Despite policies and action plans put in place by countries at a global level, overweight continues to be a pressing public health issue and one of the key drivers of non-communicable diseases in OECD countries and beyond. This chapter brings together the main messages of this publication and describes the key policy implications from new OECD analyses on the health, social and economic burden of being overweight and its associated lifestyles, including poor diet, lack of physical activity and sedentary behaviour. The chapter presents trends and projections for up to 52 OECD (including accession and partner countries), Group of 20 (G20) and European Union (EU28) countries and makes a strong economic case for upscaling investment in policies that promote healthy lifestyles. The chapter concludes by presenting the expected effectiveness, impact on health expenditure and return of investment for ten such policies and analyses the potential implementation costs and approaches to mitigating such costs.
Key findings

- More than half of the population in 34 out of 36 OECD member countries is overweight and almost one in four people are obese. Rates of severe obesity – known as morbid obesity – are now growing at the same pace as milder forms of obesity.

- Little over half the population in OECD countries for which data is available consumes a healthy diet and even fewer eat sufficient fruit and vegetables. People spend, on average, half of their waking hours in sedentary activities.

- Obesity and its related diseases will reduce life expectancy by 0.9 years to 4.2 years, depending on the country. It is projected that by 2050 there will be around 92 million premature deaths from obesity-related diseases in OECD, G20 and EU28 countries.

- OECD countries will spend about 8.4% of their total health budget on treating obesity-related diseases. This is equivalent to about USD PPP 311 billion per year (or USD PPP 209 per capita per year).

- Children with a healthy weight are 13% more likely to perform well at school and are more likely to complete higher education. Children with obesity have less life satisfaction and are up to 3.8 times more likely to be bullied, which in turn may contribute to lower educational outcomes.

- Individuals with at least one chronic disease associated with being overweight are 8% less likely to be employed in the following year and, if employed, are up to 3.4% more likely to be absent or less productive. When all these effects are converted into an economic value, OECD countries will lose, on average, USD PPP 863 per capita per year.

- Overweight and its related conditions will reduce gross domestic product (GDP) by 3.3% in OECD countries and exact a heavy toll on personal budgets: about 1% of total tax revenue is spent on overweight, corresponding to a levy of USD PPP 360 per capita per year.

- Achieving a reduction of 20% in calories from relevant food groups would prevent the development of up to 1.1 million cases per year of cardiovascular diseases, diabetes and various types of cancer in the 42 countries included in the analysis. Food reformulation to reduce calorie content may also produce savings in health expenditure of up to USD PPP 13.2 billion per year in these countries.

- Interventions targeting the whole population, such as food and menu labelling displaying nutritional information and mass media campaigns produce the largest health gains: from 51 000 to 115 000 life years could be gained in the 36 countries included in the analysis. This is equivalent to preventing all road deaths in EU28 and OECD countries respectively. Economic savings would also be significant, with menu labelling alone saving up to USD PPP 13 billion per year in these countries.

- Combining interventions in “prevention packages” would return even higher benefits. For example, an additional 205 000 life years could be saved annually across the 36 countries included in the analysis by investing in a communication package aimed at upsailing policies already in place in many OECD countries. This package would save USD PPP 26 billion by 2050 in health costs.

- Investing in prevention packages to tackle the issues related to overweight is a very good investment for countries. Overall, it is expected that for every USD PPP invested in any of the packages, economic benefits for countries will be between USD PPP 1.3 and USD PPP 4.6.
1.1. A growing obesity epidemic drives negative health and economic effects

Almost a decade after the publication of the first OECD report on obesity, “Obesity and the Economics of Prevention – Fit not Fat”, overweight continues to be a pressing public health issue despite the policy responses put in place by countries:

- Of the original 31 countries included for analysis in 2010, average rates of adult obesity in OECD countries have increased by 13%, from 21% in 2010 to 24% in 2016. This corresponds to about an additional 50 million people with obesity.
- In 34 out of 36 OECD member countries, more than half of the population is now overweight. In the last few years, there has also been a significant growth in morbid obesity.

In addition to being a public health concern, overweight poses a serious threat to the economy of countries and to the budgets of their citizens around the world. Overweight has significant negative effects on the health budgets of countries due to the high costs of treating patients with chronic diseases such as diabetes, cancer and cardiovascular diseases caused by high body-mass index (BMI). Up to USD PPP 425 billion per year is spent across OECD, G20 and EU28 countries on obesity. In addition, overweight and its associated chronic diseases negatively affect labour force productivity: individuals with at least one chronic disease are 8% less likely to be employed in the following year and, if employed, are more likely to be absent or less productive. Similarly, overweight children are less likely to perform well at school and are more like to have lower education attainment later on, creating conditions leading to lower levels of human capital in the future. All these factors concur in depressing the social welfare and economy of countries, resulting in a total economic burden of overweight ranging from 1.6% to 5.3% of GDP, depending on the country.

More can be done to tackle overweight. Fifty out of the 52 countries included in the analysis have national policies in place to tackle obesity, and 45 countries have strategies targeting childhood obesity. The vast majority of countries also have national dietary and physical activity guidelines in place often along with a comprehensive number of other policies. However, growing obesity rates show that there is the need to further scale up efforts. Too often, policy actions are implemented in forms that are ineffective or are not uniformly implemented throughout the country. In other cases, limited resources or practical problems limit their coverage.

By using its microsimulation model – the OECD Strategic Public Health Planning for non-communicable diseases (NCDs) or SPHeP-NCDs model – the OECD has calculated that scaling up action by implementing highly effective “best practices” would have a significant impact on the health of the population and the economy. Greater results would be achieved by implementing packages of policies. For example, the most effective package would prevent 2.4 million cases of major chronic diseases, including cardiovascular diseases, diabetes, cancer and dementia, by 2050, leading to a gain of up to 205 000 life years (LYs) annually. Cumulative savings in health expenditure would equal around USD PPP 26 billion. A healthier population and reduction in governmental spending on health would also improve labour market outcomes and the broader economy. The resulting economic growth will create the conditions needed to reduce fiscal pressure. While some of these public health interventions carry direct implications and costs for the food and drink industry, strategies to minimise such costs do exist.

1.2. Unhealthy lifestyles are on the rise, and morbid obesity is growing

Overweight levels have been continuously growing over the last 40 years in all OECD, G20 and EU28 countries, reaching very high prevalence rates. Between 2005 and 2016, adult obesity rates grew by an average of 0.21 percentage points per three-year period. Almost three in five persons living in an OECD or EU28 country are overweight, with about 40% of these individuals at obesity levels and the remaining
60% at pre-obesity levels. In some countries, such as Saudi Arabia and the United States, the individuals with obesity outnumber those with pre-obesity. Worryingly, growth in morbid obesity, the most severe form of obesity, is now similar to the growth in the milder form of obesity. In OECD, EU28 and G20 countries, mild obesity and morbid obesity rates have grown by an average of 0.19-0.23 percentage points per three-year period. In the most recent biennium for which data is available, morbid obesity growth accounted for up to half of the increase in total obesity rates. In some countries, such as the United States, Saudi Arabia, and New Zealand, morbid obesity accounted for more than 70% of total obesity growth.

In children aged 5-19, the prevalence of obesity has steadily increased since 1975, with similar patterns and growth rates for OECD, EU28 and G20 averages, and a yearly increase in childhood obesity of about 0.3 percentage points over the last decade. Most countries tend to display a steady rate of growth over time – such as Mexico, New Zealand, and Saudi Arabia. In other countries – such as China and South Africa – childhood obesity has grown dramatically, reaching figures comparable to those of OECD countries in the most recent years. For other countries, the rate of growth in childhood obesity has slowed over the past 20 years, particularly in Denmark and Japan. In the United States, the country with the highest prevalence of child obesity, the growth rate has more than halved, decreasing from a growth rate of 0.6 percentage points per year from 1995-2000 to 0.2 percentage points per year from 2011-16.

