated burden on health systems. It then takes stock of current knowledge on the effectiveness of policy instruments to tackle unhealthy diets and proposes a four-track policy approach to encourage healthier food choices that is consistent with wider objectives for the food and agriculture sector. This policy approach includes demand side public interventions, voluntary collaboration with the food industry at the supply-demand interface, firmer regulations when public-private incentives are misaligned, and fiscal measures. This report underscores the importance of a robust evidence base for developing effective policies, which in turn requires investments in effective data systems. The Annex takes stock of how well developed food data systems are currently across a range of OECD countries and provides some recommendations on how to move forward.

Keywords: Food choices; health policies; obesity; overweight; data systems; food chain

JEL codes: C90, I18, M38, Q18

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1. Background information on food and health

1.1. Trends in public health

The prevalence of overweight and obesity is increasing worldwide[1]. In 2014, the World Health Organization (WHO) estimated that 1.9 billion adults were overweight and, of that total, 600 million were obese. The number of obese people has nearly tripled over the last 40 years (WHO, 2018[1]).

Although undernourishment (not consuming enough calories) is declining in Asia, Latin America, and to a lesser extent in Africa, over-nutrition (consuming too many calories) is increasing in the same regions due to a number of factors including income growth and urbanisation and the associated changes in diets and lifestyles. At present, many developing countries face the twin burden of under- and over-nourishment (WHO, 2018[1]), while across countries many people consume adequate calories but remain poorly nourished. It is estimated that 2 billion people globally lack key micronutrients such as iron and vitamin A (Development Initiatives, 2017[2]).

Without policies to change behaviour, obesity and *overweight* rates could reach even more alarming levels. Projections by the OECD Employment, Labour and Social Affairs Directorate foresee that obesity rates will steadily increase up to at least 2030 (OECD, 2017). This increases the risk of major non-communicable diseases (NCDs) such as cardiovascular diseases, type II diabetes and cancer, and decreases life expectancy (Bray, Kim and Wilding, 2017[3]). A link has also been established between poor nutrition and the onset of dementia (Ozawa et al., 2013[4]).

This increase in weight-related disease also leads to higher use of healthcare services, which raises healthcare expenditures. The OECD estimates that obesity and overweight will be responsible for between 4% and 12% of direct health expenditures over the coming decades (DELSA/HEA/EPH(2018)5). Indirect costs in terms of productivity loss and decreased workforce participation will also be important: obesity is associated with a lower employment rate, higher absenteeism and lower productivity (Devaux and Sassi, 2015[5]).

Overweight and obesity prevalence depends not just on diets, but also on physical activity levels (Graf and Cecchini, 2017[6]). Research also emphasises the role of genetic characteristics[2] and microbiota (Valdes et al., 2018[7]) on the development of obesity.

1.2. The link to food consumption patterns

Although the WHO recommends a 2 000 calorie diet per day for the average individual (WHO, 2019[8]), the *OECD-FAO Agricultural Outlook* (OECD/FAO, 2017[9]) assesses the current per capita calorie availability in the OECD area at around 3 450 calories. Even allowing for food waste, this implies considerably higher average consumption than would be consistent with WHO recommendations. More people are over-nourished globally than are under-nourished (NCD-Risk, 2016[10]).

The composition of diets is also an issue. The excessive consumption of added sugars is a substantial contributor to the development of overweight and obesity and of diseases such as diabetes and heart disease (Public Health England, 2015[11]). More generally, diets feature on average over-consumption of sugar and fat, often via processed foods, and insufficient consumption of fruit and vegetables. Forouzanfar et al. (2016[12]) estimate that diets low in fruit were responsible for 3.4 million deaths globally in 2013. The *OECD-FAO Agricultural Outlook* (OECD/FAO, 2017[9]) projects that the shares of sugar and fats in total average daily energy

[1] WHO defines overweight and obesity as abnormal or excessive fat accumulation that presents a risk to health, and uses the body mass index (BMI) as an indicator (WHO, 2016). BMI is calculated as a person's weight (in kilograms) divided by height (in metres) squared. For adults over the age of 18, those with a BMI greater than 30 are considered to be obese, while those with a BMI greater than 25 are considered to be overweight.

[2] An overview of current knowledge on the connections between genes and obesity is provided in (Harvard School of Public Health[61])

availability will continue to exceed the WHO guideline percentages, of 10% and 30% respectively over the coming decade.

Among fats and oils, there is important evidence showing that a shift away from trans fats[3] in particular would lead to major health benefits (Willett et al., 1993[13]). Several studies show a reduction in heart attacks, cancer and stroke following the ban on trans fats in some New York State jurisdictions ((Brandt et al., 2017[14]) (Restrepo and Rieger, 2016[15])).

In 2003 Denmark introduced an upper limit of 2 g of industrially produced trans-fats per 100 g of fat. Artificial trans fats are now "virtually eliminated" from Danish food products (MFAFD, 2014[16]). In 2015, the US Food and Drug Administration (FDA) announced that partially hydrogenated oil (an artificial trans fat) is no longer “Generally Recognized as Safe” (US FDA, 2018[17]) and should be removed from processed food. Since June 2018, food production cannot use artificial trans fats in their ingredients list and by 1 January 2020 all food products sold on the US market should be free of artificial trans fats. A similar ban has been in effect in Canada since September 2018 with a two-year compliance period to exhaust stocks.

Sodium is also widely used by the food industry because of its preserving and taste characteristics. In 2012, WHO issued new guidelines on dietary sodium consumption (WHO, 2012[18]). Adults are advised to consume no more than 2000 mg of sodium (5 g of salt) as excessive sodium intake can lead to increased blood pressure, which increases the risk of heart disease and stroke.

The scientific evidence on what constitutes a healthy diet continues to evolve. For example, the Dietary Guidelines for Americans (DGA) had recommended for a long time that cholesterol intake be limited to no more than 300 mg/day. The 2015 DGA Committee (USDA-HHS, 2015[19]) decided, however, not to continue promoting this recommendation because of the lack of adequate evidence to define a quantitative limit for dietary cholesterol and to establish the dose-response relationship between dietary cholesterol and blood cholesterol levels. (USDA-HHS, 2015[20]).

In a 2015 report (IARC - WHO, 2015[21]), the International Agency for Research on Cancer (IARC), part of the WHO, estimated that each 50 g portion of processed meat eaten daily increased the risk of colorectal cancer by 18%. However, the agency also stressed that the risk for an individual of developing colorectal cancer because of the consumption of processed meat remains small.

1.3. Connections with wider socio-economic forces

Lack of physical activity and sedentary behaviour are risk factors for non-communicable diseases (NCDs) (Booth, Roberts and Laye, 2012[22]). In conjunction with unhealthy diets, they are also risk factors for obesity, which in turn can lead to NCDs.

Convenience foods have developed rapidly to respond to the evolution of working and living conditions, with less time dedicated to meal preparation[4] (Cutler, Glaeser and Shapiro, 2003[23]). These products are often higher in terms of sugar, oil, fat and salt content than home-cooked meals (Poti et al., 2015[24]). In addition, research shows that increased consumption of food away-from-home leads to higher total energy intake and higher energy contribution from fat in the daily diet (Guthrie (2012[25]), Lachat et al. (2012[26])), Naska et al. (2015[27]), Orfanos et al. (2017[28]).

In many countries, low-income groups are making the unhealthiest food choices. Researchers are trying to establish whether this is due to a lack of easy access to nutritious food, a contrasting ease of access to processed convenience food, lack of information concerning dietary recommendations, health literacy and the higher cost of healthy food and lower energy density per USD spent (Tiehen, Newman and Kirlin, 2017[29]) (Darmon and Drewnowski, 2015[30]).

[3] Trans fats are mostly created artificially in an industrial process that adds hydrogen to liquid vegetable oils so that they become more solid. This type of fat is widely used by the food industry.

[4] Growing consumption of convenience foods largely reflects increasing levels of urbanisation, as well as lifestyle factors such as increased workforce participation by women.

There may also be more complex social forces at work, with poorer people more likely to consume processed convenience foods (reflected in "unhealthy" habits), and also applying a higher discount to long-term future health implications of a poor diet. There may also be a regional aspect to these patterns, which could have implications for policy targeting.

