This chapter explores the impact that obesity policies can have on the food and drink industry. It presents the results of a literature review on six public health policies that directly affect the food industry: reformulation, portion size changes, food labelling, food taxes, advertising restrictions and healthy food subsidies. It considers both one-off implementation costs, as well as on-going changes in operations or sales.
Key findings

- Policies aimed at improving diets and reducing obesity can result in costs to the food and drink industry, in terms of implementation costs as well as changes in sales.
- Reformulation requires an investment in research and development (R&D) and can change the ingredient or production cost. In addition, companies may decide to invest in marketing to promote the new, healthier product.
- Portion size changes may require some R&D, as well as an investment in machinery and other production processes. Different marketing approaches have been used to avoid public upset over the smaller quantity – though it is important not to mislead consumers.
- Labelling policies, both for food products and menus, require an investment in redesign and printing. If the labels focus on healthier products, they can be used to promote sales.
- The impact of food taxes on the industry depends on the pass-through rate and the degree and type of substitution.
- Advertising restrictions can result in costs if a new marketing strategy is needed, but partial bans have generally resulted in a shift of marketing spend and sales rather than a reduction.
- A range of healthy lifestyle subsidies exist that are beneficial for the industry as they generate sales.

8.1. Introduction

8.1.1. Obesity policies can have an economic impact on the food industry

To halt the rising rates of obesity, many countries have implemented policies that aim to improve diets (OECD, 2010[1]; OECD, 2017[2]). A number of these policies, such as advertising restrictions, labelling and reformulation, carry direct implications for the food and drink industry. The food and drink industry, consisting of food manufacturers, restaurants and supermarkets and others, can be required to change their product, pricing, packaging, or marketing and advertising approach. This can result in implementation and compliance costs, or a change in the volume of sales.

Public health policies can be associated with a one-off cost for implementation, or ongoing costs as production or ingredient costs change (OECD, 2014[3]). For example, a new public health policy can result in R&D costs; redesign costs; retraining, recruitment or upskilling; downtime costs due to an interruption of operations; investment in machinery; consumer testing; changes in ingredient costs; marketing and/or distribution costs. Obesity policies may also affect sales. In particular, policies aimed at reducing the consumption of specific food products, such as taxes or advertising restrictions, may have an impact on the industry’s profitability.

On the other hand, certain policies can also have a positive impact on the industry, by bringing in new customers, opening new markets or increasing margins.

This chapter explores the impact of obesity policies on the industry. The focus is primarily on the food and drink industry, and within that, food manufacturers and vendors (see Box 8.1). It considers the impact of policies on the economy as a whole, rather than the impact on specific businesses, or parts of the industry.
Box 8.1. The food and drink industry

The food and drink industry (or food industry for short) includes farmers and other agricultural businesses, food producers, food processors, marketers, wholesale and distributors, catering (including restaurants and canteens) and retailers (WHO, 2017[4]). Within the industry, producers of processed food and drinks, and vendors of energy-dense or fast-food products, are most directly affected by obesity policies. While for any change in their operations a knock-on effect can be expected throughout the supply-chain, this is outside the scope of this paper.

Food producers

Global food supply is dominated by multinational food and beverage companies that have a large and concentrated market power (Stuckler et al., 2012[5]). These companies produce more than half of the world’s soft drinks and a third of the global market for processed foods. Processed foods are generally highly profitable, due to their low production cost, long shelf-life and high retail value (Stuckler et al., 2012[6]). While large multinationals play an important role in the global processed food supply, small and medium enterprises can have a strong impact, particularly on local markets.

Food vendors

The food vendors industry consists of a wide range of players, including supermarkets and other retailers, restaurants and bars, fast-food chains, take-away shops, and canteens at schools and workplaces. At a high level vendors can be split into food services or catering (on-trade) and retailers (off-trade).

One of the food services most often discussed in relation to the obesity problem is the fast food industry. The global fast food industry is highly concentrated, and subject to strong competition (MarketLine, 2012[7]). Price competition is common, using value meals to attract cost-conscious consumers. However, brand power is still one of the greatest forms of competition, and companies spend large amounts of money on advertising (MarketLine, 2012[7]).

In the off-trade, supermarkets account for 55% of retail food sales, with independent and specialist retailers accounting for 32% (MarketLine, 2015[8]). The supermarket industry has seen global consolidation in recent years, with supermarket chains now operating in a wide range of countries (OECD, 2013[9]). Competition in the food retail industry is strong, and pricing policies are one of the main competitive tools (MarketLine, 2015[8]).

8.2. Product reformulation and its impact on the food industry

8.2.1. Food producers can reformulate their products to improve the nutritional profile

Product reformulation is a deliberate change in the production process or ingredients that results in a different end product. Most producers reformulate their products every few years as part of their normal business, to improve quality, save on costs or respond to changes in consumer preferences (Webster and Hawkes, 2009[10]). Reformulation can also be done as a public health measure, to improve the nutritional value of the product or reduce harmful substances.

In 2018, 98% of 75 surveyed food companies reported having programmes to offer consumers healthier products, and in total they reported having reformulated 320 000 products since 2015 to support a healthier lifestyle (The Consumer Goods Forum, 2019[11]). In 2016, the most common targets for which reformulation was reported were salt or sodium (67%), sugar (61%), saturated fat (50%) and trans fat (47%) (The
Consumer Goods Forum, 2017\textsuperscript{[12]}. Other targets focused on healthy additions, including whole grains (25%) and vitamins (20%). As the topic of this report is obesity, this chapter focuses on reformulation policies that reduce the overall energy content of a product, primarily by reducing fat or sugar.

Reformulation for public health involves a change in composition of the foodstuff. However, changing the nutritional profile of a product is complex. Reformulation can be done in a number of ways (Webster and Hawkes, 2009\textsuperscript{[10]}):

- reducing the amount of the target ingredient (e.g. fat, sugar) without replacing it
- replacing the target ingredient with a substitute (e.g. artificial sweeteners)
- reducing the density of the target ingredient by adding a bulking agent such as water, air or fibre
- technological approaches to mimic the lost ingredient (e.g. microparticulation\textsuperscript{1} or enzyme inhibitors\textsuperscript{2}).