1.2.1. Poor diet, lack of physical activity and sedentary behaviour have contributed to the obesity epidemic

While multiple factors contribute to weight gain, including genetic predisposition and environmental influences, overweight primarily occurs due to the imbalance between an energy intake from diet and energy output through physical activity. Globalisation and urbanisation have been accompanied by a reduction in levels of physical activity and increased sedentary behaviour associated with office jobs and certain modes of transport. Total calorie supply has increased by nearly 20% in OECD, OECD accession and selected partner countries, EU28, and G20 countries, from 2700 kilocalories per person per day to a little more than 3200 kcal/capita/day.

Individuals living in OECD countries have increasingly unhealthy lifestyles, including a poor diet and an insufficient consumption of fruit and vegetables, a greater consumption of which has been associated with a reduced risk of obesity and other chronic diseases. In addition, people have self-reported insufficient levels of physical activity and spending a significant part of their time in sedentary behaviour involving very low energy expenditure, such as sitting or looking at a screen. More specifically, OECD analyses based on micro-level national data found that:

- A little more than half of the population of countries such as Chile, Italy, Mexico and Spain consume a healthy diet meeting national guidelines or international standards. In the United Kingdom, fewer than one in three people were found to consume a healthy diet.
- In 10 out of the 11 countries included in the analysis (Australia, Canada, Chile, England, France, Italy, Mexico, Spain, Hungary, and the United States), less than 40% of individuals met the recommended daily consumption of at least five portions of fruit and vegetables per day. In Korea about 60% of individuals meet such guidelines.
- Levels of physical activity remain too low. In 12 countries (i.e. Argentina, Brazil, Costa Rica, Colombia, Cyprus, Germany, Italy, Malta, New Zealand, Portugal, Saudi Arabia, and the United States), more than two in five people do not carry out a sufficient level of physical activity. Since 2005, this rate has increased by more than five percentage points in western high-income countries.
On average, both men and women spend up to 40% of their waking time in sedentary activities. In addition, they are not sufficiently active during work periods and they tend to use motorised, rather than active, travel.

1.2.2. Individuals with a lower socio-economic status are more likely to be obese and to have unhealthy lifestyles

Individual and socio-cultural factors can influence the development of unhealthy lifestyles underpinning obesity.

- Men and women are equally likely to be obese but, overall, men are more likely to be overweight. On average, almost one in four men and women living in OECD countries and EU28 member states are obese. Conversely, rates of pre-obesity tend to be 10 percentage points higher in men compared to women (i.e. about 41% versus 30%). In G20 countries, women are slightly more likely than men to be obese (24% of women versus 19% of men) while the gap with pre-obesity is smaller (i.e. 27% in women and 35% in men).
- Consistently across countries, individuals in the lowest income group are more likely to be obese, with inequalities more significant in women than in men. In the EU28, women and men in the lowest income group are, respectively, 90% and 50% more likely to be obese, compared to peers in the highest income group. Inequalities are generally greater in western European countries and lower in central European countries.

The same population groups often have poor diet, physical inactivity and sedentary behaviour and, therefore, have the highest risk of developing chronic diseases:

- Men in general have less healthy lifestyles than women. In all the included countries, except the United States, men consistently report poorer diets and greater sedentary behaviour than women. However, men are more likely to achieve the recommended amount of physical activity than women.
- Individuals with a lower level of education or socio-economic status are more likely to consume an unhealthy diet. Furthermore, individuals with a lower education are also less likely to be physically active, but they are less likely to demonstrate sedentary behaviour. Individuals with a high socio-economic status are more likely to report increased sedentary behaviour and are less likely to achieve the recommended level of physical activity. When all factors (i.e. both diet and physical activity) are taken into account, individuals with a high socio-economic status tend to demonstrate unhealthy lifestyles, due primarily to a lower level of physical activity and higher level of sedentary behaviour.
- Unhealthy lifestyles go beyond being overweight. Policies to tackle unhealthy lifestyles should not exclusively focus on individuals with overweight but rather target broader population groups. With the exception of the United States, pre-obesity and obesity are not strong predictors for an unhealthy diet, insufficient physical activity, or excessive sedentary behaviour and individuals with a healthy weight may also have unhealthy lifestyles, independent of their BMI.

1.3. Obesity and associated chronic diseases damage health and the economy

Overweight is among the leading risk factors contributing to both the disease burden and the economic burden of NCDs. A high BMI increases the risk of developing various chronic diseases, including type 2 diabetes, cardiovascular diseases, respiratory diseases, musculoskeletal disorders, several types of cancer, and depression. However, the impact of a high BMI is not limited to just the health of the general population. Obesity also has important personal, social and economic consequences. First, treatment of obesity and related chronic conditions increases health expenditure. Second, overweight is associated
with lower academic performance and, in the long run, lower educational attainment which negatively affects an individual’s socio-economic status in adulthood and the human capital of countries. Third, obesity and its consequences affect individuals’ productivity and workforce participation with a negative impact on labour market outputs. At a macroeconomic level, all these dimensions negatively affect the GDP of a country and create the conditions for increased fiscal pressure.

By using the most advanced techniques, the OECD has carried out a comprehensive assessment of the health and economic burden of obesity in 52 countries. More specifically, the OECD has used the OECD SPHeP-NCDs model and the OECD long-term economic model.

1.3.1. Overweight and associated chronic diseases worsen health and decrease life expectancy...

Individuals with a high BMI and its associated unhealthy lifestyles are more likely to develop chronic diseases that produce detrimental long-term consequences to their quality of life. In addition, many of these conditions cannot be cured and increase the probability of premature mortality.

- Over the period 2020 to 2050, overweight and its related diseases will reduce life expectancy by about 3 years across OECD, EU28 and G20 countries. In individual countries, life expectancy will be reduced by 0.9 to 4.2 years (Figure 1.1).
- As many as 92 million people will die prematurely due to overweight in OECD, EU28 and G20 countries from now to 2050. Across the OECD, 3 300 life years (LYs) per 100 000 population are lost every year due to overweight. The effect of overweight on mortality in EU28 countries is higher, with about 4 000 LYs lost per 100 000 population every year. G20 countries see a lower impact from overweight, at 2 600 LYs per 100 000 population annually.
- Obesity-related diseases greatly affect a person’s quality of life. When taking into account the years that people live with disease and disability, countries in the OECD will lose nearly 4 000 disability-adjusted life years (DALYs) per 100 000 population every year due to overweight – similar to the cumulative burden caused by stroke and ischemic heart diseases. In comparison, EU28 countries lose 4 500 DALYs per 100 000 population and G20 countries 3 300 DALYs per 100 000 population.

Not surprisingly, the health burden of obesity tends to be greatest in countries with very high prevalence rates of overweight (e.g. in Mexico and the United States) and lowest in countries with lower prevalence rates, such as Japan and Korea.

The effectiveness of national health care services at treating the medical consequences of a high BMI also influences the health burden of overweight. Effective health care systems can reduce complications (e.g. in the case of diabetes) and reduce fatalities, as in the case of certain cancers or cardiovascular diseases. For example, Australia, Norway or the Netherlands show a smaller burden compared to other countries with similar overweight prevalence rates, such as Argentina and Bulgaria.