2. Public intervention in the area of food and health

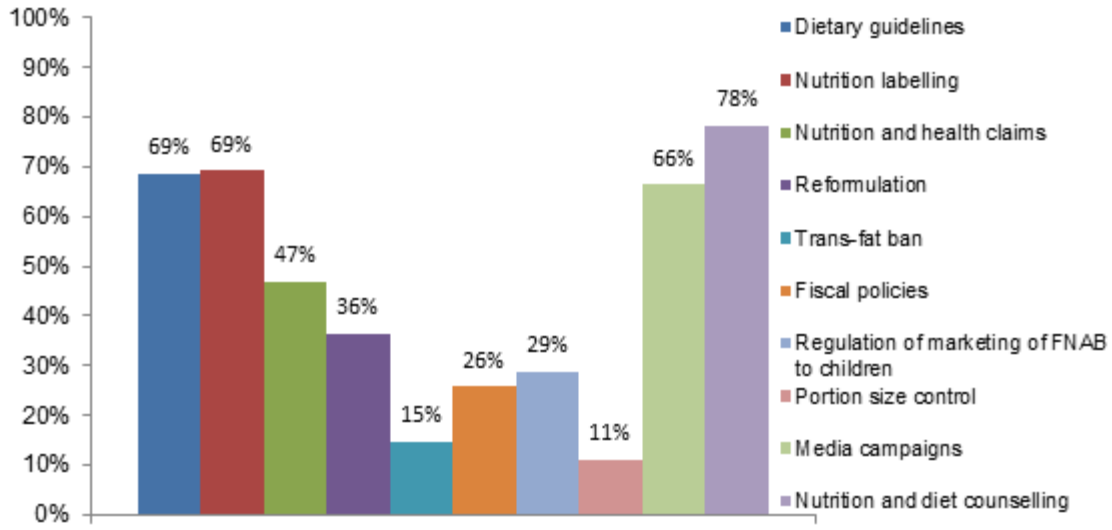
2.1. The rising public health burden

The public health burden associated with unhealthy food consumption patterns underpins the legitimacy of government intervention. If people were to pay for their own health treatment then health issues could be considered an individual responsibility. However, there is a large and rising public health burden in most countries that is associated with unhealthy eating patterns. Furthermore, there is a growing concern that development of unhealthy dietary habits among children will lead to the development of addictive forms of food consumption. In this context, governments have a clear role in encouraging healthier food choices (Sassi and Hurst, 2008[31]).

Policy solutions to reduce overweight and obesity mostly focus either on the consumer or on the actions of processors and retailers. Figure 1 shows the type of policies currently being used around the world to encourage healthier food choices. Many governments use a combination of different kinds of health-related policies to tackle the problem of overweight and obesity.

Figure 1. Key policy actions and measures to promote healthy diets and nutrition across 154 countries

Share of countries using the different types of measures



Note: FNAB represents the food and non-alcoholic beverages category.
Source: WHO GINA database, http://www.who.int/nutrition/gina/en/.

2.2. Consumer-oriented policy instruments

Public authorities seek to reach consumers directly to encourage them towards healthier diets via the provision of dietary information, education programmes, and nutritional counselling. These measures may be targeted to specific constituencies, such as children and households that are at the greatest risk of making unhealthy consumption choices[5]. Such strategies may be combined with recommendations to engage in more physical activity or sport (OECD, 2010[32]).

There is evidence that such types of public intervention are effective, but the magnitude of the effect may not be strong enough to radically change consumption patterns (Traill, 2012[33]). Social media and new technologies, such as dedicated mobile applications, appear to have considerable potential for public health promotion (OECD, 2017[34]).

The OECD Fit-not-Fat study (OECD, 2010[32]) reports that physician-dietician counselling seems to have the greatest impact on health outcomes compared to worksite interventions[6], food labelling and media campaigns.

In addition, policies that target children at school by encouraging them to develop healthy food preferences can alter their food choices, especially if such measures are complemented by other actions over an extended period of time (Spence et al., 2013[35]).

2.3. Food industry-oriented policy instruments

Food consumption can also be influenced via the supply side. The food industry can be encouraged to change food product formulation, labelling or marketing strategies. Indeed many governments collaborate with the food industry on a voluntary basis on these strategies, but changes can also be made mandatory. Behavioural "nudges" in the food shopping environment can also be used to encourage consumers to reassess their food choices at the point of purchase. Some governments have adopted or are considering adopting health-related taxes on food products. These options are discussed in more detail in the following sections. Options are not mutually exclusive and there can be important synergies: for example, nutritional labelling schemes can incentivise product reformulation with a view to achieving a better rating.

Food reformulation

Food reformulation, i.e. improving the nutritional quality of food products on the market, has proven effective in promoting healthier diets (OECD, 2010[32]) (McKinsey Global Institute, 2014[36]). Food reformulation is often undertaken in collaboration with governmental entities (Box 1), with a particular emphasis on the reduction or replacement of trans fats and saturated fats content and the reduction of sugar content. Significant efforts have already been made in many OECD countries to reduce the salt content in food products (Public Health England, 2015[11]).

The food industry can also engage in voluntary reformulation pledges outside of governmental commitment. Recently, 14 major Irish food and beverage companies voluntarily reduced salt content, sugar content, calories, as well as both total fat and saturated fat content.[7] According to the US Grocery Manufacturers Association (GMA) Health and Wellness Survey[8], GMA members have eliminated trans fat and saturated fats in thousands of products, and have also reformulated thousands of products to reduce sugar, calorie and sodium content.

[5] Examples of such initiatives can be found on the website of the Centers for Disease Control and Prevention (CDC): https://www.cdc.gov/nccdphp/dnpao/state-local-programs/nutrition.html

[6] Worksite interventions can for example take the form of a renegotiation of food service contracts at the workplace to improve the nutritional quality of the food served, of the provision of fruits and vegetables for snacking or of encouraging physical activity.

[7] Food Drink Ireland has undertaken a substantial piece of work to measure the impact of the reformulation campaign. This assessment was presented at the OECD Food Chain Analysis Network meeting in October 2018.

[8] https://www.gmaonline.org/issues-policy/health-nutrition/providing-innovative-and-healthy-choices/product-reformulation/

Moreover, reformulation can be encouraged by governments on a voluntary basis but with strong monitoring (Public Health England, 2017[37]). In the case of the US and Canadian trans fats bans, companies reformulated their products ahead of the implementation of the ban.

Ongoing analysis undertaken by the OECD Directorate for Employment Labour and Social Affairs looks at the costs associated with product reformulation (DELSA/HEA/EPH(2018)6). Evidence based on the implementation of the French Programme National Nutrition et Santé (PNNS) (Inspection générale des affaires sociales, 2016[38]) shows that reformulation costs may not be greater for SMEs than for bigger companies.[9]

Reformulation takes time. Any policy mandating reformulation needs to allow for an adjustment and compliance period. In addition, some products are more difficult to reformulate than others as sugar, salt and fat can contribute to taste, preservation and texture depending on the product.

Box 1. Examples of public-private cooperation to encourage more balanced diets through reformulation

Australia

The Australian Food and Health Dialogue, a collaboration between the Australian government, the public health sector, and the food industry was launched in 2009 to improve dietary intakes through voluntary sodium reduction targets across nine food categories.

Building on the work of the Food and Health Dialogue, the government launched the Healthy Food Partnership (Australian Government Department of Health, 2019[39]) in November 2015 with the aim of cooperatively tackling obesity, encouraging healthy eating and empowering food manufacturers to make positive changes to their product portfolios on a voluntary basis. The Healthy Food Partnership has defined draft reformulation targets for sodium, sugars and saturated fats, in addition to work on food portion size and engaging with the food service sector.

Belgium

The Belgian food and drink industry reduced voluntarily the salt content of foods over the period 2007-2015 by about 10%. This reduction was done gradually so that consumers did not notice any significant taste differences. The plan also included a public awareness campaign supported by the authorities to educate consumers.

Denmark

The "Whole Grain Partnership"[1] was established in 2008, to increase the intake of whole grains. This alliance comprises the Danish Government, health NGOs (such as the Danish Cancer Society and the Danish Diabetes Association), the food and drink industry, and retailers. The Partnership managed to increase the intake of whole grains in the Danish population from 36 g/day in 2007 to 63g/day in 2014.

France

The Programme National Nutrition Santé (PNNS) (Santé publique France, 2019[40])was implemented in 2001. It is a government-led, multi-stakeholder program that promotes heath across the population with nine objectives including reductions in salt and sugar intake. The food and non-alcoholic beverage industry committed to voluntarily reformulate their products through charters, which has resulted in a significant reduction in salt intake and in sugar in some food categories.

Italy

The threshold for salt reduction in bread, a staple food for Italy, has been addressed in 2016 at experimental level in the "Strategie per il miglioramento della competitività della produzione italiana di frumento attraverso la riduzione dell'uso del sale in panificazione (EUSAL)" project supported by the Italian Ministry of Agricultural, Food and Forestry Policy and Tourism (MiPAAFT).

Slovenia

In 2015, the Chamber of Commerce and Industry of Slovenia - Chamber of Agricultural and Food Enterprises (CCIS – CAFE) created, in cooperation with the members of the soft drinks production sector, special self-regulatory commitments. The commitments include reformulation towards beverages with less or no added sugar

[9] Two major French retailers have introduced targets for food reformulation despite the fact that their private label products were produced by hundreds of SMES.

as well as other measures concerning the limitation of soft drinks advertisement for children, front of pack labelling and support to healthy lifestyle activities (https://www.gzs.si/zaveza-odgovornosti). In 2017, additional activities started in the dairy sector with a concrete target to reduce by 10% the content of sugar in dairy products by 2020. The most recent activities concern the bakery sector with a plan of reducing the salt content in certain bakery products.

