Enhancing economic performance and well-being in Chile

Policy Actions for healthier and more efficient food markets

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1. Key findings and policy actions

MAIN FINDINGS	KEY POLICY ACTIONS
Building a comprehensive framework for the evaluation of the on Food Labelling and Advertising (Law 20.606)	
The Law 20.606 provides a comprehensive policy package to fight rising trends in overweight and obesity prevalence. However, it has not been fully evaluated. Information is still lacking on: 1. **The food environment**: keeping track of food products available on the market (ingredients, nutritional compositions, warning labels or claims, recommended portion sizes and prices), as well as monitoring the evolution of food products' ingredients (e.g. reformulation efforts) or production methods. 2. **Consumers' food choices**: following households' food purchases and acquisition and linking them to individual food intake. 3. **Nutrition Literacy and behavioural insights**: assess the level of nutrition literacy and identify the primary decision-making factors behind food purchases, notably by understanding the role health considerations play in purchasing decisions. The information on those different elements is not yet publicly and systematically available.	In order to **build a comprehensive framework for the evaluation of the Law 20.606**, the Government should: ● **Set up a consultative process leading to an institutionalised and permanent mechanism to monitor and evaluate the food environment.** This could lead to the establishment of a national "Food Quality Observatory". ● **Develop a framework to assess changes in consumers' behaviour related to the Law 20.606**, following households' food purchases and acquisition and linking them to individual food intakes. ● **Communicate the evaluation process in a clear and understandable way** and provide the opportunity for researchers to conduct their own pieces of research. ● **Set up a monitoring process to assess the quality of food served or sold in public and private schools,** building on existing efforts by the National School and Scholarship Assistance Council (JUNAEB). ● **Make this evaluation framework public and clearly documented online.**
Potential effects of Law 20.606 on public health outcomes would be difficult to separate from the effects of other policies, and may only be observed with a delay. This would therefore not be the direct focus of the evaluation framework. Nevertheless, Chile should continue to monitor health outcomes in the area of obesity.	● **Continue to monitor the prevalence of overweight and obesity in the Chilean population, and in particular for vulnerable groups, including infants and children.**
Expanding Chile's obesity strategy	
Despite increasing knowledge on obesity prevention and healthy eating, nutritional awareness is not yet sufficient to change the dietary habits of most Chileans.	● **Design and test interventions that can facilitate consumer awareness and choice for healthy eating.** This could include making healthier products more visible and easier to select and consume, supporting better meal planning and providing incentives for healthier choices (including through non-regulatory means). ● **Explore the use of digital tools** to deliver these interventions based on international approaches.
In Chile, the labelling law does not affect food consumed outside home.	● **Explore and test additional measures to encourage healthy choices when consuming food outside home.** This could include adding information on calories or healthfulness of food on menus in restaurants, canteens, and other out-of-home dining settings (including through non-regulatory means).
Advertising restrictions for unhealthy foods to children could be tightened	● **Expand the ban on advertising of food with a label to areas near schools** ● **Prohibit advertisement of "high in" foods during sports** and other cultural events
Food supplements and Supplemented Foods	
The market for vitamins and dietary supplements has grown considerably in recent years in Chile. However, there currently is no comprehensive regulation of these products in Chile.	● **Create a clear differentiation between food supplements and supplemented food** to further facilitate access to healthy food options. ● Develop regulation for dietary supplements to address safety issues and ensure evidence-based information, including: – Prohibited or restricted ingredients – Daily minimum and maximum consumption levels – Accurate, informative and non-deceptive labelling (including nutrition and health claims)

2. Introduction and overview

Obesity is a pervasive health and socio-economic issue in Chile. As of 2016, the country has the second highest obesity prevalence level and the highest percentage of overweight or obese adult population among OECD countries. Nearly two-thirds of the Chilean population, and a third of children, is overweight or obese. Overweight is responsible for a reduction in life expectancy of about 3.5 years in Chile (compared to a reduction of 2.7 years across OECD countries). In addition, treating overweight-related diseases costs, on average, about 8.4% of the health budgets of OECD countries (OECD, 2019a). If no changes are made by 2050, Chile would need to spend 9% of its entire health budget on treating the consequences of obesity and overweight (OECD, 2019a).