Reformulation can be either voluntary or mandated (van de Velde, van Gunst and Roodenburg, 2016\textsuperscript{[13]}). For example, in Australia the government has set up the Healthy Food Partnership, which provides a mechanism for government, the public health sector and the food industry to cooperatively tackle obesity, encourage healthy eating and empower food manufacturers to make positive changes (Department of Health, 2019\textsuperscript{[14]}). This partnership is working on developing voluntary food reformulation targets. While some countries have introduced mandatory reformulation targets on trans fat (WHO, 2018\textsuperscript{[15]}) and salt (Trieu et al., 2015\textsuperscript{[16]}), so far few examples exist of mandatory fat or sugar reduction policies.

8.2.2. Reformulation carries R&D and implementation costs, and can have an impact on sales

The reformulation of a product can affect the profits of producers in a number of ways (see Figure 8.2). There may be fixed, one-off costs associated with the development of the new product and its implementation, or changes in on-going profit due to potential lower sales or higher production costs.

To develop and launch a reformulated product, producers may need to invest in R&D, new production processes and marketing

To comply with nutrient targets, food companies may need to invest in research to develop the healthier product that is acceptable to consumers. This process is complicated by the many functions that any one ingredient can have. R&D for reformulation needs to go through a number of steps: idea generation; product development; product evaluation; consumer testing; and shelf-life studies (White et al., 2002\textsuperscript{[17]}). Trial and error may increase the number of R&D cycles needed.

Once the reformulated product has been developed, the changes need to be implemented. Food producers may face a number of one-off costs associated with the implementation of the new product, which could include downtime costs due to an interruption of processes while production is switched to the new approach; retraining staff; procurement of different materials or ingredients; capital investment in new machinery and other production tools; and marketing of the new product.

The UK Food Standards Agency estimates that the R&D cost for reformulation, which includes kitchen samples, a factory run, consumer panels, nutritional analysis, relabelling, shelf-life evaluation and repackaging design, can vary from GBP 5 000 to GBP 450 000 per product (ca. USD 6 500 to USD 590 000) (Food Standards Agency, 2010\textsuperscript{[19]}). They estimated the cost of factory and transport retooling in response to a reformulated product to range from GBP 8 000 (USD 10 500) to well over GBP 100 000 (USD 130 000) (Food Standards Agency, 2010\textsuperscript{[19]}).

The cost of each step in R&D is influenced by the degree of change. Some nutrients may have replacements that are widely used and will need little additional research; some products may not taste
any different and will need less consumer testing; and there may be no need for a change in the production process. One study estimates that for minor, non-critical ingredients the R&D costs are between USD 9 000 and USD 82 000; while for major ingredients costs are between USD 89 000 and USD 660 000 (White et al., 2002[17]).

It is important to note that these costs refer to the reformulation of existing products. Policies to improve the nutritional composition of food products would also apply to new products, which require an investment in R&D either way.

*Reformulation can result in a reduction or an increase in sales*

Reformulation can affect sales negatively or positively. Reformulation could lead to a reduction in sales if the product is of a lower quality, or if the reformulation has a negative image.

A reformulation resulting in a reduced fat or sugar level may negatively affect the taste of a product. This can be due to a genuine dislike of the reformulated product, or because consumers have become accustomed to high salt or sugar levels. In addition, these nutrients can also contribute to the product’s texture and mouthfeel, colour and size, firmness or softness (Buttriss, 2013[19]).

Reformulation can also change consumers’ perception of a product. Reformulation to make a product healthier could improve the image of the product and make it more attractive to customers (see Box 8.2). However, the ingredients used in the reformulated product could also negatively affect its image, for example if their safety is questioned or if they are perceived as “unnatural” (WHO, 2017[4]). A global consumer survey found that 42% of respondents found “no artificial colours” a very important attribute when making purchasing decisions, and 41% artificial sweeteners (Nielsen, 2015[20]).

**Box 8.2. Increasing sales through reformulation**

There is a growing market for healthier food products. A global consumer survey found that half of all respondents were trying to lose weight, and three-quarters of them attempted to do so by changing their diet (Nielsen, 2015[20]). A survey in the United States found that more than a third of respondents followed a specific diet (IFIC, 2018[21]). Nearly half did so in order to lose weight; other common goals were feeling better and protecting long-term health.

To achieve this, consumers are looking for healthier food products: 32% of global consumers said that “low in sugar” was a very important attribute when making purchasing decisions, 30% said the same for “low in fat”, and 27% for “low in calories” (Nielsen, 2015[20]).

This presents an opportunity for the food industry. Many large food companies have already started to capitalise on this, by expanding their portfolio with products that are lower in sugar or fat, fruit and vegetable based products, and products higher in fibre (PepsiCo[22]) (Nestlé[23]) (Mars Inc[24]). Similarly, fast-food restaurants are changing their menus to offer lower-calorie options and salads (Business Insider, 2017[25]).

Producers may decide not to communicate the change explicitly to the public, taking a “stealth” approach (Webster and Hawkes, 2009[10]). This approach can be used in cases where there are prejudices about the taste or quality of “low in” products. The stealth approach can be used to avoid reductions in sales. A study of a Danish supermarket chain showed that stealth reformulations across a range of products reduced the total calories sold, while having either positive, zero or very moderate negative effects on sales (Jensen and Sommer, 2017[26]). On the other hand, if the change is perceived as positive by the public because of the health benefits, marketing can be used to emphasise the new, healthier product.
Reformulation may result in higher or lower production cost for producers

Depending on the change in product, food producers may face higher (or lower) ingredient costs (Buttriss, 2013[19]). For example, engineered salt-replacement products can carry higher cost than traditional salt (Wilson, Komitopoulou and Incles, 2012[27]). However, artificial sweeteners may be cheaper to use than sugar because of the low volume needed to reach the same level of sweetness (Tandel, 2011[28]; Piisola, 2014[29]). In 2012, aspartame, saccharin and cyclamates cost USD 14.8, USD 5.3 and USD 1.9 per kilogramme, compared to sugar which traded at USD 0.58 per kilogramme (LMC International, 2012[30]). However, on a sweetness-equivalent basis, the price for the artificial sweeteners was only ca. 12%, 3% and 10% of the white sugar price, respectively.

In addition to ingredient cost, the different characteristics of the reformulated product may carry higher, or lower, transport, storage or packaging costs (Buttriss, 2013[19]). Sugar and fat can both affect the shelf-life of a product. Shelf-life can be defined as the time between production or distribution, and the moment when the product becomes unacceptable for sale or consumption (Man and Jones, 2000[31]). A reduced shelf-life will impact the profitability and efficiency of the company. Products with a shorter shelf-life are more difficult to transport long distances, carry more re-stocking costs, are subject to more wastage, and may be less attractive to consumers.