United States

The US Healthy Weight Commitment Foundation (HWCF) (Healthy Weight Commitment Foundation, 2019[41]) is a multi-stakeholder initiative led by industry that aims at significantly removing calories from the marketplace over a five-year period. Lower-calorie products drove more than 80% of the sales growth among the participating companies.

Notes: 1. https://www.fuldkorn.dk/media/179349/the-evolution-of-the-whole-grain-partnership-in-denmark.pdf.
2. https://www.fuldkorn.dk/media/179349/the-evolution-of-the-whole-grain-partnership-in-denmark.pdf.

Additionally, reformulation may not be wanted by consumers and thus sometimes may need to be undertaken gradually in order to be accepted.

Some product categories may warrant particular attention, in particular food products that are marketed for babies and children. A study conducted by the Food Safety Authority of Ireland (Geraghty et al., 2018[42]) found that a large range of baby food products were not in line with national dietary recommendations and sometimes of worse nutritional quality than their "normal" adult equivalent.

Food labelling

Nutrient lists on packaged foods are already compulsory in the majority of OECD countries (EUFIC, 2017[43]). However, the type of information provided varies according to rules in place.

There is a long history of claims being made via industry developed front of pack (FOP) labels regarding quality, origin, production methods or nutritional aspects of food. A multiplicity of claims, or the fact that they are not monitored and difficult to verify, may result in confusion among consumers. In 1989, Sweden became the first OECD country to implement a simplified FOP nutritional label (the Keyhole logo, a voluntary initiative with public backing) that seeks to make healthy choices easier by assuring certain nutritional characteristics. Cecchini and Warin (2016[44]) undertook a meta-analysis of the literature on the effects on consumers of simplified labelling. They found that simplified labels were more effective in prompting consumers to make healthier food choices than labels that simply listed nutrient profiles.

Over the last few years, in an attempt to improve the nutritional quality of consumers' food purchases and prompt industry reformulation, simplified labels recommended or mandated by governments have been implemented in 13 OECD countries[10] and should also soon be in place in Israel (Endevelt et al., 2017[45]). Some are undertaken at the supra-national level like the Nordic Keyhole (Sweden, Denmark, Norway, Iceland, and Lithuania) and the Health Star Rating system (Australia and New Zealand)[11]. There are many common characteristics in terms of goals, implementation methods and major challenges (see Table 2 for a summary of the different labels.

[10] Australia (http://healthstarrating.gov.au),
Belgium, Chile, Denmark (https://www.noeglehullet.dk/services/English/forside.htm),
Finland, France (https://www.santepubliquefrance.fr/Sante-publique-France/Nutri-Score), Iceland, Korea,
Lithuania, New Zealand (https://www.foodsafety.govt.nz/Industry/general/labelling-composition/health-star-rating/),
Norway (https://helsenorge.no/other-languages/english/keyhole-healthy-food),
Sweden (https://www.livsmedelsverket.se/en/food-and-content/labelling/nyckelhalet),
United Kingdom (https://www.food.gov.uk/business-guidance/nutrition-labelling)

[11] A reflection on simplified FOP labels is occurring at the European level. Member States experts met in October 2018: https://ec.europa.eu/food/expert-groups/ag-ap/adv-grp_fchaph/wg_2018/presentations-2018_en#20181022.

With the exception of warning labels, that are mandatory by nature, all other simplified FOP labels described in Table 2 are voluntary. Their recommendation by public entities is often the result of consultation and dialogue among public entities, food chain stakeholders, consumers' association and the research community (Jones et al., 2016[46]). Labels are also subject to ongoing evaluation in terms of their development and use across the food chain industry and their efficiency in influencing consumers' food choices. The capacity of a simplified FOP label to influence consumers will increase if the label is widely present across food products and food categories and if consumers trust the label (Kanter, Vanderlee and Vandevijvere, 2018[47]). This requires information campaigns through different media to raise public awareness. In addition, some labels may have a greater impact on influencing consumers' purchases than others. Box 2 presents an experiment conducted in France in 2016 to assess how different simplified FOP nutrition labels influenced consumers' food choices.

Major challenges remain in terms of the wider voluntary implementation of simplified FOP labels by the food industry and their implications for product reformulation[12]. Some stakeholders in the food industry are pressing towards other FOP nutrition labels such as the Evolved Nutrition Label (EVL),[13] an evolution of the UK traffic light scheme, proposed in 2018. Industry stakeholders behind the EVL challenge the fact that the ratings or colours provided to products in some recommended FOP label relate to the per 100 g composition and not to serving' sizes (and especially to smaller portions). Other industry stakeholders are developing apps that can provide nutritional information to consumers when they shop[14] using their smartphones.

An important challenge associated with simplified FOP labelling schemes relates to the issue of consistency between the different systems that are currently in use and the potential implications for trade. This was brought to the Codex Committee for Food Labelling in 2018, which should provide guidance in 2019[15].

Box 2. How effective are simplified labels?

Results from a randomised FOP nutrition label experiment in France

In the European Union, Regulation No. 1169/2011 (Official Journal of the European Union, 2011[48]) defines the nutrition-related requirements regarding the provision of food information to consumers.[1] EU Member States are allowed to promote other forms of food labels at the front of packs (FOP). The law on modernising the French health system from 26 January 2016 enacted the principle of a synthetic nutritional labelling system that would be simple and accessible to everyone.

The experiment

A randomised FOP nutrition label experiment was undertaken in France over the period September to December 2016 to test the effectiveness of simplified nutrition information in terms of improvement in the nutritional quality of consumers' food purchases, with particular attention to purchases by lower income households. Four types of FOP nutrition information were tested (presented in Table 1).

[12] A recent study based on the Health Star Rating system found that the label is quite efficient in promoting reformulation (Mantilla Herrera et al., 2018[59]).

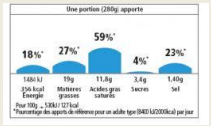
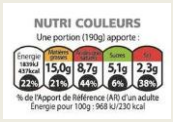
[13] https://evolvednutritionlabel.eu/.

[14] For example, the Smart Label app (https://www.gmaonline.org/issues-policy/health-nutrition/smartlabeltm-consumer-information-transparency-initiative/) and the System U app (https://www.magasins-u.com/cooperative-u/app-y-a-quoi-dedans).

[15] A working group has been working on the development and implementation of simplified front-of-pack labelling systems in a way, which aims to ensure some consistency is maintained at a global level with respect to public health and nutrition and to minimise impediments to trade that may arise from different approaches. The working group has presented a working paper (2018[60]) and discussed a draft guidance at its May 2019 Committee meeting: http://www.fao.org/fao-who-codexalimentarius/meetings/detail/en/?meeting=CCFL&session=45

The field experiment took place in 60 retail stores and concerned 1300 food products from four food categories: fresh prepared foods, pastries, breads, and canned prepared meals. The framework was based on the comparison of the impacts of introducing new simplified FOP labelling for a treatment group (stores that were testing one of the simplified labelling systems) and a control group (stores that were not testing the simplified labelling systems).

Table 1. Simplified FOP labels tested in the French experiment

	NUTRI-SCORE	SENS	NUTRI-REPERE	NUTRI-COULEURS
				
Label type	Summary label	Summary label	Nutrient-specific label	Nutrient specific label
Main characteristics	Evaluation score based on the UK nutrient profiling mode[1]	Recommended frequency of consumption based on the nutritional model SAIN/LIM[2]	Graphical illustration of the recommended daily allowances	Label similar to the traffic light system used in the United Kingdom with a rating of the fat, sugar and salt content[3]

Notes: 1. The model allocates positive points for "un-healthy" content (energy, total sugar, saturated fats and sodium) and negative points for "healthy" contents (fruits, vegetables and nuts, fibres and proteins). More information on how the score is computed is available in (Julia and Hercberg, 2017[63]). Information on the UK nutrient profiling model is available in (UK Department of Health, 2011[65]).
2. More information on the SENS label is available in (Darmon et al., 2018[49]).
3. More information on the traffic light labelling system in place in the United Kingdom is available in (UK DH - FSA, 2016[50]).
Source: Santé publique France (2018[51]).

Several information sources were necessary to undertake the quantitative analysis and to develop counterfactuals:

- Weekly sales of food items in the treatment and control groups
- Nutritional information on the different food items
- Purchases of households with loyalty cards representing in total more than 3 million purchases by 191 000 loyalty cardholders.

All labels were found to significantly improve the nutritional quality of food purchased. The Nutri-Score was found to have the strongest effect for modest income households and in the two unhealthier food categories.

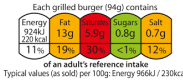
Follow-up

The randomised experiment was followed by the adoption of a decision to use the Nutri-Score for FOP labelling by the French Government in March 2017 and by the signature of a charter of commitments between the three ministries in charge of health, agriculture and consumption, and volunteer food retailers and processors regarding the implementation of the Nutri-Score in April 2017.

As of October 2018, the Nutri-Score was used on a voluntary basis by about 90 companies including several major retailers and food processors. An evaluation of the label will be undertaken in 2020.

Notes:
1. Nutritional content can be assessed by calculations.
2. http://solidarites-sante.gouv.fr/IMG/pdf/charte_nutriscore.pdf.