A third element to take into account is the contribution of other diseases, not caused by obesity, (e.g. certain infectious diseases) in driving the total burden of disease in a country. For example, in South Africa, overweight reduces life expectancy by only 1.7 years, despite relatively high BMI levels in the population. Such a smaller burden of disease caused by overweight-related chronic diseases can be explained by a high prevalence of HIV (and other communicable diseases) that remains the top killer in the country, even in the complete absence of overweight.
1.3.2. ... and have a negative impact on health budgets

People with overweight use health care services more often, driving health expenditure. They have a greater number of primary care and outpatient specialty care visits and inpatient stays, undergo more surgery, and use more diagnostic and home health care services. People with obesity also have 2.4 times more prescriptions over healthy-weight individuals. They may see a higher cost per visit as they require more complicated and costlier care, or may experience longer hospitalisations.

Previous analyses, using different methods, concluded that the impact of overweight on health expenditure would range between 1.9% and 7.9% of a country’s total health care budget. New OECD calculations, based on the most recent evidence and cross-country comparable data applied to the OECD microsimulation model, suggest that these figures were significantly underestimated. The OECD data show that under a business-as-usual scenario, across OECD countries:

- Treating the diseases caused by obesity will cost an average of 8.4% of total health care spending (net of spending for long-term care). The United States will spend nearly 14% of their health budget on obesity and overweight, while Estonia will spend less than 5% (Figure 1.2). In OECD, G20, EU28 and OECD accession and selected partner countries, obesity will cost a total of USD PPP 425 billion per year.
- Treating a high BMI with its related conditions will cost OECD countries on average USD PPP 209 annually per capita. The United States, Germany and the Netherlands spend the most on obesity, at USD PPP 645, USD PPP 411 and USD PPP 352 per capita, respectively (Figure 1.2).
- Overweight is responsible, on average, for 70% of all treatment costs for diabetes, 23% of treatment costs for cardiovascular diseases and 9% for cancers.
Figure 1.2. Health expenditure associated with overweight

Health expenditure due to overweight per year, in USD PPP per capita and as a percentage of total health expenditure, average 2020-2050

Note: Health expenditure measures the final consumption of health care goods and services for personal health care including curative care, rehabilitative care, preventative care, ancillary services and medical goods but not long-term care. Organisational arrangements in health systems including, for example, the price of delivering health care services, the mix of health care services used and the share of the population with access to effective health care services, all play a role in modulating total health expenditure. For example, Denmark, the Netherlands and Norway show a smaller obesity-related health burden compared to other OECD countries but, at the same time, they rank among the top countries in terms of obesity’s impact on health expenditure. Conversely, Poland, Romania and the Russian Federation rank very high in terms of the health burden of overweight but show a smaller impact on health budgets.

1.3.3. Obesity negatively affects educational outcomes and human capital formation

The OECD has analysed micro-level data for children aged 11-15 in 32 countries and studied how a high BMI correlates with self-assessed performance at school. Compared to children with a healthy weight, overweight children perform less well at school demonstrated, for example, by lower marks, a higher probability of absenteeism and longer periods of absenteeism. In addition, children with overweight have a lower level of educational attainment and a higher probability of not completing higher education. These negative consequences hold true even after taking into account the effect of confounding factors such as family affluence. Specific findings suggest that:

- The higher the BMI in children, the lower the performance in school. On average, boys and girls with a healthy weight are 13% more likely to report good school performance, compared to their peers with obesity (Figure 1.3).
- France and Belgium have the largest inequalities among girls. In both cases, girls with a healthy weight are about 27% more likely to report good performance at school compared to girls with obesity. Conversely, Germany and Latvia show the greatest inequality among boys – with an
increased probability for boys with a healthy weight to report good educational performance of 24% and 23% respectively.

- Differences in educational performance have remained stable for both boys and girls. From 2002 to 2014, there were no significant trends in academic performance across BMI categories across OECD countries.

Obesity is also associated with higher risk of absenteeism from school and longer absences. In the United States, boys and girls aged 12-19 with obesity are three percentage points more likely to miss school compared to adolescents with a healthy weight (i.e. 69% of adolescents with obesity had missed school days in the past 12 months compared to 66% of adolescents with a healthy weight). When absent from school, adolescents in the United States with obesity have significantly longer absences than adolescents with a healthy weight. Adolescents in the United States aged 12-14 with obesity reported almost an additional day of absence (i.e. almost six days of absence per year compared to five days in adolescents with a healthy weight). This becomes an additional two days in the case of adolescents aged 15-19.

Obesity may also produce long-term consequences for educational outcomes. The analysis of longitudinal datasets from the United Kingdom, the United States and the Russian Federation suggests that, in the long term, obesity may lead to lower educational attainment. In the United States, girls with obesity at the beginning of the study were 38% less likely to complete higher education 14 years later than a person with a healthy weight. In the United Kingdom, boys were 58% less likely to have completed higher education by the age of 29 if they were obese at the age of 16. Similarly, in girls, each point increase in the BMI at age 16 was associated with a loss of approximately half a month in higher education.

In the long term, lower educational attainment caused by obesity is likely to affect future individual socio-economic status, as individuals with a lower level of education are less likely to achieve higher-qualified occupations. More broadly, this negatively affects the society and the economy.

Academic performance and educational outcomes are key determinants for the formation of human capital and affect a country’s economic growth. Improving the cognitive skills of the population can lead to significant economic gains as relatively small improvements to labour force skills have a large effect on the future well-being of a nation5.

A number of causes may explain poor performances at school by children with overweight. Children and adolescents with overweight may be excluded from friendships and bullied by other children. As a result, these children may feel isolated, lonely or socially disconnected. They may also have lower self-esteem, poor well-being and suffer from emotional and mental health problems with deleterious effects on educational outcomes. Children who are bullied and socially excluded by others engage less in class: they step aside and refuse to speak up out of fear of bullying. Moreover, behavioural problems, such as disobedience and violence, may emerge.
Figure 1.3. Relative index of inequality for bullying and performance at school by sex in 32 OECD, G20 and EU28 countries

Average relative index of inequality across countries, with country range

![Graph showing relative index of inequality for bullying and performance at school by sex in 32 OECD, G20 and EU28 countries]

Note: Boys and girls with obesity are, respectively, two and three times more likely to be bullied, compared to peers with a healthy weight. Boys and girls with a healthy weight are 13% more likely to report good school performance compared to peers with obesity. Whiskers show the range across the 32 countries included in the analysis (31 for bullying, as Switzerland did not have data on bullying).


The effect of obesity on life satisfaction and bullying in children aged 11-15 is confirmed by OECD analyses:

- Boys and girls with a healthy weight are 5% and 9% happier respectively than their peers with obesity. On a scale of 0 (lowest) to 10 (highest), the average life satisfaction is 7.4 in boys with obesity compared to 7.8 in boys with a healthy weight, and 6.8 in girls with obesity compared to 7.4 in girls with a healthy weight.
- Girls with obesity are three times more likely to be bullied than their peers with a healthy weight, compared to 1.8 in boys (Figure 1.3). Almost one in five girls with obesity report being a victim of bullying in OECD countries.
- Germany, the Czech Republic, and Italy have the largest obesity-related inequalities in bullying among girls: girls with obesity are almost 4 times more likely to be bullied compared to their peers with a healthy weight. Germany, Norway, Austria, and Malta show the largest inequalities among boys with obesity, who are up to three times more likely to be victims of bullying.
- Differences in bullying with regard to obesity have remained largely stable over the last decade in girls, while they have slightly increased in boys.