While this chapter focuses on food producers and vendors, a reduction in certain ingredients will also have an impact on the suppliers of these ingredients. Box 8.3 presents the results of an OECD study of the impact of reduced sugar consumption on the world sugar market.

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**Box 8.3. The impact of reduced sugar intake on the world sugar market**

The World Health Organization (WHO) recommends that the intake of free sugars (monosaccharides and disaccharides added to foods and beverages, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates) be reduced to less than 10% of total energy intake, and suggests that a further reduction to 5% would provide additional health benefits (WHO, 2015[32]). The OECD analysed the impact of adhering to these guidelines on agricultural markets, using the Aglink-Cosimo modelling framework, developed by the OECD and the FAO (OECD/FAO, 2016[33]).

The scenario assessed the effect of limiting calorie intake from sugars to 10% of total calorie intake, by reducing per capita demand over a five-year period. By 2025, sugar consumption would be at 74 g per capita per day on average across countries in the baseline, compared to 66 g per capita per day in the 10% scenario. However, the degree of reduction varies by region. Developed countries, where baseline consumption is above the 10% target in most countries, would experience the largest reduction in daily sugar calorie intake. Countries that are already below the 10% threshold were mostly in Asia (India, Indonesia, China) and Sub-Saharan Africa.

Meeting the 10% target would reduce the worldwide demand for sugar, thus reducing the world sugar price. The country-specific impact of these effects vary considerably – depending on whether the country is a net exporter or importer, production efficiency, and the level of sugar currently consumed (see Figure 8.1).
On the export side, countries like Brazil and Australia, where high prices are needed to sustain production, will lose export market share. On the other hand, countries like Thailand and Argentina, where production is efficient, would benefit from lower prices and see an increase in exports. On the import side, countries where sugar consumption currently exceeds the 10% target would see a reduction in imports. Other countries, such as China and Indonesia, will see a slight increase in sugar imports as a result of the decrease in sugar prices.

8.2.3. The impact of reformulation on the industry is modulated by a number of factors

The impact of reformulation on the industry is dependent on a large range of factors. Some of these factors can be influenced by policy makers, to facilitate reformulation and disburden producers.

- **Type of ingredient**: Almost all costs for industry are in some way dependent on which ingredient and products are the target of a reformulation policy. In terms of R&D and implementation, there is great variation in the complexity of replacing or reducing ingredients. While in some cases only taste is affected, in other food products the same ingredients may have more complex functions. Baked goods such as bread, cakes and cookies rely on sugar and fat for their structure, volume, mouthfeel and texture. In addition, many substitutes or additives bring their own issues.

- **Type of product**: The target product also determines how easily changes can be made. In different products, the same nutrient can be a non-critical minor ingredient, a critical minor ingredient with functional effects, a critical minor ingredient with safety effects, or a major ingredient (White et al., 2002[17]).

- **Voluntary vs. mandatory policies**: The impact of a reformulation policy on the industry depends on whether participation is voluntary or mandatory. Mandatory reformulation schemes have the benefit of creating a level playing field for food producers (WHO, 2017[4]). In addition, it has been...
argued that a legislated approach is more cost-effective than a voluntary approach, and to have a larger impact on public health (National Heart Foundation of Australia, 2012[34]). However, voluntary programmes are beneficial to producers as they allow the creation of line extensions rather than replacing the product completely. Many of the existing voluntary programmes are public-private partnerships. Benefits of public-private partnerships include increased commitment of producers, expertise on reformulation, and greater financial resources (Hernandez-Aguado and Zaragoza, 2016[35]). However, disadvantages include the inherent conflicts of interests, and the risk of conferring the legitimacy of the government on the industry and their actions.

- **The length of the transition period**: The timing of a new policy, and any leniency or grace period, can have an influence on the cost of implementation for producers. If new standards are introduced in the short term, producers may see increased transition cost due to long-term contracts with suppliers, left-over stock and greater interruption to production (White et al., 2002[17]). A longer time scale may allow producers to plan their switch to the new production process more carefully to minimise transition costs. In addition, it could increase the chances of the public health reformulation being included in a standard planned reformulation cycle, further reducing cost (Food Standards Agency, 2010[18]). It has been estimated that a 12-month lead time would allow 5% of producers to coordinate reformulation with the usual cycle, at 24 months this would be 20%, at 36 months 30% and at 48 months 40% (White et al., 2002[17]). A longer transition period may also allow producers to make incremental changes to a product, to make the change in flavour more acceptable to consumers. For example, when done gradually, it is possible to reduce salt levels by 5-15% without the change being noticeable (Cappuccio et al., 2011[36]). However, a longer transition period needs to be justified against the delay in public health benefits.

- **Public health campaigns**: When reformulating a specific product or nutrient, a corresponding public health campaign focused on increasing consumer awareness of this nutrient can positively impact public health as well as the cost to industry. A consumer awareness campaign can encourage consumers to buy the reformulated products, thus increasing the consumption of healthier products, and reducing the impact of reformulation on sales (National Heart Foundation of Australia, 2012[34]). For the UK Salt Reduction Campaign, the government committed to running a high profile campaign on salt and its impact on health, in return for voluntary commitments from industry to reducing salt levels (Charlton, Webster and Kowal, 2014[37]). While initially manufacturers took a silent approach to their salt reduction efforts, once the campaign started to change public perception they started actively marketing their reduced salt levels.
8.3. Portion size changes and their impact on the food industry

8.3.1. Portion size restrictions aim to reduce the volume of energy-dense products consumed

Many portion sizes have increased in recent years (Benton, 2015[38]). Studies from the Netherlands, Denmark and the United Kingdom show that individual portion sizes have increased, as well as the availability of multipacks and larger portion options (see Box 8.4) (Matthiessen et al., 2003[39]) (Steenhuis, Leeuwis and Vermeer, 2010[40]) (Wrieden, Gregor and Barton, 2008[41]). The same applies for sugar-sweetened beverages, with bottles intended for individual consumption now three times the size compared to when they were first produced (Pomeranz and Brownell, 2014[42]).

Larger portions are associated with an increased consumption: when presented with larger portions, people have a tendency to consume more (Benton, 2015[38]) (Marteau et al., 2019[43]). One reason for this is “unit bias”, which means that the portion or quantity provided is automatically perceived to be the appropriate amount to eat (Benton, 2015[38]). For example, a study showed that when snacks were offered as halves, in smaller packaging or with smaller serving spoons, significantly less was consumed (Geier, Rozin and Doros, 2006[44]). For the United Kingdom, larger portion sizes have been estimated to contribute
to a 12-16% increase in consumption (Hollands et al., 2015[49]). A meta-analysis found that for a doubling of portion size, consumption increases by 35% on average (Zlatevska, Dubelaar and Holden, 2014[48]). Smaller portion sizes can be used as a public health tool to reduce consumption of energy-dense foods. This can be done by providing food in single servings, banning large servings, marketing of the desired portion size or designing products to clearly delineate a portion (Marteau et al., 2015[43]). A number of countries have implemented or are considering policies that reduce portion sizes, which can have an impact on the industry (see Figure 8.3).