Table 2. Simplified nutrition labelling recommended or mandated by public entities across OECD countries

	Nutrient-specific labels	Warning labels	Endorsement labels	Summary labels
Information conveyed	Interpretation of mandatory nutritional information with a colour scheme	Warning on nutrients (sugar, fat, salt or calorie contents) that are present in levels that are assessed as non-healthy	Summary indicators of nutrition claims e.g. less saturated fat, less sugar, less salt, more fibre	Rating based on an evaluation of how healthy a product is.
Examples	-Traffic light system in the United Kingdom - Traffic light system for children food products in Korea 	-High in salt label in Finland -High in sodium, high in sugar, high in saturated fat labels to be implemented in Israel and already implemented in Chile[1] 	-Keyhole label in place in Sweden, Denmark, Norway, Iceland and Lithuania -Heart label in Finland 	-Health Star rating system in Australia and New Zealand -Nutri-Score in France and Belgium 
Rationale for implementation	To improve the nutritional quality of consumers' diets. The choice of colour (red, amber and green) indicates if a serving has high, medium or low amounts of fat, saturated fat, sugars and salt	To signal to consumers products that are not meeting certain criteria in terms of nutritional content and to stimulate reformulation by the industry	To have an uniform logo that make healthy choices easy for the consumers, to encourage the industry to innovate and reformulate	To provide convenient and easily understandable nutrition information in order to help consumers make healthier food choices and to encourage reformulation
Date	2011 (Korea), 2013 (UK)	1993 (Finland), 2016 (Chile), 2019 (Israel)	1989 (Sweden), 2000 (Finland), 2009 (Denmark, Norway), 2013 (Lithuania, Iceland)	2014 (Australia and New Zealand), 2017 (France), 2018 (Belgium)
Implementation option	Voluntary with guidance provided to private sector stakeholders	Mandatory The different limits are defined by public entities and are subject to change	Voluntary with guidance provided to private sector stakeholders	Voluntary with guidance provided to private sector stakeholders
Issues	- Monitoring of the label by public entities - Development of the use of the label by food chain stakeholders and push towards reformulation to achieve a better score - Information provided per serving or per 100g? - Capacity of consumers to interpret the guidance provided - Actual implementation by the industry - Impact on product improvement and reformulation - Implementation in the food away from home sector	- Monitoring of the label by public entities - Definition of the unhealthy limits and of their evolution towards stricter levels - Dialogue with the food industry - Implementation in the food away from home sector	- Monitoring of the label by public entities - Development of the use of the label by food chain stakeholders and push towards reformulation to achieve a better score - Long term adherence to the logo by consumers - Adoption by the industry and push towards reformulation - Keeping up-to-date with new eating habits especially as changes take time - Implementation in the food away from home sector	- Monitoring of the label by public entities - Development of the use of the label by food chain stakeholders and push towards reformulation to achieve a better score - Reaching consumers: necessity of awareness campaign as well as a critical mass of products presenting the label - Varying demand to evolve the label to take into account other components (additives) - Implementation in the food away from home sector

Note: https://www.minsal.cl/reglamento-de-la-ley-de-etiquetado-de-alimentos-introduccion/
Source: OECD consultation on simplified food labelling initiatives undertaken in 2018.

Behavioural nudges to influence consumer food choices

Thaler and Sunstein (2008[52]) define a nudge as "any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates".

The OECD behavioural insights team has reviewed how nudges are used across different policy areas (OECD, 2017[53]). In one project, the Danish Agriculture and Food Council sought to test whether consumers could be nudged towards buying healthier products. In the experiment, pre-cut vegetables were placed closer to a meal option (minced meat for Bolognese) in supermarkets. This experiment was implemented in several supermarkets and resulted in a significant increase in the sales of both pre-cut vegetables (+60%) and minced meat (+30%). The experiment had an effect on two types of shoppers: those who had already decided to buy the minced meat (and added a healthy component to their meal), and also those who had not decided but opted for the combination of both products.

Behavioural nudges are a promising option for encouraging healthier food choices. The United States Department of Agriculture is working on new types of approaches based on behavioural economics to help consumers make healthy choices, with a particular focus on low income households (Mancino, Guthrie and Just, 2018[54]). USDA has found that households participating in the Supplemental Nutrition Assistance Program (SNAP) tend to acquire most of their calories from retail outlets (Guthrie, Lin and Smith, 2016[55]). This, coupled with the fact that grocery shopping food nutritional quality is generally better than the nutritional quality of food consumed away from home (Guthrie, 2012[25]), means that USDA looks at ways to encourage healthier purchases directly in retail stores. The main objective was to encourage consumers to reassess existing unhealthy preferences at point-of-purchase.

In-store experiments have been undertaken as part of a cooperative agreement between the Economic Research Service of USDA and New Mexico State University. In particular, one experiment consisted of placing fruits and vegetables near checkout lanes with cashiers asking whether shoppers were interested in those products while checking out. The result of the experiment was that the sales of fruits and vegetables increased significantly among all shoppers, including those that used SNAP benefits (Payne and Niculescu, 2018[56]).

It appears from those studies that nudge strategies towards healthier food choices have the potential to help consumers achieve a more balanced diet and also to generate additional sales, despite potential reorganisation costs. Indeed, successful nudge measures need to be acceptable to food chain stakeholders and to consumers. The main challenge is in scaling up these types of approaches and allowing for replicability as well as longer term assessments.

Food taxes

Faced with an urgent public health problem, several governments have adopted or considered introducing health-related taxes on food products. As of 1 October 2018, 12 OECD countries[16] have health-related taxes in place at the central government level. Additionally, several health-related food taxes have recently been introduced at the local government level in the United States and in Spain. The taxes tend to be set on products with negative health outcomes and where consumption levels exceed by a wide margin the recommended intake. The most common product to be taxed, based on these criteria, is soft drinks[17].

[16] Belgium, Chile, Finland, Estonia, France, Hungary, Ireland, Latvia, Mexico, Norway, Portugal, United Kingdom.

[17] The connection between added sugar and obesity or other health outcomes is well established (Malik et al., 2010[65]) and (Yang et al., 2014[66]) .

A tax is a politically attractive instrument as it raises government revenue, whereas efforts to increase health awareness through information and education are likely to cost money. Some governments have earmarked the revenue from food health taxes for specific health-related purposes[18].

The effectiveness of a tax on consumer choices will depend on the extent to which it is passed on by businesses to consumers in terms of higher prices, and the responsiveness of consumers to those higher prices[19]. The latter effect will in turn depend on the availability of substitutes in consumption, and the scope that consumers may have to avoid the tax by sourcing from other markets.

A tax may also affect consumer decisions indirectly, by changing the behaviour of industry. For example, a recent survey on consumer buying behaviour by Nielsen[20] found that during the first four months of operation (from April to August 2018), the United Kingdom's sugar tax failed to create any significant change in consumer behaviour; however the tax had encouraged widespread reformulation before its implementation and the proliferation of lower sugar options[21] (Public Health England, 2017[37]).

In general terms, taxes will have some impact on quantities demanded but may also imply trade-offs with broader objectives for the food and agriculture system, including those of economic efficiency and equitable distributional consequences.

3. Reconciling improved public health with wider objectives for the food and agriculture sector

3.1. Towards efficient resource use

Ensuring that people have nutritious diets is a major priority for public policy. At the same time, there are wider objectives for the food and agriculture sector, which also include increasing overall food supply to feed a rising world population, conserving land and water resources, providing livelihoods for farmers and other agents along the food chain, and making a meaningful contribution to climate change mitigation.

Central to these other objectives is the principle of efficient resource use. With little more agricultural land available globally, and many countries and regions suffering from water scarcity, productivity growth, and hence increasing resource efficiency, will be vital to feeding a rising world population. Productivity growth also provides support to overall incomes, and implies lower emissions per unit of output.

In terms of nutrition, however, efficient resource use can be a two-edged sword. Productivity growth in agriculture has gone hand-in-hand with lower real food prices. Coupled with economic growth more generally, this has meant that consumers in most countries spend a lower share of their budgets on food than previous generations. This has been of widespread benefit in terms of making nutritious food more accessible. But, along with other aspects of economic development, it may also have played a role in provoking some of the patterns of consumption that are resulting in rising levels of overweight and obesity, and of poor nutrition more generally (including increased purchases of nutrient-poor energy-dense processed foods, and of meals away from home).

[18] The OECD Centre for Tax Policy and Administration (CTPA) has ongoing work on the design of health-related taxes on food and non-alcoholic beverages.

[19] Several studies have been undertaken to study the efficiency of sugar taxes such as (Grogger, 2017[63]) and (Fletcher, Frisvold and Tefft, 2010[64]).

[20] https://www.nielsen.com/ie/en/insights/news/2018/sugar-tax-little-impact-consumer-behaviour.html

[21] https://www.gov.uk/government/news/soft-drinks-industry-levy-comes-into-effect.