1.3.4. **Obesity and associated chronic diseases damage labour force productivity, personal budgets and the economy**

A significant part of the effect of obesity on the broader economy is linked to reduced labour force productivity and reduced human capital. Individuals with chronic diseases are more likely to be unemployed and to miss days of work and, when they are at work, are less likely to be productive than
healthy individuals. In addition, individuals with overweight are more likely to have a lower educational attainment with negative effects on their skillset.

Previous estimates of the impact of being overweight on GDP taking into account these factors concluded that, in four OECD countries, a high BMI would be responsible for a 0.5% to 1.6% loss in GDP. The new OECD analyses show that these figures were greatly underestimated.

The OECD extended the scope of previous analyses to produce a more comprehensive evaluation using data from longitudinal studies representative of European countries, Japan and Mexico. Results confirm that:

- Having at least one chronic disease is associated with a 8% decrease in the probability of being employed in the following year compared to individuals with the same age and level of education that do not report a chronic disease. The decrease in probability of being included in the labour force is particularly high in the case of stroke (up to 20% for men) and lowest for other cardiovascular diseases (4%). Individuals with at least two chronic diseases are about 17% less likely to form part of the labour force.
- If employed, individuals with a chronic disease will be absent from work for 1.5% more days over the rest of their working life. Diabetes has most detrimental effect causing an additional 3.4% days of absence from work in women. Individuals with overweight show a 1% increase in absences, due to other reasons.
- Individuals with at least one chronic condition are almost 20% more likely to retire early.

While in some cases these numbers may look small, the growth in overweight means that these figures apply to a greater portion of the population, resulting in a more significant impact. For example, 58% of the population in OECD countries is overweight. A 1% increase in absenteeism for such a large number of persons significantly affects the economy of a country. The OECD microsimulation model suggests that, in fact, overweight will have a significant effect on labour market outcomes:

- Across the 52 countries included in this analysis, overweight effectively reduces the workforce by about 54 million people per year: 28 million due to reduced employment, 18 million due to presenteeism, and 8 million to absenteeism.
- When these effects are converted into an economic value, OECD countries will lose USD PPP 863 per capita per year on average.
- The economic impact of reduced labour market productivity is smaller in G20 and EU28 countries at USD PPP 658 and USD PPP 781 respectively.

At the macroeconomic level, overweight reduces GDP by 3.3% on average in both OECD countries and 23 EU member states, over the next 30 years (Figure 1.4). The impact on the G20 countries is slightly larger with a reduction in GDP of about 3.5%. Across all the 46 countries included in the analysis, overweight reduces GDP by about USD PPP 5.3 trillion from 2020-50, similar to the average annual GDP of Germany or Japan over that same period. The effect on GDP varies by country with Mexico (-5.3%), Brazil (-5.0%) and Latvia (-4.5%) being the most affected. Japan's economy is the least affected, with a reduction of GDP equal to -1.6%.

Obesity also exacts a heavy toll on personal budgets. Overweight is responsible for a 0.62 percentage point increase in total fiscal pressure, measured as government primary revenue as a share of GDP. This is equivalent to an increase in tax rate of USD PPP 360 per capita per year in OECD countries. In the United States, overweight costs more than USD PPP 1 300 per capita per year. Other countries in which overweight has a significant impact on fiscal pressure include Belgium, Denmark and Ireland.
Figure 1.4. The impact of overweight on GDP

Percentage difference in GDP due to overweight, average 2020-2050


StatLink 2 https://doi.org/10.1787/888934006689

1.4. The policy response to obesity has been insufficient

The rationale for government intervention to tackle overweight is strong, with a wide range of policies potentially available. Many unhealthy lifestyles, including poor diet and physical inactivity are driven by social and environmental changes. In response to such trends, in 2011 the United Nations General Assembly adopted a declaration to address the social determinants of health, including preventing exposure to risk factors for chronic diseases. The UN declaration was followed, in 2013, by the setting of voluntary targets for risk factor reduction, including for physical inactivity, salt intake, obesity, high blood pressure and diabetes. In 2015, some of these targets were incorporated in the Sustainable Development Goals (SDGs) that also include a target to reduce premature mortality by one-third by 2030.

At the national level, the fight against obesity has advanced primarily around national action plans, sometimes developed taking as a basis the World Health Organization’s (WHO) Global Strategy on Diet, Physical Activity and Health and relevant global action plans. The ability of governments to design, implement and monitor the effectiveness over time of wide-ranging prevention strategies combining the strengths of different policy approaches is critical to success, including for initiatives promoted in collaboration with the various stakeholders.

OECD countries have made substantial progress on policies to tackle unhealthy diets and lack of physical activity in the last decade. Virtually all OECD countries have a national action plan on obesity in place as of 2019, and a vast majority of countries have a specific action plan to tackle obesity in children as well as national guidelines to promote healthy diets and active lifestyles.

Most OECD countries have implemented a wide range of policy options to promote healthier lifestyles. Despite this, the growing overweight rates show that, so far, the response has not fully met the challenge. The implementation of policies “on the ground” and their effectiveness at the population level is hindered by a number of factors. In some cases, policies are implemented in forms that are not the most effective
or measures are not uniformly implemented throughout the country. In other cases, limited resources or practical problems end up limiting the number of individuals that would potentially benefit from the policy.

By reviewing available evidence and international datasets, OECD work has identified four categories of policies broadly implemented by countries:

- policies influencing lifestyles through information and education;
- policies widening the number of healthy choice options;
- policies to modify the cost of health-related choices; and
- policies to regulate or restrict the promotion of unhealthy choice options.

In general, the OECD review found that countries have been particularly active in putting in place policies falling into the first two categories (i.e. to provide information and to widen the number of healthy options), while measures falling into the other two categories (i.e. to modify the cost of health-related choices and to regulate promotion of unhealthy choices) are less likely to be implemented across OECD and G20 countries.

### 1.4.1. Policies influencing lifestyles through information and education

Communication-based approaches are among the most widely implemented interventions by OECD countries, and may take a number of forms. For example, they can help make informed food purchases by providing relevant information on food and menu labels. They can be employed as part of health promotion and social marketing campaigns, including through the use of mobile apps, aimed at changing behaviours adversely affecting health. They can also be used to support other disease prevention policies, such as aiding health education campaigns targeting schoolchildren, workers or primary care users.

An OECD review of communication-based policies concludes that almost all reviewed countries mandate some sort of nutrition labelling on packaged foods, but only four OECD countries (i.e. Chile, Finland, Israel and Mexico) mandate, or are in the process of implementing regulations to mandate, front-of-pack labelling, which is the most effective type of food labelling. Mandatory back-of-pack labelling, which is less effective, is the predominant scheme, with 34 OECD countries endorsing this policy. In this group, 17 OECD countries also have a policy supporting voluntary front-of-pack labelling. Similarly, use of mass media campaigns, particularly to promote consumption of fruit and vegetables is widespread across OECD countries and beyond. However, campaigns tend to be limited in time and not necessarily repeated on a regular basis. A number of countries are also experimenting with the extension of mandatory menu labelling to restaurants, mainly in chain restaurants. For example, Australia, Canada and the United States have this type of policy in place, although, in some cases, the policy is implemented at the sub-national level.