Obesity and overweight lower school performance as well as educational attainment and completion of higher education. The prevalence of overweight children in Chile is nearly 45% (compared to around 25% across OECD countries). Obesity and overweight could reduce Chile's GDP by 3.8% over 30 years (OECD, 2019b).

Chile acknowledged that obesity is a multifaceted problem that requires comprehensive and multisectoral interventions to obtain better results. To create a healthier food environment, Chile has put in place a wide portfolio of interventions: from population-level fiscal policies, school and workplace-focused programmes, to individual interventions through primary care. Notably in July 2012, the Chilean Congress approved the Law on Food Labelling and Advertising (Law 20.606) after five years of consultations and collaboration with groups of health professionals, researchers, and legislators. With its mandatory labelling law and taxation of sugar-sweetened beverages, Chile is at the vanguard when it comes to obesity policy. Despite all the efforts, Chile continues to struggle with high costs and high morbidity related to overweight and obesity in children and adults.

To support Chile's continuous effort to address obesity, this assessment lays out a number of suggested policy actions to further improve the ongoing efforts to promote healthy attitudes and behaviours and reduce obesity, while enhancing the productivity and competitiveness of the economy. These recommendations are based on international policy approaches which are described within this report.

The Assessment focuses on three areas: 1) building a comprehensive framework for the evaluation of the Law 20.606; 2) expanding Chile's Obesity Strategy; and 3) defining and regulating Food Supplements and Supplemented Foods.[1] It stresses the importance of building a strong and comprehensive evaluation framework for Law 20.606, through the collection of reliable data. While preliminary assessments of Law 20.606 exist, a full evaluation of the law has not been performed yet. To this end, the Assessment proposes mechanisms and indicators for the prompt creation of a comprehensive data collection framework to evaluate the law (Chapter 4). This will be invaluable to document and monitor how the food environment and consumer choices have evolved following the introduction of the new food

1. Food supplements are usually in a pill or capsule format i.e. vitamins. Supplemented food usually takes the form of a food product with enhanced nutritional content.

labels. Moreover, the Assessment identifies additional policy actions that Chile could implement to expand its obesity strategy, including concrete strategies to encourage healthy consumer behaviour and an assessment of how to scale up the implementation of these strategies (Chapter 5). Finally, the Assessment looks at how Chile's current efforts to modify the current regulation on food supplements and supplemented food could be strengthened to further facilitate access to healthy food options (Chapter 6).

To support the achievement of these key policy goals, the Assessment includes a detailed action plan for the implementation of the suggested policy actions, with indicative timelines over the short and medium term, responsible authorities and milestones to support the Government to prioritise, sequence and track progress. These policy actions can be found in detail at the end of each chapter. The Assessment also includes in each chapter additional policy actions to be considered as potential long-term interventions.

To help address the cross-sectoral nature of the obesity problem, the Assessment was prepared by an OECD multidisciplinary team with experts from the Economics Department, the Employment, Labour and Social Affairs Directorate and the Trade and Agriculture Directorate. The OECD team worked closely with a number of Chilean institutions, including the Ministries of Economy, Health, Social Development and Agriculture. The OECD team also consulted with representatives of the food industry, academia, civil society and consumer organisations. The Assessment and the policy implementation plan build on information collected through a questionnaire, as well as meetings and interviews with key government institutions, private sector, research institutions and civil society conducted during an expert mission to Chile on 2-8 May 2019.