Box 8.4. The origins of super-sizing

“Super-sizing” – where larger portions of food or drinks can be chosen at a small incremental cost – is thought to have started in 1967, by a movie theatre manager looking to increase popcorn sales (The Independent, 2012[47]; The New York Times, 2007[48]). While consumers were unlikely to buy multiple cartons of popcorn, they could be tempted to by a larger carton – for which a higher price could be charged.

Super-sizing is highly profitable (Dobson and Gerstner, 2010[49]). In the catering industry, fixed costs dominate variable costs, making the incremental costs of upsizing relatively small. This creates the perception of value for money for consumers. By offering two sizes, the vendor is able to meet the demand from both the “disciplined” consumer, who sticks to the normal size, and the “tempted” consumer willing to increase consumption.

Super-sizing can have a negative impact on overweight. In addition to increasing overall consumption, super-sizing is thought to encourage overeating specifically, as it makes consumption incrementally more affordable (Dobson and Gerstner, 2010[49]). It has been estimated that, on average, super-sizing increases the energy content of already calorific meals by 73%, for only a 17% price increase (Close and Schoeller, 2006[50]).

8.3.2. Creating smaller portion sizes carries implementation costs, but the right marketing approach can benefit sales

Some R&D and implementation costs may be associated with portion size changes

For both food producers and vendors, a change in portion size can carry implementation costs if the smaller size is new to the product line. For food producers, the new product size may require changes to machinery and other production processes, which requires a one-off investment in capital, as well as the cost associated with downtime and implementation. While the R&D required is likely more limited than for nutritional reformulation, some investment may be needed for redesigning packaging and consumer testing. Food vendors will face similar costs if they introduce a new, smaller portion size, mainly around designing and implementing new food containers, signage and menus. In addition, in places where food is portioned by staff, training may be required.

The impact on sales for producers partially depends on the perception of value for money

Portion size changes may have an impact on sales. Producers who charge the same price for the smaller product risk angering the public who receive less worth for their money, which in turn may reduce sales. In a survey, 35% of UK consumers said they would stop buying a product if the size was reduced by just 10% (YouGov, 2017[81]). Nevertheless, this intention may not translate into actual reductions in sales.
Producers can decide to reduce their price in accordance with the smaller volume. However, the scope for price reductions may be minimal. The “cost of goods sold” does not decrease in a linear manner in relation to the size of the product, as labour, production and distribution costs will be little affected (Riis, 2014[52]). In addition, some other costs such as marketing, selling and administrative costs will not be affected by the smaller portion size at all.

As with product reformulation, producers have the option to market the new, resized product as a healthier choice, or to take a stealth approach. However, contrary to changes in ingredients, changes to portion size are visible to consumers. To counter this, there are methods that have been used to create the perception of a “sufficient” portion.

Changing the shape of the packaging can make portion size changes less noticeable for consumers. If a package is reduced in only one dimension, consumers are more likely to notice the change in volume than when it is changed in multiple dimensions (Chandon and Ordabayeva, 2009[53]). Serving products in elongated packages has therefore been used to give the perception of a large portion (Riis, 2014[52]) (Chandon and Ordabayeva, 2009[53]).

It is important to note that these practices should focus on creating the perception of large portions to increase satiety for the benefit of consumers, rather than deceiving them. So called “shrinkflation”, where products are made slightly smaller but sold at the same price to save cost, can be negatively received by consumers (Business Insider, 2016[54]; Office for National Statistics, 2017[55]).

The alternative to the stealth approach is to market the new smaller portions as the healthier choice, based on their calorie content or as a tool for portion control. A global consumer survey showed that 41% of respondents try to lose weight by reducing portion size, while 27% said portion control is very important to their purchasing decisions (Nielsen, 2015[59]). In the recent years, some leading soft-drink producers have introduced “slimline” cans, which contain less volume than regular cans (250 ml versus 330 ml), to respond to a demand for lower calorie portions (Coca-Cola, 2013[56]).

However, when promoting the smaller portion, producers need to ensure claims are not potentially misleading, and adhere to regulation. For example, in the EU28, comparative health claims are only allowed when based on similar quantities of product (EUR-Lex[57]).

Marketing based on behavioural economics can help avoid a loss in sales for food vendors

Restrictions on portion sizes may negatively impact sales for food vendors. Especially for restaurants and other catering businesses that rely on a value-for-money offering, portion size restrictions may make it more difficult to compete with home-cooked meals (Riis, 2014[52]).

There are different ways in which food vendors can encourage the sales of smaller portions to reduce the loss in turnover. Principles from behavioural economics can be applied to nudge consumers to choose the smaller portions (OECD, 2017[58]):

- **Change the default to a smaller portion**: Making the default option smaller can be a strong nudge, as people often accept whatever the default setting is, even if it has significant consequences (Cabinet Office and Institute for Government, 2010[59]). This theory led to the serving of apples instead of French fries as the default in all children’s meals in a restaurant chain (Riis, 2014[52]; Peters et al., 2016[60]). It was reported that 48% of families accepted the default option rather than requesting the alternative (Peters et al., 2016[60]).

- **Change the names of portion sizes**: The labelling of different portion sizes can create a normative effect, where a consumer perceives the label “regular” as informative of a hypothetical normal amount (Aydınoglu and Krishna, 2011[61]). Moreover, it can make a “double” seem like double the value (at a fraction of the price). Instead, smaller portions could be labelled “right-sized” (Riis, 2014[52]; The New York Times, 2007[48]).
• **Prompt consumers to downsize rather than supersize**: Many behavioural interventions provide people with a prompt to make choices that are in line with their underlying motivations (Behavioural Insights Team, 2010[62]). Since many consumers will be aware of the impact of energy-dense food and their tendency to overeat, asking them at the point of sale whether they want to downsize can help activate self-control and facilitate healthy behaviour. In an experiment, 33% of consumers accepted the smaller portion, whether the price of the meal was reduced or not (Schwartz et al., 2012[63]).