Communication policies targeting high-risk individuals can also be very effective, but the implementation of these policies may be hindered by a number of factors. Counselling from primary care doctors, targeting high-risk individuals, has been widely implemented across OECD countries for many decades. A more recent variation of physician counselling entails the provision of a prescription of a suggested amount of physical activity at the end of the counselling session. This version of the intervention is currently implemented by at least a third of OECD countries. However, in practice, it is unlikely that many people in the target groups, potentially benefitting from this intervention, actually receive the counselling, as the additional professional and financial resources it involves as well as the challenges associated with the recruitment of physicians are likely to hinder its implementation.
1.4.2. Policies widening the number of healthy choice options such as changing urban settings and school-based programmes

Traditional policies under this heading include, for example, some workplace-based interventions, school-based programmes and changes in the urban setting such as measures to increase access to public transport and green areas. Often, the objective of these actions is to modify the environment in which people spend most of their time: schools, workplace, communities in which they live, and so on, to make it more conducive to healthier lifestyles, whether it is promoting physical activity or a healthier diet. While these policies have the potential to cover a significant share of the population, their implementation often relies on local administrations with limited incentives or support at a national level. This creates a risk that poorer communities are less likely to have sufficient resources to implement such measures.

Policies to widen the number of healthy choice options are widely implemented in OECD countries but, in many cases, they are difficult to identify and monitor. The vast majority of OECD countries have in place some school-based programmes not only entailing education activities on nutrition and/or physical activity but also aiming to improve the environment, for example by regulating the food sold in vending machines or the meals served in canteens. Thirty-three countries, including 24 OECD countries, have set mandatory nutrition guidelines for the food provided in schools. For instance, in Chile, the Ministry of Health and the Ministry of Education have joined forces to put in place a comprehensive programme based on 50 measures including improvements in the quality of food provided to students and behavioural interventions (e.g. based on gamification) to promote physical activity.

Similarly, a number of programmes in OECD countries aim to do the same in the workplace. However, in this latter case, their identification is more complex as workplace-based interventions are often carried out by the private sector, usually with little involvement of national governments. A notable exception is Japan, where the national government has in place a strategy to promote such policy through prizes and awards for particularly effective programmes.

Actions to modify the urban setting are even more difficult to identify and review in a systematic fashion as many of the relevant interventions in this category fall under the responsibility of local administration, rather than national governments. The C40 network, a group of 90 cities with more than 650 million people, represents a good example of how changes in the urban environment may promote an active lifestyle and a reduction of gas emissions, through the promotion of active travelling. Similarly, the 199 cities signatory to the Milan Urban Food Policy Pact are committed to developing sustainable food systems designed to provide access to healthy and affordable food to all people.

1.4.3. Policies to modify the cost of health-related choices such as price policies

While less common than other categories of policies, actions to modify the cost of health-related choices are gaining increasing attention internationally. The most well-known policy part of this category is the taxation of unhealthy food products, in the majority of cases, but not exclusively, sugar-sweetened beverages, under the principle that higher costs would lead to lower consumption. Other products that are taxed in OECD countries include food with high sugar, salt or fat content – such as chocolate, confectionary and ice cream. At least 14 OECD countries” as well as 4 non-members (India, Peru, Saudi Arabia and South Africa) have put in place some sort of taxation for sugar-sweetened beverages or other types of food.

Some countries have also put in place actions to lower the cost of healthier options, whether to encourage healthier food consumption, or to promote an active lifestyle. For example, the EU school fruit and vegetable scheme is an EU-wide programme providing schoolchildren with free fruit and vegetables. In the United States, Congress established the Healthy Food Financing Initiative in 2014 to make available grants to states to attract healthier retail outlets to under-served areas.
1.4.4. Policies to regulate or restrict actions promoting unhealthy choice options such as the advertising of unhealthy products and regulating nutritional content

This category of policies includes all the actions aiming to regulate the promotion of, or the access to, unhealthy choice options. In the case of overweight and related unhealthy lifestyles, this category of policies mainly consists of regulating advertising of unhealthy food products aimed at children. Despite the public health guidance put in place by the WHO, the OECD review concluded that relatively few countries (i.e. 17, including 14 OECD countries) have implemented compulsory restrictions on television advertising of unhealthy foods aimed at children. In another 25 countries (including 19 OECD countries), selected food manufacturers have adopted self-regulation. Finally, eight countries (including three OECD countries) do not have any policy restricting food advertising on television targeting children. The response from governments lags even further behind in the case of restricting digital marketing aimed at children (i.e. through internet and social media) as only selected countries have in place some sort of regulation for non-broadcast media.

Other restrictions generally target specific ingredients with harmful properties, with trans fats being the most notable example. The United States and Canada have banned food containing partially hydrogenated oils, which are the primary source of trans fats. In the case of the United States, the ban came into force after a decade of working with the food industry to voluntarily reduce, and effectively eliminate, the use of artificial trans fats. The European Union as well as other countries like Chile have set strict very low limits on the amount of trans fats that can be contained in food. In the United Kingdom, several supermarkets pledged in 2012 to work towards voluntary removal of products containing artificial trans fats from their shelves and, more recently, the International Food and Beverage Alliance has pledged to phase out industrially-processed trans-fats from the global food supply by 2023.

1.5. Innovative public health actions have a positive impact on population health and are an excellent investment for OECD countries

To tackle overweight and its associated risk factors effectively, countries should upscale their efforts by both implementing new policy options and by modifying policies currently in place. Drawing on available evidence, the OECD has used its microsimulation model to assess the impact on population health, health expenditure and the broader economy of a comprehensive set of highly effective policy actions (Table 1.1). The choice of policies modelled was based on a number of criteria, including the availability of solid quantitative evidence to feed the OECD model. In addition, these policies needed to be aligned with the WHO Global Strategy on Diet, Physical Activity and Health and relevant global action plans, including for the example, the recent Global Action Plan on Physical Activity 2018–2030, and to the extent possible form part of a country’s policy priorities. In addition, actions were combined into three promising “policy packages” encompassing, respectively, communication policies, policies to promote physical activity and a “mixed” package containing actions that are less often implemented across countries. Finally, the OECD gauged the potential effect of a 20% reduction in calorie content in pre-packaged and calorie-dense food, achieved through reformulation. The analyses cover 36 countries including OECD countries in the European Region as well as Australia, Canada, Japan and Mexico, other non-OECD EU28 member states and South Africa. Analyses assessing reformulation were extended to other selected G20 and OECD accession and selected partner countries.
### Table 1.1. Policy actions to tackle obesity included in the analysis

<table>
<thead>
<tr>
<th>Health education and health promotion</th>
<th>Environmental changes</th>
<th>Regulation</th>
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<tbody>
<tr>
<td>Food labelling schemes</td>
<td>Workplace wellness programmes</td>
<td>Regulation of advertising of unhealthy food targeting children</td>
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<tr>
<td>Menu labelling schemes</td>
<td>Workplace sedentary behaviour programmes</td>
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<tr>
<td>Prescription of physical activity by primary care doctors</td>
<td>School-based programmes</td>
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<td>Mobile apps to promote healthier lifestyles</td>
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Source: OECD analyses on relevant literature.

### 1.5.1. Population-wide actions targeting adults are generally most effective in the short and medium terms

Substantial health gains may be achieved by scaling up many of the assessed policies to the national level. Population-wide actions, such as food labelling schemes, menu labelling schemes and a series of mass media campaigns are evaluated across countries as the most effective interventions. While these interventions may only promote small behavioural changes (e.g. about 0.4% long-term reduction in the BMI in the case of food labelling schemes), they cover a very large share of the population, in some cases virtually the whole population, producing overall a significant impact.

Conversely, actions targeting either specific individuals (e.g. prescription of physical activity by primary care doctors) or specific population groups (e.g. individuals employed in medium-sized and large-sized enterprises through workplace programmes) show a more limited effectiveness at the population level. These interventions generally target high-risk individuals and can produce significant behavioural changes in those who are exposed to the intervention. However, these interventions only cover a limited share of the population (e.g. 2.31-6.95% in the case of workplace-based interventions) therefore producing an overall limited impact.