3. Setting the stage: obesity and overweight in Chile

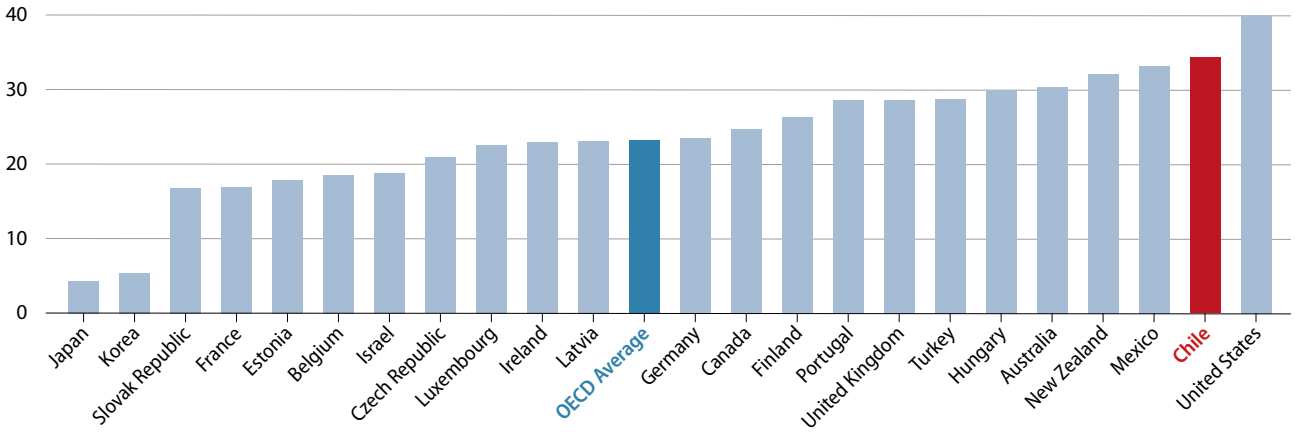
3.1 OVERVIEW OF DRIVERS AND IMPACTS

Obesity and overweight associated to unhealthy behaviours are the top causes of chronic diseases and burden of disease in Chile, and represent the largest and fastest-growing single risk to health in the country. In 2016, 39.8% of the Chilean population was overweight, and another 34.4% was obese (Chilean Ministry of Health, 2017). In 2016, Chile has the second highest obesity prevalence level (see Figure 3.1) and the highest percentage of overweight or obese adult population, among OECD countries. The 2017 National Health Survey of Chile shows that there has been no reduction in the prevalence of overweight and obesity in the last 15 years. In addition, the prevalence of overweight children in Chile is nearly 45%, which is considerably higher than the OECD average of around 25%.

Moreover, the prevalence of obesity is higher among the more vulnerable parts of the population. Women are more likely to be obese than men: in 2016, 38.4% of women were obese compared to 30.2% of men (OECD, 2019b). With respect to childhood obesity, children living in rural areas tend to be more obese than those living in urban areas and in the Metropolitan region.[1] Similarly, within the Metropolitan region, children living in high income neighbourhoods (e.g. Vitacura, Nuñoa and Providencia) tend to be significantly less obese than those living in low income areas such as San Ramón or Cerro Navia (JUNAEB, 2018).

Figure 3.1. Chile has the second highest obesity prevalence level across OECD countries

Measured obesity prevalence in 2017 (or nearest year) (%)



Source: OECD Health Statistics, https://doi.org/10.1787/health-data-en.

1. This is relative to available data (JUNAEB, 2018).

Structural and Behavioural Drivers of Obesity in Chile

The rise of obesity prevalence in Chile in the past decades is associated with a decrease in levels of physical activity and an increase in consumption of calorie-dense food. Individuals' behaviour and their dietary choices are the result of a complex interplay of underlying economic, social, and political factors and their interaction with the "food environment". It is therefore important to consider the strong structural factors that affect the choice environments of individuals, including, among others: (i) the extensive marketing of highly processed and nutrient dense food; (ii) the social inequalities that affect access to healthy food choices; (iii) individual cultural food traditions or nutritional literacy; and (iv) access and exposure to green spaces.

The rise of obesity is linked to several structural and behavioural factors, such as changes in lifestyle and in the economy – automation and fewer physically demanding jobs, as more people are employed in clerical and service jobs and functions combined with a greater availability of and demand for ultra-processed food and beverages. These changes mirror wider trends at the global level[2], with most countries around the world displaying a similar rise in urbanisation and sedentary lifestyles, as well as an increase in the availability, and price convenience, of energy-dense processed foods, often offered in large portions and sizes.

Over the past two decades, as a result of the evolution of the cultural, economic and social environment, Chilean eating habits have substantially changed, mainly with an increase in the consumption of energy-dense food, meat and milk products and a decrease in the consumption of whole grains, vegetables, fruits and legumes.[3] Preliminary findings from a 2021 study by the Chilean Ministry of Social Development confirm that, for all population quintiles, consumption of vegetables, fruits, legumes and fish is low according to the established recommendation indices (Ministerio de Desarrollo Social, 2021). Additionally, fat consumption has increased by more than 50% between 1988 and 1997 (Mendoza et al, 2017).