One specific claim has been that agricultural policies such as fertiliser and credit subsidies, have promoted staple crop production, and thus tended to crowd out the production of traditional non-staple crops that are important sources of critical micronutrients (Pingali, 2015[57]). A focus on food staples in mainstream research also lowered their prices relative to the prices of non-staple crops (fruits, vegetables and pulses) rich in micronutrients.

However, many OECD countries have adopted agricultural policies that have raised the prices of staples, which other things equal would lower consumption relative to that of (non-supported) fruits and vegetables. Over time, consumer prices for most of these foods have fallen nonetheless, as a result of productivity changes (Alston, Sumner and Vosti, 2006[58]). Reversing that process is likely to impose wider economic and social costs.

Given the wider benefits of efficient resource use, the potential for a downside in terms of nutrition outcomes points to the ultimate desirability of policies that do not focus on price interventions, but limit consumption for any product or specific ingredient to healthy amounts at any given price level.

There may be some helpful synergies across multiple objectives. For example, in many developed countries per capita meat consumption exceeds dietary guidelines by a considerable margin, such as those established by WHO. While the drivers for widespread dietary change are numerous and in some cases contradictory, a shift towards more plant-based diets, with lower levels of ruminant meat consumption in particular, would have the twin potential of benefiting public health while lowering GHG emissions.

3.2. Making policies work

An overarching challenge is to integrate public health into policies for the food sector and the economy more generally. A four-track approach would help to encourage healthier food choices in a way that is consistent with wider objectives for the food and agriculture sector including objectives related to environmental sustainability and to the livelihoods of agents along the food chain

The first track would be to tackle unhealthy food choices via demand side public interventions such as the provision of public information and counselling. Such instruments do not induce other distortions into the functioning of the food system. The evidence base suggests that such policies work and are cost-effective, but are unlikely to be sufficient. A particular need is to target groups with poorer diets.

A second supporting track is to work with industry at the supply-demand interface, e.g. in product reformulation or in introducing and testing labelling schemes. There is an emerging evidence base that such policies can be effective, but that specific design features are critical for their success. Simplified labelling schemes offer considerable potential, with a need for international cooperation given the global nature of the food industry. A potential avenue for public-private collaboration is through behavioural nudges. The scope for testing the effectiveness of such approaches is enhanced by digital technologies and associated possibilities to collect information on consumers' food acquisition and intake as well as on the food environment more generally.

However, private incentives are likely not to fully align with public ones. Hence, as a third track, some firmer regulations may be needed to modify processors' and retailers' behaviour. Examples of such measures could include rules on promotion, advertising confectionery to children, and on unhealthy product compositions, especially those which target babies and children.

A fourth track is fiscal measures, including consumption taxes on products that are "unhealthy" when consumed excessively. Such policies may have some effect, but are prone to slippage (e.g. with consumers sourcing from other markets) and may be regressive in terms of their higher impact and incidence on those with lower incomes.

Given alarming trends in public health, and the fact that other instruments have so far not managed to reverse those trends, policymakers are giving increased consideration to fiscal measures. One particular target has been sugar, where consumption levels often exceed by a large margin those recommended by health experts, and where current trends are pointing in the wrong direction. The announcement in the United Kingdom of a soft drinks levy resulted in several major companies reformulating their products ahead of the introduction of the tax, suggesting that the credible threat

of policy action can play an important role in prompting change as may be as important as the action itself.

Across these four different policy approaches, further research will be needed to determine which combinations of instruments are likely to be most effective. More information is needed in particular on products provided by the fast growing catering industry and on the characteristics of food consumed away from home.

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Annex A. Data systems for evidence-based food related policies

Role of the Food Chain Analysis Network

The Food Chain Analysis Network[22] (FCAN) is the expert group of the OECD Trade and Agriculture Directorate (TAD) specialised in agro-food system analysis. The FCAN explores the potential to gather and exploit data on the food system to inform multi-country dialogue and identify good policy practices.

In 2018, the OECD requested information from FCAN experts on:

- The current information base concerning the food choice environment across OECD countries and potential links to health outcomes;
- The potential to foster greater international comparability across national data systems, to unlock access to additional data and to prioritise improvements.

This section is based on information received from twenty-four FCAN experts and on follow-up discussions that took place during the October 2018 FCAN meeting. It provides an overview of the information systems that are currently used across the OECD to inform policies seeking to influence food choices and highlights some of the major challenges that need to be overcome.

Food data systems across the OECD

Across OECD countries, there is a long tradition of monitoring the evolution of food availability for domestic consumption, following average food intake in comparison to dietary guidelines, and in reporting on the evolution of households' spending on food and the nutritional composition of major food items consumed.

Given rising concerns regarding health and sustainability impacts of food consumption patterns, several governments would like to assess the effectiveness of policy instruments affecting food choices. This requires a structured data system built on different layers of information and organised around:

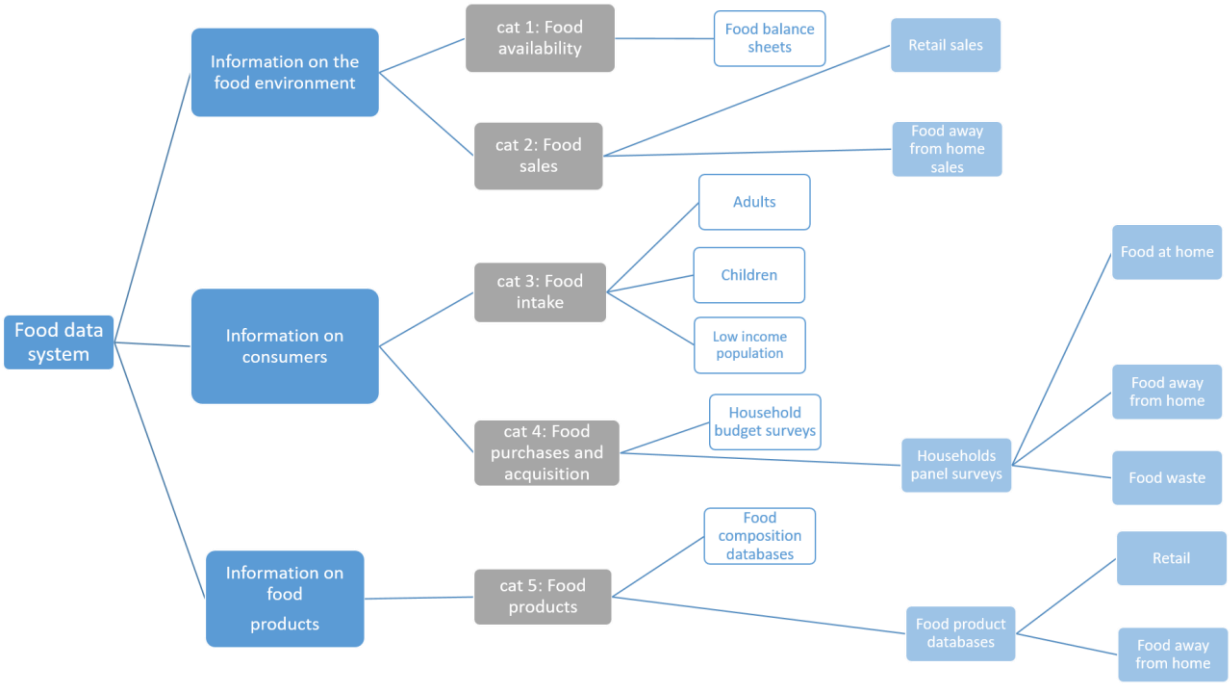
- *The food environment*: Keeping track of food products available on the market and sold by both the retail and food away from home sectors
- *Consumers' food choices*: Following households' food purchases and acquisition and linking them to individual food intake.
- *Food products information*: Monitoring the evolution of food products' ingredients or production methods, and the way in which information on these characteristics is communicated to consumers.

Figure A A.1 provides an overview of the different information sources that are part of food data systems across the OECD.

The information base across OECD countries consists of public and confidential databases. Public databases, such as food balance sheets, food intake surveys and food composition databases, appear in white boxes in Figure A A.1. They are used to provide regular indicators that are defined according to international guidelines and often have to be reported to international organisations. Food composition databases are often connected with the food categories described in food intake surveys to allow for nutrient intake reporting. Funding remains a major constraint for the update of these information sources.

[22] The FCAN website provides information on the expert group meetings: http://www.oecd.org/site/agrfcn/

Figure A A.1. Representation of the information covered by food data systems



Note:
1. Grey boxes: different categories of food data sources
2. White boxes: data sources for which information is gathered by public entities
3. Light blue boxes: data sources for which information is gathered predominantly by private entities and is confidential
Source: OECD based on FCAN and Delegations inputs.

Confidential databases contain information collected at the store, consumer or household level. This information is gathered by the food chain stakeholders or by market research companies. These data sources appear in light blue boxes in Figure A A.1.

Despite their potential to illuminate some of the policy questions regarding consumer food choices and the functioning of the food chain more generally, they are not widely used by public entities across OECD countries, primarily due to budget constraints. The primary aim of these data sources is to inform market research by the private sector. The collection, storage and analysis of such information are costly and need to take into account confidentiality issues.