**Figure 8.3. Overview of the impact of portion size changes on the industry**

<table>
<thead>
<tr>
<th>Potential impact on industry</th>
<th>Influencing factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation cost</td>
<td>If the price is decreased in accordance with the smaller size, there will be no savings on production costs and no change in profit margin.</td>
</tr>
<tr>
<td>Profit margin</td>
<td>This depends on the degree that the savings on ingredient costs are reflected in a price decrease.</td>
</tr>
<tr>
<td>Sales</td>
<td>Behavioural economics can be used to create the perception of a sufficient-sized portion that provides value for money.</td>
</tr>
<tr>
<td>If new, smaller portion sizes need to be created, this can carry design costs, changes to machinery, and down-time costs</td>
<td>If smaller portion sizes already exist within the product line, the implementation costs will be lower.</td>
</tr>
<tr>
<td>Smaller products can carry lower ingredient, packaging and transport costs</td>
<td></td>
</tr>
<tr>
<td>If a smaller size product is sold for the same price, consumers may reduce their consumption</td>
<td></td>
</tr>
<tr>
<td>Smaller products can be marketed as a healthier choice that supports portion control, to increase sales</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
</tr>
</tbody>
</table>

Source: OECD analyses on cited literature.

### 8.4. Food labelling and its impact on the food industry

**8.4.1. Food labels inform consumers about the nutritional value of products and encourage reformulation**

The vast majority of OECD countries require ingredient and nutritional labels on processed or packaged food (OECD, 2017[2]). The aim of these labels is to give comprehensive information, and they are often long and detailed (European Commission, 2017[64]; US Food and Drug Administration, 2013[65]).

Evidence shows that easy-to-understand interpretative labels, printed clearly on the front of the package, prompt a greater response rate from consumers in terms of food and diet choices (Cecchini and Warin, 2016[66]). In addition to informing consumers, labelling schemes have also been shown to encourage producers to reformulate their products (Thomson et al., 2016[67]; Vyth et al., 2010[68]).

In addition to labels on retail products, some countries are introducing menu labelling schemes, such as the United States, as well as local schemes in Australia and Canada (OECD, 2017[2]). While many chain restaurants provide nutrient information on their website or upon request, these schemes promote the use
of at-a-glance information available on the menu that is used to order food (Pulos and Leng, 2010[69]). These programmes can be voluntary (Pulos and Leng, 2010[69]) or mandated (City of New York, 2017[70]). For the industry, implementing labelling schemes can have consequences for costs and sales (see Figure 8.4).

8.4.2. For producers, the introduction of front-of-pack food labels carries implementation costs, but may lead to an increase in sales

There are direct costs associated with the design and printing of new labels

To implement new front-of-pack labels, food producers will incur some implementation costs. Since almost all OECD countries already require food producers to supply nutritional information, the need for nutritional analyses will be very limited. However, food producers may need to invest in label redesign and implementation.

The cost of redesigning and implementing the new front-of-pack label will depend on the size and colour of the logo. If the existing product label has to be redesigned to make space for the new logo, and if the colour of the logo is not already being used in the printing of the existing label, adding the logo will constitute a major change to production (RTI International, 2012[71]). Another significant change would be if the package surface area needs to be increased to allow for the additional label.

A one-off major change to a single product’s label would result in labour costs (estimated at USD 5 800 per product), printing material costs (USD 1 100 to USD 6 150, depending on the printing method), graphic design and prepress costs (USD 4 000) (RTI International, 2012[71]). However, the costs depend on the implementation period of the policy. If the introduction of the new front-of-pack label can be coordinated with planned, regular changes in labelling, the cost would be substantially lower (Food and Drug Administration, 2014[72]). In this case, labour costs would be only around USD 550, and there would be no additional cost for the new printing material (RTI International, 2012[71]).

For branded food products, a 24 month compliance period would ensure nearly all products can be relabelled during a planned change, while private label foods, which are typically updated less frequently, would need to up 42 months to cover all products (RTI International, 2012[71]). However, a compliance period of 24 months would still include a planned relabelling for around 74% of private label products (RTI International, 2012[71]).

The cost of changing labels may have more impact on smaller businesses, who have limited in-house capacity. An Australian study of the Health Star Rating estimated that small businesses would need to spend AUD 500 to AUD 900 (USD 360 to USD 640) per product to calculate the rating, AUD 2 000 to AUD 3 000 (USD 1 400 to USD 2 100) to redesign the label, and AUD 350 to AUD 5 000 (USD 250 to USD 3 600) to create new printing plates (Centre for International Economics, 2014[73]). In addition, smaller companies may have a larger stock of existing labels or packaging, as they need to order for longer periods to get bulk discounts. The compliance period would then affect the cost of writing-off existing stock (Centre for International Economics, 2014[73]).

Labels can be used in marketing campaigns to increase the sales of healthy products

The impact of front-of-pack labels on product sales will depend on the type of label. Labels indicating healthier choices are generally expected to make products more appealing to consumers, while warning labels on energy-dense products would work as a deterrent. A meta-analysis found that front-of-pack labels increased the number of people selecting a healthier option by around 18% (Cecchini and Warin, 2016[66]). Traffic light systems were found to be most effective, increasing the number of people choosing healthier options by 29% (Cecchini and Warin, 2016[66]).
A label indicating that a product is healthy could be used to increase sales when combined with a strong marketing approach. The Eat Right Live Well supermarket intervention in the United States combined food labelling of healthy choices with an awareness campaign, increasing the sales of labelled and promoted healthy items by 28% (Surkan et al., 2015[74]). A study of a campaign aimed to increase the awareness and use of the Keyhole logo among Danish men over 45 years old showed a 9.6% increase in the sale of foods with the logo (Mørk, Tsalis and Grunert, 2015[75]).

8.4.3. For food vendors, there are also implementation costs associated with menu labels, but the labels can be used to promote the sale of healthy products

Implementation of menu labels may be associated with design, printing and nutritional analysis costs

Food vendors will incur some costs to implement menu labels, including the cost of nutritional analyses and menu replacement.

Nutritional analyses will be required for food products where this information is not already available. The Food and Drink Administration (FDA) estimates the average analysis cost per food item to be around USD 660, and calculated that the 600 largest restaurant chains (by sales) in the United States have an average of 117 unique menu items (FDA, 2014[76]). Based on this information, the cost of the initial nutritional analysis for an individual restaurant chain would be around USD 70 000. Additional costs may be incurred when new food items are introduced on the menu.