Finally, actions targeting children generally show the smallest impact over a 30-year period. While some of these actions are effective (e.g. regulation of advertisement of unhealthy food to children), they generally require longer periods to produce significant health effects at the population level. The incidence of chronic diseases caused by obesity starts rising significantly only in individuals aged 50 and over. This means that, for example, an intervention targeting 10 year-old children cannot be expected to produce any significant effect on the incidence of diseases such as cancers, diabetes and cardiovascular diseases in the targeted group for at least 40 years. Nonetheless, previous OECD analyses showed that in the long term, these interventions become among the most effective and cost-effective. In addition, these actions perform well in terms of reducing labour market costs.

Findings from the OECD microsimulation model show that, overall, the assessed policies may significantly reduce the burden of disease caused by overweight and increase population health. The impact of actions on morbidity (measured in DALYs), taking into account how chronic diseases affect quality of life, is generally greater than their impact on mortality, suggesting that public health actions delay the development of chronic diseases to later in life, rather than preventing their development completely. In addition, public health actions to tackle obesity cause a small increase in the number of individuals developing medical conditions not directly linked to overweight, such as certain injuries, because they prolong life and hence increase the lifetime risk. Nonetheless, the overall effect on health is positive. More specifically, results show that:
• The most effective intervention, menu labelling, is predicted to prevent about 24,000 cases of cardiovascular disease, 11,000 cases of diabetes, and 1,900 cases of cancer per year. Mass media campaigns and food labelling schemes are also effective, producing results that are about three-quarters or half of those produced by menu labelling schemes.

• Labelling schemes and mass media campaigns can lead to a gain of between 51,000 and 115,000 additional LYS per year across all countries. Interventions targeting high-risk individuals could lead to a gain of 16,000 to 32,000 LYS per year. Countries in Central and Eastern Europe would be among those benefitting the most from the implementation of these interventions.

• In all countries, from 1.2 million DALYs up to 2.7 million DALYS can be gained cumulatively by 2050 thanks to the implementation of labelling schemes and mass media campaigns. All other interventions would instead produce gains in population health that would only be half or less than half the size.

An improvement in population health goes hand in hand with a positive impact on health expenditure. Although it might seem intuitive to expect that reducing the obesity burden will lead to the reduction in health expenditure, this is by no means guaranteed, since people avoiding obesity-related disease conditions may still suffer from other competing diseases, and/or accumulate additional health expenditure as a result of living longer. Nevertheless, the OECD model suggests that this is not the case for public health actions promoting a healthier diet and an active lifestyle and all the interventions modelled contribute to a reduction in health expenditure. More specifically, the OECD model suggests that:

• On average, USD PPP 0.99 per capita per year can be saved across the 36 countries included in the analysis by implementing menu labelling schemes, the interventions with the biggest impact on health expenditure. The other interventions produce average savings in health expenditure ranging from USD PPP 0.04 to USD PPP 0.97 per capita per year.

• Scaling up the results at the population level, the yearly savings in health expenditure across all countries vary from USD PPP 37 million for school-based programmes, to USD PPP 922 million for menu labelling interventions.

In addition to reduced health costs, the implementation of the assessed policies also leads to a reduction of costs caused by suboptimal productivity of the labour force. All the interventions show potential to increase labour force productivity, mainly through an increase in employment and reduction in absenteeism and presenteeism. It is calculated that mass media campaigns, the most effective action, would help bring an additional 28,000 people to the labour market through increased employment; while another 22,500 individuals would be "virtually" gained through decreased absenteeism and presenteeism. Overall, each year, this would correspond to up to USD PPP 1.92 billion in lost productivity that can be saved in all the countries combined for this intervention. Consistently across policies and countries, savings from avoiding reduced labour force productivity will considerably exceed the savings from reduced health expenditure.

Implementation costs vary substantially across interventions and countries. The cost of implementing the policy actions varies due to a number of factors, including whether the intervention is aimed to cover the whole population (e.g. mass media campaigns and use of mobile apps) or if it aims to target individuals (e.g. school-based programmes), with the latter generally being more costly on a per capita basis. Other factors such as the involvement of medical personnel (as in prescription of physical activity by primary care doctors) or of private sector to deliver the intervention (as in workplace-based programmes) may also have an impact on total costs. Low-resource interventions cost from as little as USD PPP 0.5 up to USD PPP 1.3 per capita per year. More resource intense interventions can cost up to about USD PPP 8 per capita per year.

When all the costs and savings are taken into account, the OECD model concludes that, consistently across interventions and geographical settings, all the considered policy actions are a good investment for countries. Results from the analyses show that most investments in these measures completely pay for themselves and, in many cases, produce an effect on the economy of the countries and on the budget of their citizens that is significantly greater than their implementation cost. Policies are generally expected to
contribute to an increase in GDP above trend for the 36 countries analysed in the range of 0.005% to 0.021% annually, corresponding to an additional output of up to USD PPP 7.69 to USD PPP 27.86 per capita per year. At the same time, the OECD calculated that:

- The cost of implementing food advertising restrictions, mass media campaigns, menu labelling and workplace sedentary behaviour programmes is about 20% or less of the predicted benefit to the economy.
- The cost of implementing food labelling or mobile apps is about 40% of the benefit in terms of GDP.
- The investment in the most costly interventions such as workplace wellness, prescribing physical activity and school-based programmes corresponds roughly to their GDP benefit.

In other words, the OECD analyses conclude that for each USD PPP 1 invested in the prevention of obesity, there will be a return of up to USD PPP 5.6 in the form of total economic benefits (i.e. GDP) on average each year over the next 30 years (Figure 1.5). More importantly, all the assessed policies will prolong life, not just during a person’s later years but also by keeping people healthy during the central part of their life and allowing them to do the things that they enjoy and that society needs.

Figure 1.5. Return on investment of policy actions and packages of policies to tackle overweight and related unhealthy lifestyles

USD PPP returned in GDP benefits for every USD PPP invested in the policy

Note: Up to USD PPP 5.6 could be returned for each USD PPP 1 invested in public health policies to tackle overweight. Estimates are calculated by dividing the increase in GDP produced by the intervention by the cost of implementing the intervention. Interventions with a comparatively lower impact on GDP (and effectiveness on population health) may have a higher return of investment if they have a low implementation cost.


1.5.2. Combining policies into a coherent prevention strategy helps countries reach a critical mass with a greater impact

Combining public health actions into prevention packages provides multiple advantages. Causes of obesity are multifaceted and a number of different factors underpin the development of unhealthy lifestyles in the population. A first substantial advantage of combining single actions into prevention strategies is that packages of interventions can address multiple causes at the same time. In addition, packages can target
different population groups simultaneously producing better results to the whole population. Finally, policies within a package can interact with one another sustaining positive behavioural changes in a more than additive fashion. For example, there is some evidence that the combination of mass media campaigns and food labelling schemes would produce a greater impact if launched simultaneously, than the simple arithmetical sum of the two. Analyses carried out with the OECD model take into account these first two components but adopt a conservative assumption on the potential super-additivity of combining policies into packages.

The OECD gauged the effect of three promising policy packages (Table 1.2). A first package, the “communication package”, focuses primarily on actions to increase awareness in the population. Actions included in this package are already implemented in many (but not all) countries included in the study but with a lot of variability in terms of implementation and design. A second package, the “mixed package” contains actions that are less often implemented across countries and provide a set of innovative options for countries. The third package, the “physical activity package” mainly encompasses environmental changes promoting an active lifestyle.