Table A A.1 summarises the main purposes, characteristics and availability across the OECD of the different sources of information in the countries for which contributions were received.[23] Annex A provides their names and website links. Information sources have been classified in five categories (appearing in grey in Figure A A.1): food availability, food intake, food purchases and acquisition, food sales and food product information. In addition, some other data sources such as censuses, education surveys, time use and health surveys, sectoral reviews or tax information are sometimes linked to the food data infrastructure.

[23] All contributions from FCAN experts are accessible on the FCAN webpage: http://www.oecd.org/site/agrfcn/meetings/improvingthefoodinformationbasetoanalysehealth-relatedfoodpolicies-15-16october2018.htm

Table A A.1. Food information sources

Classification	Objectives	Information source	Main characteristics	Availability across the OECD
Category 1 Food availability	Monitoring the evolution of food availability	**Food Balance Sheets**	- A major comparable economic indicator for the agro-food sector (food production, availability and trade) - Commitment to provide the information to the FAO - Long tradition, since 1950s **- Limitations: highly aggregated sources of information, at the agricultural commodity level**	- Widely available - Published on an annual basis by the statistical agencies or by the agriculture ministries
Category 2 Food intake	Assessment of food intake	**Food intake surveys**	- Often associated with health surveys to link food intake with health outcomes and dietary guidelines - Harmonization of methods due to EFSA guidelines, commitment and funding **- Limitations: under-reporting, low response rate on the population sample**	- Undertaken in most OECD countries **- Often irregular frequency due to lack of funding** - Sometimes surveys on specific groups: children, babies, low income population
Category 3 Food purchases and acquisition	Monitoring of households' spending on food	**Household budget surveys**	- Used for CPI calculations - International guidelines **- Limitations: data at household level and limited product disaggregation**	- All countries undertake households' budget surveys - Regular basis (often annually)
	Monitoring of all food purchases of households	**Households panels**	- Scanner data at the households level - Information used for market research purposes by the private sector - Used by the public sector usually on a project basis - Data on out-of-home consumption is not always captured **- Limitations : access costs, confidentiality and quantity of data to analyse**	- This type of data is gathered mostly by **private companies** such as Kantar, GFK, Nielsen - Used by public entities in the United States, United Kingdom, the Netherlands, Korea, Italy and France **- In the United States, FoodAPS (National Household Food Acquisition and Purchase Survey) run by USDA**
Category 4 Food sales	Monitoring of sales of food products at the retail level	**Food sales databases**	- Measure of the economic performance of the processing and retail sectors - Measure of price changes and food choices, including nutrient quality **- Limitations: cost and confidentiality issues**	- Not public, **owned by the private sector** - Expensive source of information: **not widely used by public entities**
Category 5 Food product information	Monitoring the nutritional composition of food	**Food composition databases**	- Provides the nutrient composition of dishes based on their ingredients **- Limitations: cost of undertaking the lab test, may not reflect actual packaged food product composition**	- Collected in most countries **- Partial update on an annual basis or less frequently**
	Monitoring packaged food products	**Food products databases**	- Tracks information on food products - Uses the UPC codes **- Limitations: difficulty to cope with changing food products**	- Developed either by private companies, the civil society and the public sector - **When administered by the private sector: cost is an issue**, otherwise accuracy might be an issue

Source: OECD based on FCAN and Delegations inputs.

Main challenges

Obtaining information on food habits

While food intake surveys are undertaken all across the OECD with standardised methodology, they suffer from some limitations, in particular the fact that people tend to underreport the consumption of food that appears to be less healthy.

To counterbalance this, increasing scrutiny has been given by public authorities and researchers to food acquisitions data. However, only six countries[24] reported using food purchasing data to inform their food-related policy. In most cases, access to the data is bought for a given research project and not systematically at the government level, as the costs are high.

The United States decided to build a new survey FoodAPS to report on food purchases and acquisition habits by US consumers. This survey collects information on food acquisitions at the household level. It has been designed to be easily connected with other databases, in particular States' administrative databases on participants to the SNAP. The new waves of the survey will use digital technologies and in particular mobile phones app to ease the burden of data collection (more detailed information on FoodAPS in Box A.1).

Box A.1. Towards new sources of information and new methods of data collection: The example of the United States

The most advanced food data system is available in the United States. It is in constant evolution to adapt to changes in the food system, policy environment, and new sources of data and data collection methods as they become available. The US data system includes traditional information sources on:

- *Food availability*: The FoodAvailability (Per Capita) Data System, which provides time series for the availability of over 200 commodities;
- *Food intake*: The National Health and Nutrition Examination Survey, which was established in the early 1960s to monitor nutrition;
- *Food expenditure*: The Consumer Expenditure Survey, a survey of 7 500 nationally representative households undertaken by the Bureau of Labor Statistics;
- *Food composition*: The food composition database, which has been compiled since 1892 to provide nutrient information for food items.

The US food data system also includes proprietary data in the form of retail sales data and household scanner data that are collected by private vendors (IRI and Nielsen) for market research purposes. The Economic Research Service (ERS) of the United States Department of Agriculture (USDA) buys a license for the perpetual use of proprietary data. The data are used for research projects on food systems, food assistance, healthfulness of diets, and regulations. Researchers may obtain access to the data through grants and third party agreement with the vendor.

USDA also developed its own survey, the National Household Food Acquisition and Purchase Survey (FoodAPS). The first wave of FoodAPS was conducted in 2012 and 2013 and released in 2016. The aim was to provide new insights on the sources and healthiness of food acquisition for different segment of the US population. The survey measured household purchases (at home and away from home) and other food acquisitions (including food acquired for free) over a seven-day period for a panel of about 5 000 representative households with oversampled households those participating in the Supplemental Nutrition Assistance Program (SNAP) or identified as low-income.

To enable deeper analysis, FoodAPS has been complemented by different external sources of information. Proprietary data are used to provide information on the food environment of households, including the prices and the availability of food products and the distance to different food stores in the area. Public administrative data are used to provide information on household characteristics such as SNAP participation, while the Food Composition Database provides information on the nutrients contained in the acquired products.

[24] The United States, United Kingdom, the Netherlands, Korea, Italy and France.

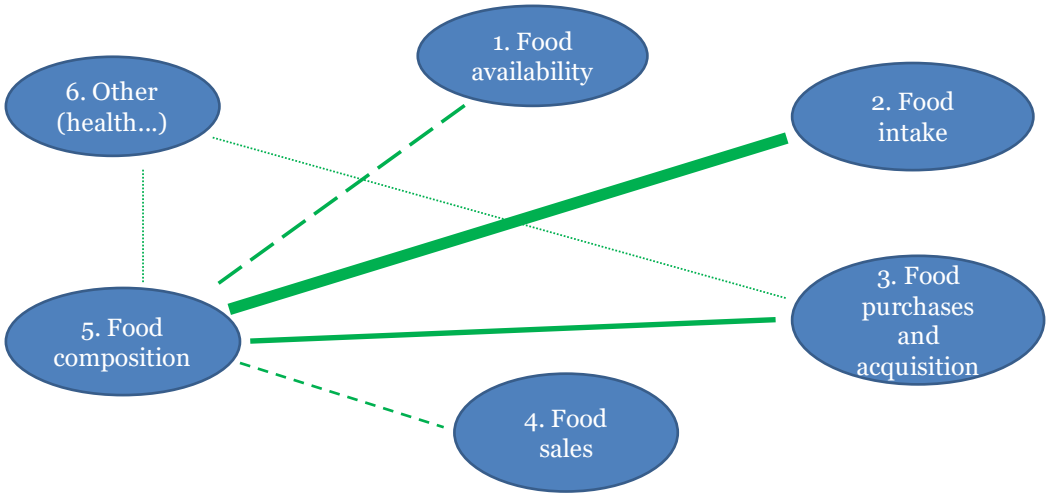
In terms of method, the FoodAPS survey was undertaken as a paper and pencil survey in 2012-2013, using web-based online data collection in 2015 and should be undertaken via a mobile app with interactive data collection in its next wave. Research and pilot tests are currently undertaken in collaboration with the University of Michigan. The underlying idea is to reduce the response burden for households and to improve data quality. This should be made possible via a process of automatic data extraction from food receipts; which would allow a substantial reduction in manual data entry. Such an automatic extraction requires that receipts are standardised and that they comprise Universal Product Codes (UPC) to link them directly to food composition databases.

Connections between data sources

Figure A A.2 illustrates the connections between the different information sources on the food system that were reported to the Secretariat. The difficulty in establishing connections is due to differing food product classifications in the different databases as well as to differing levels of focus: food purchases are reported at the household level while food intake needs to be monitored at the individual level.

Financial costs were cited as a major impediment to the establishment of connections across databases. In addition, the FCAN discussion seemed to indicate that guidelines to connect newer types of databases in the food data system are missing.

Figure A A.2. Representation of the information covered by food data systems



Note: The thickness of the connection bar provides an idea of the prevalence of this connection between data sources across OECD countries
Source: OECD Secretariat based on FCAN and delegations inputs.