However, this amount assumes that no prior information exists and that all items need to be analysed. The FDA estimates that 54% of fast-food restaurants in the United States already have or report nutritional information, and will not need to reinvest in nutritional analysis (FDA, 2014[76]). In addition, for food items manufactured elsewhere, such as sodas, nutritional information will be readily available.

The cost associated with changing menus largely depend on the format of the menus used, and the time frame of the implementation (FDA, 2014[76]). Paper, individual menus are often reprinted, and changes to their design can be incorporated with minimal additional cost if the implementation period is long enough to encompass a regular redesign and print cycle.

Menus displayed on boards would normally last longer and are more expensive to replace. The FDA estimates the cost of a new board to be on average USD 550 (FDA, 2014[76]). In addition, it is estimated that the labour cost to replace the boards would amount to between USD 1 500 and USD 2 500 per establishment.

In restaurants where food is not prepared according to strictly portioned ingredients, the nutritional content of each meal varies. In this case, an investment in training would be required to ensure a standard recipe is consistently followed in accordance with the listed nutritional profile (Thomas, 2015[77]).
8.5. Food taxes and their impact on the food industry

8.5.1. An increasing number of countries are implementing taxes which aim to reduce the consumption of energy-dense food and drinks

Several OECD countries are introducing taxes on energy-dense food and drinks

While public health taxes on products such as tobacco and alcohol are widespread, until recently there were few examples of governments taxing energy-dense foods or non-alcoholic beverages. However, an increasing number of countries are now looking to introduce similar taxes on food and drinks. OECD countries, including Belgium, Chile, Denmark, Finland, France, Hungary, Ireland, Latvia, Mexico, Norway, Portugal and the United Kingdom, have or had in place health-related food or drinks taxes.

While taxes on energy-dense food and drinks are primarily meant to increase the price of the product to reduce their consumption, they may also have other impacts: they raise additional revenue for the government, and they may incentivise reformulation (WHO, 2015[78]). For example, the food tax in Hungary reduced sales of taxable products by 27%, raised HUF 61.3 billion (USD 220 million) for public health spending over the first four years, and encouraged 40% of affected food product manufacturers to reduce or eliminate certain ingredients (WHO, 2015[79]).

Food and drink taxes can apply to specific products, such as sugar-sweetened beverages (SSBs), or to specific nutrients, such as saturated fat. The former is most common across OECD countries, with a
A number of countries taxing soft drinks. The public health product tax in Hungary applies to a range of food products (e.g. sweets, biscuits, soft drinks, alcoholic drinks and salty snacks) that contain fat or sugar above a threshold level (WHO, 2015[79]). Similarly, Denmark had experimented with nutrient taxes, but this was later repealed.

Some countries have set a minimum threshold for their tax: Chile taxes SSBs that have more than 15 g of sugar per 240 ml (Guerrero-López, Unar-Munguía and Colchero, 2017[80]). Mexico on the other hand taxes all drinks with any added sugar, regardless of the amount (Colchero et al., 2016[81]). The United Kingdom has set different tax rates based on the amount of sugar per 100 ml (Government of the United Kingdom, 2018[82]).

### 8.5.2. The impact of food taxes on the food industry depends on the pass-through rate and the sale of substitution products

*The direct cost related to tax depends on the pass-through rate*

The tax itself is the main cost to the industry. This charge can be either absorbed, reducing profit margins on the product, or passed on to the customer in the form of a price increase (see Figure 8.5). The proportion of taxes passed on to the customer is the pass-through rate. For taxes to have the desired impact on consumption, manufacturers and retailers need to pass on the entire tax to the consumer (WHO, 2015[78]). However, there are cases where only part of the tax is passed on, as well as cases where prices increase more than the tax amount.

Pass-through rates are not homogenous across the industry. A study of the Danish fat tax found that the price of butter and margarine increased more in discount stores than in supermarkets, despite being subject to the same amount of tax (Jensen and Smed, 2013[83]). Another study, looking at the soda tax in France, found that the pass-through rate varied by product, brand and retailer (Berardia et al., 2016[84]). While flavoured waters and fruit-flavoured drinks were under-shifted (i.e. the tax was only partially passed on to the customer), taxes on sodas were, on average, fully passed on. However, this complete pass-through was the result of under-shifting of large producers’ brands and over-shifting for private labels. In Berkeley, California, taxes were fully passed on in supermarkets and chain gas stations and partially in pharmacies (Silver et al., 2017[85]). Independent corner stores and gas stations however showed a negative pass-through rate (i.e. overall price decreased).

Other costs including, for example, implementation and production costs would be more limited. If nutrients rather than products are taxed, manufacturers may have to invest in nutritional analysis (WHO, 2015[78]). However, at least in the case of OECD countries, current labelling regulation usually already requires producers to have this information.

*Changes in sales due to taxes may be offset by sales of substitute products*

The aim of these types of taxes is to reduce the consumption of energy-dense food and drinks by increasing their price. In general, the evidence shows that price increases through taxation reduce consumption (WHO, 2015[78]; Cabrera Escobar et al., 2013[86]; WHO, 2016[87]; Thow, Downs and Jan, 2014[88]; Teng et al., 2019[89]). A reduction in consumption of energy-dense products is often accompanied by an increase in consumption of other products, called substitution. Substitution with healthier products is positive for public health, but may also provide opportunities for the industry.

The choice of substitution product is important in determining the impact of the tax on the industry. If an SSB tax makes consumers switch from regular to diet sodas, which has been shown in the case of Chile’s SSB tax (Caro et al., 2018[90]), the impact on the soft drink industry could be limited. If consumers switch to other beverages, such as bottled water as observed in Mexico (Colchero et al., 2016[81]), this may reduce income for soft drink companies, but increase sales for other drinks producers. Producers with a wider
product portfolio may be able to increase sales of their non-taxed products. On the other hand, for producers with a smaller product portfolio, it may be more difficult to mitigate the impact of taxes this way (Ecorys, 2014[91]).

This impact on the overall industry is showcased in an example from the United States. In Berkeley, California, the introduction of an SSB tax resulted in a 9.6% decline in soda sales per transaction (Silver et al., 2017[85]). However, the sales of untaxed beverages increased: customers bought more water (+15.6%), more untaxed fruit, vegetable and tea drinks (+4.4%) and more plain milk (+0.6%).