Table 1.2. Packages of policy actions to tackle obesity included in the analysis

<table>
<thead>
<tr>
<th>Communication package</th>
<th>Mixed package</th>
<th>Physical activity package</th>
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<tbody>
<tr>
<td>Food labelling schemes</td>
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In general, the communication package and the mixed package produce similar results during the timeframe considered for the analysis (i.e. between 2020 and 2050). Conversely, the physical activity package would be about 60% less effective compared to the other two. More specifically, the OECD model calculates that:

- Overall, for each USD PPP invested in one of the policy packages, a return of USD PPP 1.3 to USD PPP 4.6 can be expected in the form of economic benefits (Figure 1.5).
- Up to USD PPP 26 billion can be saved across the health budgets of all the 36 countries included in the study by 2050, following the implementation of the communication package. The mixed package and the physical activity package would produce savings equal to USD PPP 23 billion, and USD PPP 17 billion, respectively.
- There will also be a substantial impact on GDP, with the communication package expected to increase GDP from 0.02% to 0.11% across the countries included in the study, with the other two packages producing a lesser effect, ranging from 0.01% to 0.06%.
- Each year, the total labour force of the 36 countries included in the analysis will increase by an equivalent of about 57 000 employees from the communication package; 40 000 from the mixed package and 35 000 from the physical activity package, due to increased employment. Overall, the output of the labour force will increase by between USD PPP 3.5 billion (physical activity package) and USD PPP 5.3 billion per year (communication package).
- The communication package, the mixed package and the physical activity package would lead to a gain of, respectively, 205 000, 160 000 and 70 000 LYs every year. The three packages would also save between 5.2 DALYs and 2 million DALYs in all modelled countries by 2050.
1.5.3. Achieving a 20% reduction in calorie content in energy-dense food would have a significantly positive effect on the health and economy of countries

In recent years, many OECD countries have shown a growing interest in policies promoting food reformulation. Much of this interest has been fostered by successful attempts to promote reductions in the salt content of pre-packaged food and the pressing need for countries to implement ambitious programmes to halt the rise in obesity and childhood obesity. Since the early 2000s, policy makers in OECD countries have been discussing with industry actions to promote reductions in calorie content or specific nutrients such as sugar or fat, mainly saturated fat. Among the various programmes rolled out by countries, the United Kingdom launched one of the most ambitious programmes. In 2018, Public Health England published a plan setting out details for the reformulation programme challenging the industry to reduce calories from “relevant foods” (i.e. high in sugar, salt, calories and saturated fat, such as ready meals, pizzas, snacks, sauces and dressings) by 20%, by 2024. More recently, in 2018, the OECD put forward to the G20 a proposal for a global deal between national governments and industry to scale up the United Kingdom’s efforts to a global level.

Many different policies and measures need to be implemented to achieve a 20% reduction in calorie content in “relevant foods”. Achieving significant reductions in calorie content is a challenging task, requiring the establishment of partnerships among all the various stakeholders to effectively address the technical, social and policy issues arising throughout this effort. Some of the policies that countries have put in place to promote food reformulation include food labelling and menu labelling, mass media campaigns, changes in portion sizes, price policies targeting nutrient content above a certain threshold (e.g. sugar content), incentives to research and development, among others.

While a global deal to reduce calorie content in relevant food by 20% would not address all the causes underpinning the obesity epidemic, including for example low levels of physical activity, the OECD model calculates that if such plan were to be implemented in 42 countries worldwide, it would have a significant impact on the health and the economy of countries. More specifically, the OECD model suggests that:

- Overall, the GDP of countries is expected to be above trend by 0.51% on average each year, generating an additional economic growth similar to the whole economy of Chile (i.e. about USD PPP 456 billion).
- Health expenditure would be decreased by about 0.21%, or about USD PPP 13.2 billion per year, ranging from 0.06% in Estonia to 0.33% in the Netherlands.
- Up to 1.1 million cases of chronic diseases per year would be avoided. Most of the gains in health would be achieved through a reduction in cardiovascular diseases (about 771,000 cases per year would be prevented) with additional reductions in diabetes, dementia and cancers.
- Almost 3.1 million LYs would be saved every year and population health would gain an additional 4.0 million DALYS every year. This would translate in an increase in life expectancy of about 2.9 months above trend, similar to the average gain in life expectancy experienced in OECD countries in the last 2.5 years.

1.6. Public health policies may affect industry revenues but countermeasures exist to minimise additional costs

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 others, can be required to change their product, pricing, packaging, or marketing and advertising approach. This can result in implementation and compliance cost, or a change in the volume of sales. Conversely, other types of interventions including, for example, different types of subsidies promoting healthy products may have a positive impact on the...
industry by providing additional revenue and generating public interest. The OECD analysed the main costs that may follow the implementation of innovative public health actions to tackle overweight and has identified countermeasures that countries can put in place to minimise such costs.

1.6.1. The main costs to industry include research and development costs, production and distribution costs, marketing and advertising costs and changes in sales

The OECD has assessed the evidence of the impact of the following set of interventions: product reformulation, changes in portion sizes, changes in food labelling policies, taxes on unhealthy food, advertising restrictions and introduction of healthy food subsidies. While each intervention has specific features which may trigger different costs, the following four factors have been identified as the major drivers of costs for industry: Research and development (R&D) of new or modified products; production and distribution costs; marketing and advertising costs and changes in sales.

Research and development of new or modified products.

Reformulation, changes in portion size as well as changes in food labelling and taxation of unhealthy nutrients are likely to induce R&D activity to comply with nutrient targets or to avoid a negative label or taxation. R&D costs are mainly one-off costs entailing idea generation, product development, product evaluation, consumer testing, and shelf-life studies. R&D costs for reformulation were estimated to vary from GBP 5 000 to GBP 450 000 (ca. USD 6 500 to USD 590 000) in the United Kingdom and, in the United States, between USD 9 000 and USD 82 000 for minor, noncritical ingredients and between USD 89 000 and USD 660 000 for major ingredients. In the case of changes in portion size and food labelling, R&D activities also imply redesigning the packaging. For example, graphic design and prepress costs were evaluated at about USD 4 000 in a US study and at AUD 2 00 to AUD 3 000 (USD 1 400 to USD 2 100) in Australia.

Production and distribution costs

Reformulation, changes in portion size as well as changes in food labelling and taxation of unhealthy nutrients can change production and distribution costs, including fixed one-off costs as well as ongoing costs. One-off investments may be required to change the machinery and other production processes and include costs associated with downtime and implementation. For example, the cost of factory and transport re-tooling in response to a reformulated product was estimated to range between GBP 8 000 and well over GBP 100 000 (USD 10 500 to USD 130 000). The cost of the nutritional analysis to support the implementation of menu and food labelling was estimated at about USD 660 in the United States and at AUD 500 to AUD 900 (USD 360 to USD 640) in Australia. On average, this would result in a cost of USD 70 000 for one restaurant chain in the United States to implement menu labelling for each item on the menu. Ongoing costs generally include ingredient costs as well transport, storage or packaging costs. Ingredient costs may vary and, in some cases, the new ingredient may be cheaper than the old one. For example, artificial sweeteners may be cheaper to use than sugar because of the low volume needed to reach the same level of sweetness. However, the new ingredient may also shorten the shelf life of the product triggering higher re-stocking costs and, potentially, more wastage. The cost of implementing a new label depends on the size and colour of the logo but, in general it has been evaluated at USD 1 100 to USD 6 150 with higher costs if, for example, the colour of the logo is not already being used in the printing of the existing label.