Consumers nowadays tend to cook less and buy more convenience food products. The private sector, with the example of Mintel[25] and its Global New Product Database, is capable of keeping track of information on key new packaged food products across the globe.[26] Some governmental entities are seeking to store information on the evolution of the composition of packaged food products. This is the case in the United States with the Branded Food Products Database[27] and in

[25] http://fr.mintel.com/gnpd-global-new-products-database.

[26] Mintel says that it monitors packaged goods in 62 countries and adds more than 30 000 products every month. https://www.gnpd.com/.

[27] https://data.nal.usda.gov/dataset/usda-branded-food-products-database.

France with Oqali[28]. These databases trace the composition of food products and use Universal Product Code (UPC) to identify them. This type of database could be expanded to also collect information on the origin and production methods of food products, and thereby extend the information base on the wider food environment.

Way forward

Further discussion on the three issues described below would be helpful to strengthen food data systems. The FCAN could be an appropriate body to provide recommendations on how to move forward on these topics.

- Options for *national and international purchasing negotiations with major proprietary data companies* with the aim of developing a better understanding of consumer food decisions.
- Development of *standardised food product information databases* using products' barcode information and of *standardised guidelines for the information provided on food receipts tickets* to ease the burden of collecting information on food purchases.
- Development of *new information sources tailored to government needs*; collection of information could be facilitated by digital technologies and in particular mobile apps.

[28] https://www.oqali.fr/Base-de-donnees-Oqali.

Annex B. Overview of the Food Data Systems across the OECD

Table A B.1. Category 1: Food availability

	Name of the database	Link
Canada	Food Availability Data Series	http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3475&lang=en&db=imdb&adm=8&dis=2
Czech Republic	Food consumption publication	https://www.czso.cz/csu/czso/spotreba-potravin-2016
Denmark	Danish National Food Institute	http://www.food.dtu.dk/english/publications
Finland	Balance Sheet for Food Commodities	http://stat.luke.fi/en/balance%20sheet%20for%20food%20commodities
Israel	Food Balance Surveys Data	http://www.cbs.gov.il/ts/IDdb3ab71e251056/databank/building_func_e.html?level_1=12
Italy	Food Balance Sheets Agriculture, Food industry	https://www.istat.it/en/national-accounts https://www.istat.it/en/agriculture https://www.istat.it/en/enterprises
Korea	Food Balance Sheet	http://krei.re.kr/krei/researchReportView.do?key=67&pageType=010101&biblioId=511039
Latvia	Food Balance Sheet	https://www.csb.gov.lv/en/statistics/statistics-by-theme/agriculture
Netherlands	Supply balance sheets	https://agrofoodportal.com/
Norway	Food supply statistics (Food Balance Sheets)	https://helsedirektoratet.no/publikasjoner/utviklingen-i-norsk-kosthold
Portugal	Portuguese Food Balance Sheet (BAP)	https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=289818234&PUBLICACOESmodo=2
Switzerland	Agristat	https://www.sbv-usp.ch/fr/statistique/statistiques/alimentation/
Turkey	Crop production statistics, Animal production statistics, Red meat production statistics	http://www.turkstat.gov.tr/PreTablo.do?alt_id=1001 http://www.tuik.gov.tr/PreTablo.do?alt_id=1002 https://biruni.tuik.gov.tr/medas/?kn=79&locale=en
United States	Food Availability Data System	https://www.ers.usda.gov/data-products/food-availability-per-capita-data-system/

Source: OECD based on FCAN and delegations inputs.

Table A B.2. Category 2: Food intake

	Name of the database	Link
Australia	2011-12 National Nutrition and Physical Activity Survey 2012-13 Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey 1995 National Nutrition Survey	http://www.abs.gov.au/ausstats/
Austria	Austrian Nutrition Report 2017	https://www.youtube.com/channel/UCfmfU6V9ZO-2h3BDYnsH2uw?view_as=subscriber
Canada	Canadian Community Health Survey	http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=259374
Czech Republic	Czech national food consumption survey SISP04,	https://www.efsa.europa.eu/en/food-consumption/comprehensive-database
Denmark	The Danish National Survey of diet and Physical Activity	http://www.food.dtu.dk/english/publications
Estonia	Estonian National Dietary Survey 2014	http://pxweb.tai.ee/PXWeb2015/pxweb/en/05Uuringud
Finland	FinDiet Survey data FinHealth FFQ data	https://thl.fi/fi/web/thlfi-en/research-and-expertwork/population-studies/national-finhealth-study https://thl.fi/fi/web/thlfi-en/research-and-expertwork/population-studies/national-finhealth-study
France	INCA	https://www.anses.fr/en/content/inca-studies
Ireland	Irish National Adults Nutrition Survey (NANS) Irish National Pre-school Nutrition Survey National Children's Food Survey	www.iuna.net
Israel	National Health and Nutrition Surveys	https://www.health.gov.il/UnitsOffice/ICDC/mabat/Pages/default.aspx
Italy	IV SCAI (Fourth Nationwide Study on Food Consumption in Italy)	
Korea	Korea National Health and Nutrition Examination Survey	https://knhanes.cdc.go.kr/knhanes/main.do
Latvia	European Health Interview Survey (EHIS) Health Behaviour Among Latvian Adult (15-64) Population Health Behaviour In School-Aged Children (Hbsc) Study	https://www.spkc.gov.lv/en/research-and-publications?glo_template=text https://www.spkc.gov.lv/en/research-and-publications?glo_template=text
Netherlands	Dutch National Food Consumption Survey	https://www.rivm.nl/en/Topics/D/Dutch_National_Food_Consumption_Survey
New Zealand	Adult Nutrition Survey National Children's Nutrition Survey	http://www.moh.govt.nz/NoteBook/nbbooks.nsf/0/658D849A2BAC7421CC256DD9006CC7EC/$file/nzfoodnzchildren.pdf http://www.moh.govt.nz/NoteBook/nbbooks.nsf/0/658D849A2BAC7421CC256DD9006CC7EC/$file/nzfoodnzchildren.pdf
Norway	Norkost 3: men and women, 2010-11 Ungkost 3: children and adolescents, 2015-16 Spedkost 3: infants(ongoing data collection)	https://helsedirektoratet.no/publikasjoner/norkost-3-en-landsomfattende-kostholdsundersokelse-blant-menn-og-kvinner-i-norge-i-alderen-1870-ar-201011 https://www.fhi.no/studier/nasjonale-kostholdsundersokelser/ https://www.med.uio.no/imb/forskning/prosjekter/spedkost/
United Kingdom	UK National Diet and Nutrition Survey (NDNS) Active Lives	https://www.gov.uk/government/statistics/ndns-results-from-years-7-and-8-combined, https://discover.ukdataservice.ac.uk/catalogue/?sn=6533 https://fingertips.phe.org.uk/search/fruit#page/3/gid/1/pat/15/par/E92000001/ati/6/are/E12000004/iid/93077/age/164/sex/4
United States	NHANES (USDA/HHS)	https://www.cdc.gov/nchs/nhanes/index.htm

Source: OECD based on FCAN and delegations inputs.

Table A B.3. Category 3: Food Purchases and acquisitions

	Name of the database	Link
Australia	Household Expenditure Survey (HES)	http://www.abs.gov.au/ausstats/abs@.nsf/PrimaryMainFeatures/6530.0?OpenDocument
Canada	Survey of Household Spending (SHS)	http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3508
Czech Republic	Microdata of the Household Budget Survey (HBS) GfK Czech Consumer Panel & Services	https://vdb.czso.cz/vdbvo2/faces/en/index.jsf?page=statistiky#katalog=30847 https://www.gfk.com/cz/
Denmark	GfK Consumerscan panel	https://www.gfk.com/en-dk/
Finland	Household Budget Survey	http://www.stat.fi/keruu/kul/index_en.html
France	Enquête Budget de famille Kantar World Panel	http://ec.europa.eu/eurostat/fr/web/microdata/household-budget-survey
Ireland	Household Budget Survey EU SILC (European Union Survey On Income and Living Conditions)	https://www.cso.ie/en/releasesandpublications/ep/p-hbs/hbs20152016/ https://www.cso.ie/en/statistics/socialconditions/surveyonincomeandlivingconditionssilc/
Israel	Household expenditure survey Nielsen	http://www.cbs.gov.il/reader/?MIval=cw_usr_view_SHTML&ID=404 http://www.nielsen.com/il/he.html
Italy	Household Budget Survey Surveys for food market monitoring	www.istat.it https://demo.istat.it http://www.ismeamercati.it/report-analisi-agroalimentare
Korea	Household income and expenditure survey Consumer Behavior Survey for Food (CBSF) Consumer Attitude Survey for Processed Food (CASPF)	http://kosis.kr/index/index.do http://foodsurvey.krei.re.kr/ http://www.krei.re.kr/foodinfo/sub/food_info02.html
Latvia	Household budget survey	https://www.csb.gov.lv/en/statistics/statistics-by-theme/social-conditions/household-budget/search-in-theme/167-household-consumption-trends
Netherlands	Household Budget Survey (HBS) IRI/ GfK / Nielsen	http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=84093ned&D1=1-65,67-131,133-197,199-263&D2=a&VW=T
New Zealand	Household Economic Survey AC Nielsen Homescan Panel	http://archive.stats.govt.nz/browse_for_stats/people_and_communities/Households/household-economic-survey-info-releases.aspx https://www.nielsen.com/au/en/solutions/measurement/consumer-panels.html
Norway	Household consumption surveys (1975-2009, 2012)	
Portugal	Household Consumption Survey	https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=281136861&DESTAQUESmodo=2&xlang=en
Switzerland	Household Budget Survey	https://www.bfs.admin.ch/bfs/en/home/statistics/economic-social-situation-population/surveys/hbs.html
Turkey	Household Budget Survey	https://biruni.tuik.gov.tr/yayin/views/visitorPages/yayinGoruntuleme.zul?yayin_no=409
United Kingdom	Family Food KANTAR MCA Eating Out Panel dataset	https://www.gov.uk/government/collections/family-food-statistics https://www.kantar.com/ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/709008/Sugar_reduction_progress_report.pdf
United States	Consumer Expenditure Survey (BLS) HOMESCAN Consumer Panel (Nielsen/IRI) National Household Food Acquisition and Purchase Survey (USDA)	https://www.bls.gov/cex/ https://www.ncppanel.com/ https://www.ers.usda.gov/data-products/foodaps-national-household-food-acquisition-and-purchase-survey/