Substitution rates, which can be measured as cross-product price elasticity, differ per product and by country. A modelling study estimated that a 20% price increase of SSBs in the United Kingdom would decrease their consumption by 15-16%, while increasing consumption of milk, water, fruit juice and concentrated and non-concentrated diet sodas by 3.7%, 2.4%, 3.1%, 7.5% and 3.9%, respectively (Briggs et al., 2013[92]). In Australia, it was estimated that a 20% tax would result in a 3.2% increase in diet soft drink consumption, 1.6% increase in bottled water and 1.1% in low-fat milk (Sharma et al., 2014[93]).

National taxes may reduce the competitive position of the industry as compared to other countries. However, while evidence is limited, potential cross-border trade following the implementation of a tax seems to have limited effect on sales. For example, a study carried out by the Ministry of Taxation in the aftermath of the implementation of the fat tax in Denmark in 2011 concluded that the impact of the fat tax on overall cross-border trade with Germany was relatively limited, due to the short shelf-life of food products compared to other products bought cross-border, like alcohol and tobacco (Skatteministeriet, 2012[94]). Moreover, if neighbouring countries take a coordinated approach, the impact on cross-border trade and competition can be mitigated.

The impact of taxes on employment in the food and drink industry are likely to be offset by new employment in other industries

Available evidence indicates that the impact of taxation of food products on employment rates would be relatively contained. A modelling study found that a 20% SSB tax would in fact very slightly increase the number of jobs in two US states, due to increased consumption of non-SSBs, increased spending on non-beverage goods and services, and the increased economic activity resulting from the tax revenue (Powell et al., 2014[95]). Similarly, a recent study of the Mexican SSB tax and the tax on nonessential energy-dense foods showed no impact on employment in either the manufacturing industry or stores selling foods and drinks (Guerrero-López, Molina and Colchero, 2017[96]).
8.6. Advertising restrictions and their impact on the food industry

8.6.1. Many governments and companies have restricted the advertising of energy-dense products to children

Advertising restrictions help to reduce the impact of marketing of energy-dense food and non-alcoholic beverages on children (WHO, 2010[97]). The use of different marketing approaches targeted at children has been shown to influence food preferences, purchase requests and consumption patterns. In addition to regulating advertising in mass media, policy makers can make the settings where children gather (e.g. nurseries, schools, playgrounds) free from all forms of marketing of energy-dense foods. Regulation generally concerns advertising to children, as they do not recognise the persuasive intent of advertising, nor do they have the capacity to critically evaluate commercial messages (Graff, Kunkel and Mermin, 2012[98]).

Mandatory restrictions on the advertising of energy-dense foods to children exist in a number of OECD countries, including Chile, Finland, Ireland, Mexico, Norway, Korea, Sweden, and the United Kingdom (World Cancer Research Fund International, 2017[99]). These bans vary in scope: for example, Norway has a general ban on advertising to children under 18, while Mexico restricts the advertising of food and beverages based on a nutrition profiling model. Ireland bans advertising to children on television and radio, while Chile includes websites and promotional toys with meals. Chile, Hungary, Lithuania, Poland, Spain and the United States have regulations on the marketing of foods in schools.

In addition to mandatory regulations, there exist a large number of voluntary initiatives organised by the industry. For example, the EU Pledge is a voluntary initiative by leading European food and beverage
companies, under which signatories commit to banning advertising of energy-dense foods to children under 12 years of age and marketing communications to children in primary school (EU Pledge, 2016[100]). In the United States, 17 of the nation’s largest food companies promised that advertisements targeted at children would feature only healthier foods that meet nutritional standards specified by each company, under the Children’s Food and Beverage Advertising Initiative (CFBAI) (Kunkel, Castonguay and Filer, 2015[101]). Similarly, the 16 participating companies in the Canadian Children’s Food and Beverage Advertising Initiative (CAI) have committed to only advertising products that meet the CAI’s Uniform Nutrient Criteria to children under 12 years of age (CAI, 2018[102]).

Voluntary initiatives can also be developed through cooperation between the government and industry. In Ireland, the “Non-Broadcast Media Advertising and Marketing of Food and Non-Alcoholic Beverages, including Sponsorship and Retail Product Placement: Voluntary Codes of Practice” were developed after 15 months of cooperation and collaboration between government departments, advertising and broadcast authorities and various industry associations (Department of Health, 2018[103]).

However, the effectiveness of the self-regulation of food marketing to children has been questioned by public health experts. For example, a systematic review of the literature concluded that high levels of advertising of energy-dense foods continue to be found in several countries worldwide despite self-reported high levels of adherence to codes (Galbraith-Emami and Lobstein, 2013[104]). A review of the effectiveness of the CFBAI noted that while all companies met their respective pledges, 80.5% of food advertisements aired during children’s programming still promoted nutritionally deficient products (Kunkel, Castonguay and Filer, 2015[101]).

8.6.2. The impact of advertising restrictions on the industry depends on the type and extent of the ban

There may be costs associated with the development of new advertising strategies

When new regulations are introduced, companies will need to review their current advertising practices, and potentially change strategy – which may carry costs (see Figure 8.6). Changing the marketing strategy may be associated with expenditure for an advertising agency. However, for some companies this activity will be done in-house. The new advertising strategy may carry higher or lower costs, as different channels are used.

In addition, new marketing campaigns need to be tested against regulations, which can involve a process called preclearance (Advertising Association, 2014[105]). However, the cost associated with this may be carried by the channels on which the advertisement is transmitted (Clearcast, 2017[106]), and even for an express, same-day clearance the fees may be small. For example, in the United Kingdom the clearing process for a new advertisement was set at GBP 250 (USD 320) (Clearcast, 2017[107]).

The impact of advertising restrictions on overall sales is unclear when other advertising possibilities remain

Studies have shown that advertising has an impact on children in an experimental setting, where children are presented with food options directly or shortly after watching television (Halford et al., 2004[108]) (Boyland et al., 2016[109]; Sadeghirad et al., 2016[110]). In addition, experimental studies have found that children are more likely to prefer or ask their parents to buy foods they have seen on advertisements (Aznar et al., 2016[111]; Sadeghirad et al., 2016[110]).

However, the impact of advertising restrictions in practice depends on the extent or scope of the ban, and compliance with the ban. For example, restrictions implemented in the United Kingdom in 2007 prohibited the advertising of foods high in fat, salt and sugar during or around programmes “of particular appeal to” 4 to 15 year olds. While there was almost universal adherence, an increase in the advertising of these
products at other times meant that there was no change in children’s exposure, as children watch a wider range of television than just those programmes particularly targeted at them (Adams et al., 2012[112]).