According to the last National Health Survey in Chile from 2016-17, only 15% of the population consume enough fruits and vegetables, 9% eat enough fish, and 28% drink enough water, compared to the nutritional guidelines defined in 2013 by the Ministry of Health (Chilean Ministry of Health, 2017).[4] The latest National Food Consumption Survey (2014) showed that only 5% of Chileans have a healthy diet that follows the nutritional guidelines (ENCA, 2016) and that the urban population, higher income and more educated groups tend to have a healthier diet.[5] Moreover, research reports that Chileans have a habit of snacking frequently (Correa T. , Reyes, L., & Corvalán, 2020).

At the same time, as Figure 3.2 shows, Chile has a rising consumption of ultra-processed food and beverage products – with the second highest volume of sales of ultra-processed-products in the Latin America and the Caribbean (LAC) region and the seventh highest in the world as of 2013. Further, it was the world's largest consumer of sugary beverages in 2013. There is substantive evidence that these foods lead to weight gain and increase associated health risks – such as cardiovascular diseases (Moubarac, 2015).

In addition to the decrease in levels of physical activity and an increase in consumption of calorie-rich food, structural and economic factors also impact consumption choices and healthy lifestyles. For instance, income inequality poses problems in terms of access to healthy food. A study conducted by the Department of Public Health of the University of Chile, showed that 27% of Chilean households could not afford a healthy basket, since its cost is 36% higher than the basic food basket (Cuadrado & Garcia, 2015). Moreover, a recent survey undertaken in 2018 suggested that the strongest barrier preventing parents from providing a healthy diet to their children is economic (31% of respondents), while the second biggest barrier is the lack of time (27%) (GFK-Adimark, Fundación-Chile, & Chile-Saludable, 2018).

2. World Health Organization. Nutrition insecurity and unhealthy diets. (2016, August 04). Retrieved June 20, 2019, from https://www.who.int/sustainable-development/cities/health-risks/nutrition-insecurity/en/

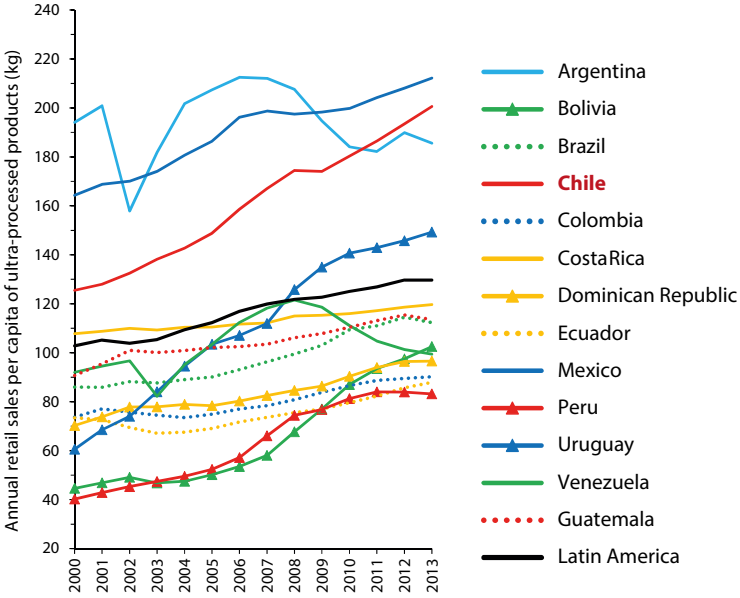
3. FAO. Nutrition and Consumer Protection Department: Chile. (2010). Retrieved June 20, 2019, from http://www.fao.org/ag/agn/nutrition/chl_en.stm

4. The guidelines are accessible at: http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/chile/en/

5. For the purposes of this publication, the definition of (un)healthy food choices in this report is aligned with the definition proposed in Placzek, O., (2021); OECD (2021) as well as in the OECD publication "Policies for Encouraging Healthier Food Choices" (Giner & Brooks, 2019), meaning that this publication does not consider any foods as fundamentally unhealthy. Rather, it describes diets/food consumption patterns, as well as habits, choices and preferences leading to those diets, as potentially unhealthy. The paper also describes some products as unhealthy when consumed excessively. Such products typically are rich in sugar, salt, fat and calories.