Source: OECD based on FCAN and delegations inputs.

Table A B.4. Category 4: Food sales

	Name of the database	Link
Australia	Australian Supermarket Transactions data, to be published	
Canada	Retail Sales, Food Services and Drinking Places Sales,	http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=2406 http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=2419
Czech Republic	AC Nielsen,	http://www.nielsen.com/cz/cs.html
Ireland	KANTAR, Surveys of commercially available baby foods Surveys of commercially available foods for young children (Aged 1-3 years) Surveys of Breakfast Cereals and Yoghurts marketed in 2016-2017	https://www.kantar.com/
Israel	Storenext,	https://www.storenext.co.il/
Italy	Catering in Italy	https://www.fipe.it/
Korea	Production of food and food additives, Mining and manufacturing survey POS data by Nielsen Korea	https://www.mfds.go.kr/index.do?mid=1589 http://kosis.kr/index/index.do
Latvia	Trade and services	https://www.csb.gov.lv/en/statistics/statistics-by-theme/construction-industry-trade/trade
Netherlands	Scanner data	http://edepot.wur.nl/424400 http://statline.cbs.nl/StatWeb/publication/?VW=T&DM=SLNL&PA=83131ned https://www.cbs.nl/nl-nl/economie/landbouw/monitor-duurzame-agro-grondstoffen-2016
New Zealand	Nutrisales	https://diet.auckland.ac.nz/content/nutrisales
Turkey	Retail Sales Indices	http://www.tuik.gov.tr/PreTablo.do?alt_id=1098
United States	InfoScan IRI ScanTrack Services, Nielsen	https://www.iriworldwide.com/ https://www.nielsen.com/us/en.html

Source: OECD based on FCAN and delegations inputs.

Table A B.5. Category 5: Food products information

	Name of the database	Link
Australia	NUTTAB 2010 AUSNUT 2011-13 Nutrition Panel Calculator (NPC)	http://www.foodstandards.gov.au/science/monitoringnutrients/nutrientables/Pages/default.aspx http://www.foodstandards.gov.au/science/monitoringnutrients/ausnut/pages/default.aspx http://www.foodstandards.gov.au/industry/npc/Pages/default.aspx
Czech Republic	Czech Food Composition Database Gluten-free foods	https://www.nutridatabaze.cz/ http://www.potravinybezlepku.cz/
Denmark	Food composition database	https://frida.fooddata.dk/
Estonia	Evidence-based NutriData Estonian food composition database	http://tka.nutridata.ee/tka/index.action?request_locale=en
Finland	Finnish National Food Composition Database (Fineli®)	www.fineli.fi www.thl.fi
France	Oqali GNPD MINTEL Open Food Facts Ciqual	https://www.oqali.fr/oqali_eng/Management http://www.mintel.com/global-new-products-database https://fr.openfoodfacts.org/ https://ciqual.anses.fr/#
Ireland	Irish Food Composition Database for Nutrients Irish National Food Ingredient Database Composition of foods integrated dataset (CoFID) (UK)	www.iuna.net https://www.gov.uk/government/publications/composition-of-foods-integrated-dataset-cofid
Israel	Israeli Food and Nutrient Database	
Italy	Italian Food Composition Table,	http://nut.entecra.it/646/tabelle_di_composizione_degli_alimenti.html
Korea	Food Composition Tables	http://koreanfood.rda.go.kr/kfi/fct/fctIntro/list?menuId=PS03562
Netherlands	Dutch Food Composition Database (NEVO)	https://www.rivm.nl/Onderwerpen/N/Nederlands_Voedingsstoffenbestand
New Zealand	Food Composition Database Total Diet Study (NZTDS) NutriTrack	http://foodcomposition.co.nz/ https://www.mpi.govt.nz/dmsdocument/28976/loggedIn https://diet.auckland.ac.nz/content/nutrisale
Norway	The Norwegian Food Composition table	www.matvaretabellen.no
Portugal	Portuguese Food Composition Database	http://portfir.insa.pt
Switzerland	menuCH	https://www.blv.admin.ch/blv/fr/home/lebensmittel-und-ernaehrung/ernaehrung/menuch.html
Turkey	Turkish Food Composition Database	http://www.turkomp.gov.tr/main
United Kingdom	Composition of foods integrated dataset (CoFID) (UK) McCance and Widdowson's The Composition of Foods Seventh Summary Edition, (ISBN 978-1-84973-636-7 and ISBN 978-1-84973-756-2)	https://www.gov.uk/government/publications/composition-of-foods-integrated-dataset-cofid
United States	Food Composition Databases (USDA)	https://ndb.nal.usda.gov/ndb/

Source: OECD based on FCAN and delegations inputs.

Table A B.6. Other databases

	Name of the database	Link
Australia	National Health Survey (NHS) SILO	http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4364.0.55.001Main+Features12014-15?OpenDocument https://legacy.longpaddock.qld.gov.au/silo/
Canada	Canadian Health Measures Survey (CHMS)	http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=251160
Czech Republic	Food controls, Food safety and healthy eating Healthy eating and nutrition	www.potravinynapranyri.cz www.bezpecnostpotravin.cz www.viscojis.cz
Estonia	Health Behavior among Estonian Adult Population	https://intra.tai.ee//images/prints/documents/149069399613_Eesti_taiskasvanud_rahvastiku_tervisekaitumise_uuring_2016.pdf
France	Base Carbone (ADEME)	
Ireland	The Irish Longitudinal Study on Ageing (TILDA) Irish Health Survey (IHS) Growing Up in Ireland	www.tilda.ie https://www.cso.ie/en/releasesandpublications/ep/p-ihs/irishhealthsurvey2015/ https://www.growingup.ie/growing-up-in-ireland-publications-on-the-infant-cohort/ https://www.growingup.ie/growing-up-in-ireland-official-publications-from-the-child-cohort/
Israel	Central Bureau of Statistics – surveys Consumer price index (CPI)	http://www.cbs.gov.il/reader/?MIval=cw_usr_view_SHTML&ID=576 http://www.cbs.gov.il/shnaton69/st_eng13.pdf
Italy	Health-for-all (build from National Health Survey, Daily life survey, Time use survey…) Noi Italia. Well-being and sustainability	https://www.istat.it/it/archivio/14562 https://www.istat.it/en/archivio/217461 https://www.istat.it/en/well-being-and-sustainability
Korea	Survey for Dietary Life	
Netherlands	Innova Database Dutch FADN	http://www.innovadatabase.com/ www.agrofoodportal.com
New Zealand	Time Use Survey	
Norway	Norwegian Patient Registry (NPR) Norwegian Cause of Death Registry	https://helsedirektoratet.no/norsk-pasientregister-npr https://www.fhi.no/en/hn/health-registries/cause-of-death-registry/
Portugal	Portuguese National Health Survey Census - Income and living conditions in Europe Childhood Obesity Surveillance Initiative (COSI)	http://www2.insa.pt/sites/INSA/Portugues/ComInf/Noticias/Paginas/1INSEFrelatório.aspx https://www.ine.pt/xportal/ http://repositorio.insa.pt/bitstream/10400.18/4857/8/COSI%202016_V2_fev2018.pdf
Turkey	Time Use Statistics	http://www.turkstat.gov.tr/PreTablo.do?alt_id=1009
United Kingdom	Public Attitudes Tracker Food and You	https://www.food.gov.uk/about-us/biannual-public-attitudes-tracker https://www.food.gov.uk/research/food-and-you/food-and-you-wave-four
United States	American Time Use Survey National Health Interview Survey	http://www.bls.gov/tus/ http://www.cdc.gov/nhs/nchs/nhis/index.htm

Source: OECD based on FCAN and delegations inputs.