Similarly, restricting advertising through one medium may increase the use of other channels. While television is an important medium, marketing can also be done using sponsorship, product placements, websites, and social media (WHO, 2010[97]). One study in the United States found that of the more than three billion food advertisements seen on children’s websites, 84% promoted products high in fat, sugar or sodium – despite industry self-regulation initiatives (Ustjanauskas, Harris and Schwartz, 2014[113]).

8.6.3. The impact of advertising regulations on the advertising and media industries is thought to be limited

In addition to the food and drinks industry, the media industry could be affected by these regulations as income from advertising may change. However, as the large majority of food and drink advertisers have a broad portfolio of products, there is considerable potential to adapt to regulation by advertising other healthier products, advertising to other audiences, or focusing on brand rather than product advertising (Committee of Advertising Practice, 2016[114]). Overall, the loss of advertising revenues to media owners is thought to be marginal (Committee of Advertising Practice, 2016[114]).

For example, in 2010, South Korea implemented regulations that prohibited television advertising of energy-dense, nutrient-poor (EDNP) foods between 5:00 pm and 7:00 pm, and during the commercial breaks of children’s programmes at other times (Kim et al., 2013[115]). As a result, the total budget for television advertising of EDNP foods decreased by 31%, from USD 9.6 million to USD 6.6 million for the two four-month periods studied. However, the total budget for non-EDNP foods advertising increased by 17%, from USD 103 million to USD 121 million. As a result, the total spend on food advertising increased by 13%.

Figure 8.6. Overview of the impact of food advertising restrictions on the industry

<table>
<thead>
<tr>
<th>Potential impact on industry</th>
<th>Influencing factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing spend</td>
<td>Negative</td>
</tr>
<tr>
<td>The industry may have to revise their marketing strategy to comply with the restrictions, and have the new campaign tested against regulations</td>
<td></td>
</tr>
<tr>
<td>In some cases current marketing spend will be redirected to new marketing activities that comply with restrictions, which may carry a different cost</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>In many cases advertising spend will be redirected to other channels, products or audiences</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td></td>
</tr>
<tr>
<td>The aim of advertising restrictions is to reduce consumption, which may negatively impact sales</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>The impact of advertising restrictions on overall sales in the industry depends on the extent of the restrictions and the effect of reallocating advertising to other products or audiences</td>
<td></td>
</tr>
</tbody>
</table>

Source: OECD analyses on cited literature.
8.7. Healthy food subsidies and their impact on the food industry

A healthy lifestyle can be encouraged by subsidising foods such as fruit and vegetables (WHO, 2016[87]; WHO, 2015[78]). While the general evidence on this type of policy is limited due to the wide variety of formats, there exist examples of successful subsidy programmes around the world. In general, the limited amount of available evidence suggests that these schemes may have a positive impact on the industry by providing additional revenue and generating public interest.

8.7.1. The US Healthy Incentives Pilot programme increased fruit and vegetable sales with limited burden on retailers

The US Healthy Incentives Pilot (HIP), which ran over 2011 and 2012, aimed to increase the consumption of fruits, vegetables, and other healthy food by providing financial incentives to Supplemental Nutrition Assistance Program (SNAP) participants (US Department of Agriculture, 2014[116]). SNAP is the largest nutrition assistance programme in the United States, and provides eligible families with an electronic benefit card (EBT) that can be used to purchase foods and non-alcoholic beverages at authorised retailers.

Through the HIP, SNAP participants received 30 cents back for every dollar they spent on targeted fruits and vegetables, including fresh, frozen, canned, and dried fruits and vegetables without added sugars, fats, oils or salt (with some exceptions). The 30 cents were deposited back onto the EBT card and could be spent on any SNAP eligible purchases. An evaluation of the programme showed that HIP participants consumed 26% (0.24 cups) more fruit and vegetables than non-participants (US Department of Agriculture, 2014[116]). The main impact on the industry was the increased sales of fruit and vegetables: 45% of participating stores noted an increase in sales and 16% an increase in profits (US Department of Agriculture, 2014[116]). Since only a small portion of SNAP households participated in the HIP, a greater impact could be expected for a full implementation of the scheme. The SNAP participants who were part of the HIP spent USD 12.05 per month on fruit and vegetables in stores participating in the pilot, compared to USD 10.86 for other SNAP participants, an increase of 11% (US Department of Agriculture, 2014[116]). Overall spend on fruit and vegetables in any store was USD 78.17 in the HIP group, compared to USD 72.02 for other SNAP participants.

The existence of the EBT system facilitated the implementation of the reimbursement to retailers. Nevertheless, at the start of the pilot some retailers had doubts about the increased time and effort required to operate the scheme. However, the evaluation showed that 91.1% of stores reported no change in average checkout time, and only 17% of stores said that the training of staff had been a burden (US Department of Agriculture, 2014[116]). Due to the increased volume of sales, retailers did report some increase in store running activities, such as supplier shipments and floor restocking.

8.7.2. The European Union School Fruit Scheme has created a new, stable market for the agriculture industry

In 2008, the European Union (EU) Council of Agriculture introduced the School Fruit Scheme, which provides free fruits and vegetables to school children, which was combined with the School Milk Scheme in 2017. In the 2017/18 school year, 25 member states participated in the scheme, serving over 20 million children in 160 thousand schools (European Commission, 2019[117]). In total, the scheme provided over 250 million kilogrammes of fruit and vegetables to school children. The scheme also includes educational measures on healthy diets.

The School Fruit Scheme provides the agriculture sector with a sizable additional revenue stream: the 2017/18 allocated EU budget for the supply of fruit and vegetables under the scheme was EUR 105 million (USD 118 million) (European Commission, 2019[117]). Moreover, schools offer an additional stable and potentially expanding market, especially if the scheme has a long-term effect on fruit and vegetable consumption, and a spill over effect on parents (European Commission, 2015[118]).
8.8. Conclusion

Many of the policy options assessed in the OECD analysis carry direct implications for industry and business, particularly in the case of the food and drink industry. The food and drink industry, consisting of food manufacturers, restaurants, supermarkets and other related enterprises, may be required to change their product, pricing, packaging, or marketing and advertising approach. This can result in implementation and compliance costs, or a change in the volume of sales. Certain cost, such as R&D, reformulation, label or menu redesign and printing, can be minimised when aligned with the standard business cycle of planned, regular changes. Some policies, such as subsidies and labelling, can also have a positive impact on the industry by providing additional revenue and generating public interest.
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Notes

1 Microparticulation is a production technique which creates a more appealing texture in low-fat dairy-based products by creating protein particles similar in size to fat globules.

2 Enzyme inhibitors reduce or slow down the breakdown of starch.