Figure 3.2. Chile has seen an increase in the sales of ultra-processed food and beverages over 13 years

Retail sales per capita of ultra-processed food and drink products in 13 LAC countries (2000-2013)



Ultra-processed products here include carbonated soft drinks, sweet and savory snacks, breakfast cereals, confectionery (candy), ice cream, biscuits (cookies), fruit and vegetable juices, sports and energy drinks, ready-to-drink tea or coffee, spreads, sauces, and ready-meals. Quantity in litres is converted into kilograms. Sales data are from the Euromonitor Passport Database (2014).

Source: Moubarac, J. C. "Ultra-processed food and drink products in Latin America: Trends, impact on obesity, policy implications." *Pan American Health Organization World Health Organization: Washington, DC, USA* (2015): 1-58.2019). The data is not presented in PPP, the exchange rate corresponds to 1 CLP =0.0015 US Dollars, (19/04/2019).

Furthermore, a study of diet and physical activity identified males under the age of 20, or over the age of 65, who had either a low education or a high socio-economic status, as having the least healthy behaviours in Chile when both diet quality and level of physical activity were considered at the same time (Graf & Cecchini, 2018).

With respect to consumer behaviour, while processed and packaged food is mostly bought in supermarkets, fresh produce and unprocessed foods are still usually bought from farmers and street markets. The National Cadastre of farmers and street markets indicates that there are 1111 street markets in different communes and regions of the country (CERCOTEC, 2016). It is estimated that they supply 70% of fruits and vegetables and 30% of the fish market for domestic consumption in Chile. Moreover, street markets in Chile are characterised by scholars as an "important territorial actor, which in addition to contributing to local economic circuits, constitute a factor of social integration of the population and are part of the solution for a healthier diet" (CEPAL, FAO, & IICA, 2014).

Health, Social and Economic Costs linked to Obesity and Overweight

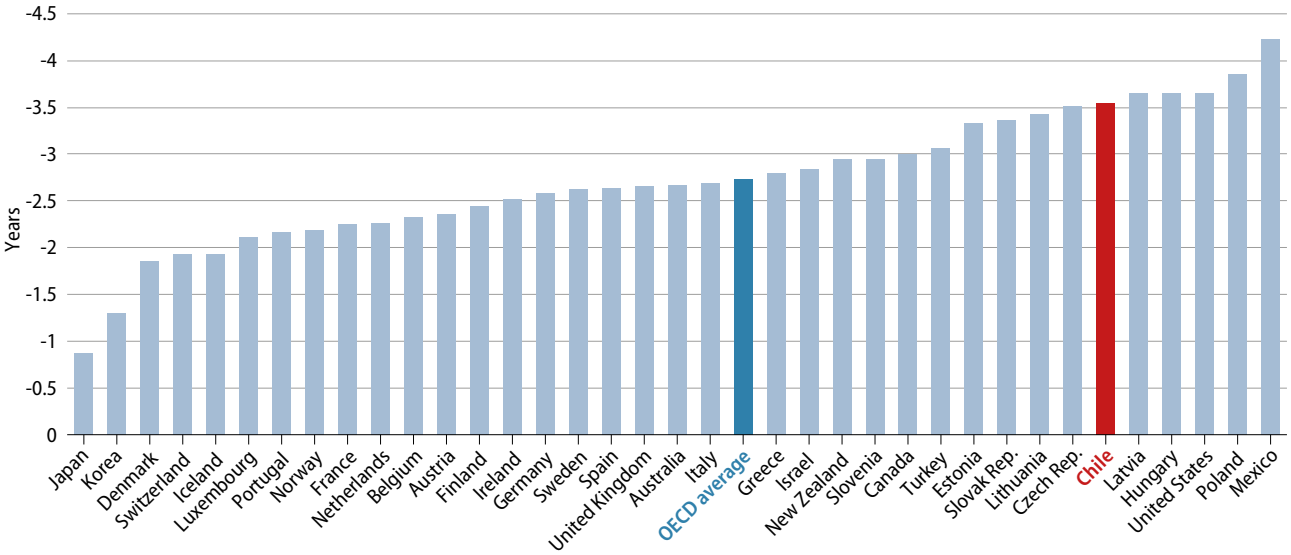
The health implications of rising obesity and overweight in Chile are significant. Overweight is responsible for a reduction in life expectancy of about 3.5 years in Chile (compared to a reduction of 2.7 years across OECD countries (Figure 3.3.). It is projected that, by 2050, there will be around 92 million premature deaths from obesity-related diseases across all of the OECD countries (OECD, 2019a).