Marketing and advertising costs

Some policies including, for example, reformulation, food labelling, price policies and regulation of advertising can result in cost for marketing and advertising. One-off costs include the design of new packaging and labels and, in the case of restaurants, of menus displayed on boards or hand-held menus.
Concerned companies may have to hire an advertising agency to re-design their marketing material. In addition, in many OECD countries, a new marketing campaign would need to be tested against regulations, which can involve a process called preclearance. However, the cost associated with this may be carried by the channels on which the advertisement is broadcast, and even for an express, same-day clearance the fees may be small. For example, in the United Kingdom the clearing process of a new advertisement was set at GBP 250 (USD 320). The new advertising strategy, particularly if induced by regulation, may carry a change in marketing costs due to a change in the media channel used to convey the message. This would result in an ongoing cost, should the change in channel result in higher costs.

Changes in sales

Finally, all the considered policies may affect sales, including a decrease in sales that would negatively affect the profits of producers. The review has identified three main reasons that may lead to a drop in sales: first, a decrease in the quality, including perceived quality by consumers, or the taste of the product; second, a worsening of the image of the product (e.g. following the introduction of artificial ingredients or due to a negative warning label); and third, a reduction in the value for money of the product. This may be actual value for money, for example if a price increases due to taxes or higher ingredient cost, or a perceived value for money, following a reduction in the portion size of pre-packaged food. A change in sales is the factor that has the potential to affect most industry’s revenues, following the introduction of a public health policy aiming to steer consumption of specific products. At the same time, this is the aspect most difficult to quantify as multiple factors – not necessarily linked to the implementation of the public health policy – may modify sales. In some cases, as described below, it is even possible that sales of products (or other products produced by the same manufacturer) increase, following the introduction of public health policies.

1.6.2. Solutions exist to mitigate implementation and compliance costs

Governments can put in place a number of strategies to help minimise industry’s implementation and compliance costs following the introduction of new public health policies to tackle unhealthy diets. More specifically, the OECD analyses have identified three key areas that, if taken into consideration during the planning and designing phase of any new public health action, would be able to decrease the economic burden for relevant businesses.

Allowing sufficient time to implement the new policy is the key factor in decreasing costs to the industry, particularly in the case of policies entailing product reformulation or changes in packaging. Most food producers reformulate their products every few years as part of their normal business, to improve quality, save cost or respond to changes in consumer preferences. Similarly, changes in packaging and labelling of products take place on a regular basis for many products to adapt to new trends. If the introduction of the policy can be coordinated with these regular changes, industry would be able to incorporate the new required standards, potentially with only marginal additional costs or with no additional cost. Available literature suggests that a period of 24-36 months may provide sufficient time for adaptation as more than 30% of products would be reformulated in any case and the vast majority of all products could be relabelled as part of planned changes. The choice of the transition period should take into account the delay in public health benefits caused by the postponement of the new policy’s implementation.

Information campaigns run in parallel with the launch of the new policy may promote sales of healthier products, particularly in the case of new food labelling schemes. For example, 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%. Similarly, a campaign aiming to increase awareness and use of the Keyhole logo among Danish men over 45 years old led to a 10% increase in the sale of foods with the logo. Conversely, in some cases, the use of a “stealth” approach may be more effective, particularly in the case of food reformulation and changes in
portion sizes. For example, 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.

Finally, businesses and industry may undertake a series of countermeasures to mitigate the potential consequences on profits produced by the implementation of new public health actions. For example, following a change in portion size, it has been shown that modifying the size of the package in multiple dimensions, as opposed to just one dimension, makes the change in volume less noticeable. Additionally, food vendors can use principles from behavioural economics including, for example, making the smaller portion the default size or changing the name of the portion sizes to nudge consumers to choose smaller portions.

1.7. Conclusions: tackling obesity and its related unhealthy lifestyles is an excellent investment

Overweight and obesity have been widely acknowledged as key risk factors to population health and the global economy for at least two decades. Despite certain policies put in place by countries around the world, the multifaceted causes underpinning the obesity epidemic are not yet fully addressed and, so far, new policies have not been able to stop the epidemic. The current and projected health burden of overweight and the chronic diseases it causes are enormous, as well as their costs to health systems and society, and the personal costs borne by the general population, through increased taxation, lower probability of being employed and lower educational attainment.

While some results have already been achieved, more needs to be done. Policy makers have a comprehensive menu of “traditional” public health interventions from which to choose. New technologies, advances in reformulation techniques and policies to modify the environment in which we live also offer exciting opportunities to promote healthier behaviour. More needs also to be done to promote an active lifestyle throughout the course of the day, from the workplace to commuting as well as leisure time. The OECD analyses show that these are all effective and cost-effective interventions with returns on investments of up to USD PPP 5.6 for each USD PPP invested.

Some of these interventions may also carry direct implications for industry and business by increasing production costs or influencing sales. Even considering these costs, taking a societal perspective, the benefits of public health actions are likely to outweigh costs; particularly if actions aimed at minimising the impact on business and industry are implemented.
Notes

1 Throughout this chapter, the nutritional status of individuals is defined according to WHO guidelines and thresholds and uses body-mass index (BMI). Overweight is defined as a BMI higher than 25 kg/m²; pre-obesity is defined as a BMI of 25-30 kg/m²; and obesity is defined as a BMI higher than 30 kg/m². Obesity can be further divided into class I, class II and class III obesity. Class I obesity is the milder form of obesity and is defined as a BMI of 30-35 kg/m²; class II obesity is defined as a BMI of 35-40 kg/m²; while class III obesity is defined as a BMI over 40 kg/m². Morbid obesity includes class II and class III obesity and is defined as a BMI higher than 35 kg/m². Further information can be found in Chapter 2 – Box 2.1. Using body mass index (BMI) to define levels of adiposity.

2 A description of the OECD SPHeP-NCDs model can be found in Chapter 3, Box 3.2.

3 OECD accession and selected partner countries include: Brazil (also a G20 country), China (also a G20 country), Colombia, Costa Rica, India (also a G20 country), Indonesia (also a G20 country), Peru and South Africa (also a G20 country).

4 Lack of physical activity and sedentary behaviour are two different, but complementary factors independently affecting the development of chronic diseases such as cardiovascular diseases and cancers. Sedentary behaviour is defined as any waking behaviour involving low-energy expenditure, such as when an individual is lying, reclining, sitting, or standing. Physical inactivity, on the other hand, is defined as performing insufficient amounts of recommended moderate to vigorous physical activity. Individuals can be sedentary yet physically active, and vice-versa. As an example, individuals can sit for the majority of the week but still achieve 150 minutes or more of moderate-vigorous physical activity per week.

5 For example, it has been evaluated that a modest goal of all OECD countries boosting their average PISA (Programme for International Student Assessment) scores by 5% (corresponding to 25 points) over the next 20 years would increase the GDP of OECD countries by USD 115 trillion over the lifetime of the generation born in 2010.

6 At least one systematic review concludes that front-of-pack labelling is more effective than information positioned on the side or back of packages. Campos et al., 2011 – https://doi.org/10.1017/S1368980010003290.

7 The list of countries with taxes on sugar-sweetened beverages include: Belgium, Chile, Finland, France, Hungary, Ireland, Latvia, Mexico, Norway, Portugal, Spain, United Kingdom and the United States (at the sub-national level).

8 Note that, for the policy interventions regulating food advertising targeting children, the sum of the OECD member countries is 38 (and not 36 as on the 1 June 2019) as Latvia and Lithuania have mandatory restrictions on television advertising to children for energy drinks but voluntary restrictions for other products.