Obesity is impacting health expenditures. An average of 2.29 % of the annual total health expenditure was associated with obesity and its related conditions in 2016. If no changes are made, Chile will on average spend 8.6% of its annual health budget on treating the consequences of obesity over the next 30 years - higher than the OECD average of 8.4% (Figure 3.4) (OECD, 2019a).

Furthermore, obesity prevalence has other severe economic consequences besides increasing health expenditure. It also hinders productivity and economic growth, due to lost workdays, lower productivity at work, greater levels of mortality and permanent disability among the working-age population (Devaux & Sassi, 2015). The impact of overweight on life expectancy, health expenditure and labour market productivity can be combined into one overall macroeconomic effect. OECD data indicates that due to overweight, GDP could be 3.3% lower on average in OECD countries, and 3.8 % in Chile over 30 years (OECD, 2019a) (Figure 3.5). The Economic Commission for Latin America and the Caribbean (ECLAC, or

Figure 3.3. Overweight could reduce life expectancy by 3.5 years in Chile

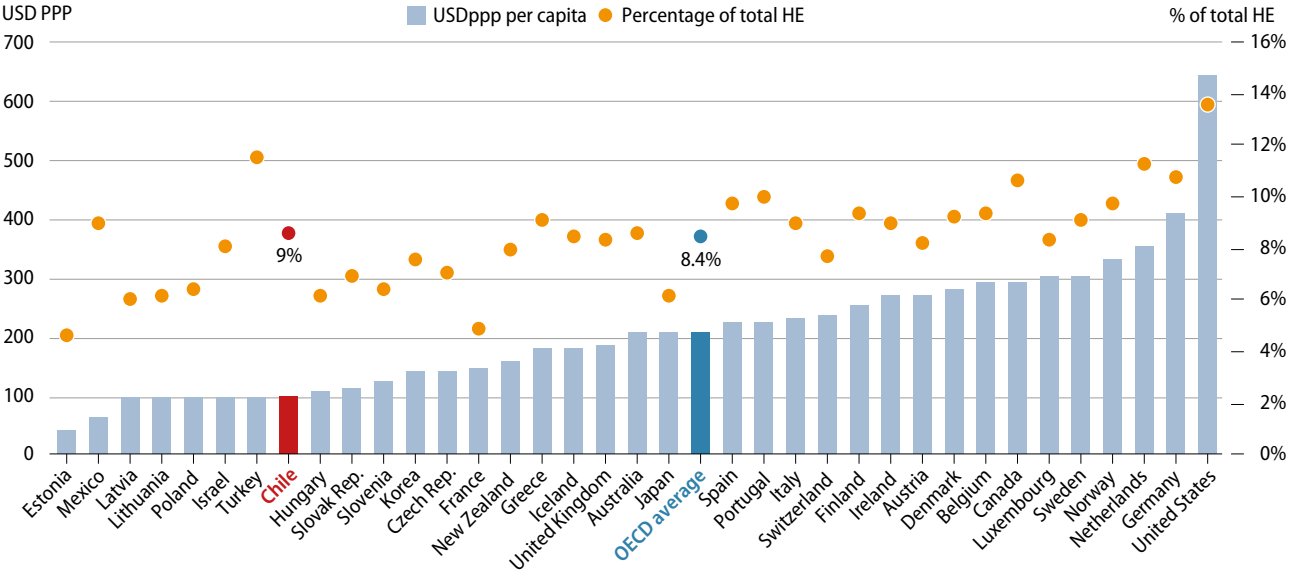
The impact on life expectancy in years, average 2020-2050



Source: OECD, The Heavy burden of obesity, OECD analyses based on the OECD SPHeP-NCDs model, 2019.

Figure 3.4. Health expenditure related to overweight could rise to nearly 3% over 30 years

Health expenditure due to overweight per year, in USD PPP per capita and as a percentage of total health expenditure, average 2020-50.

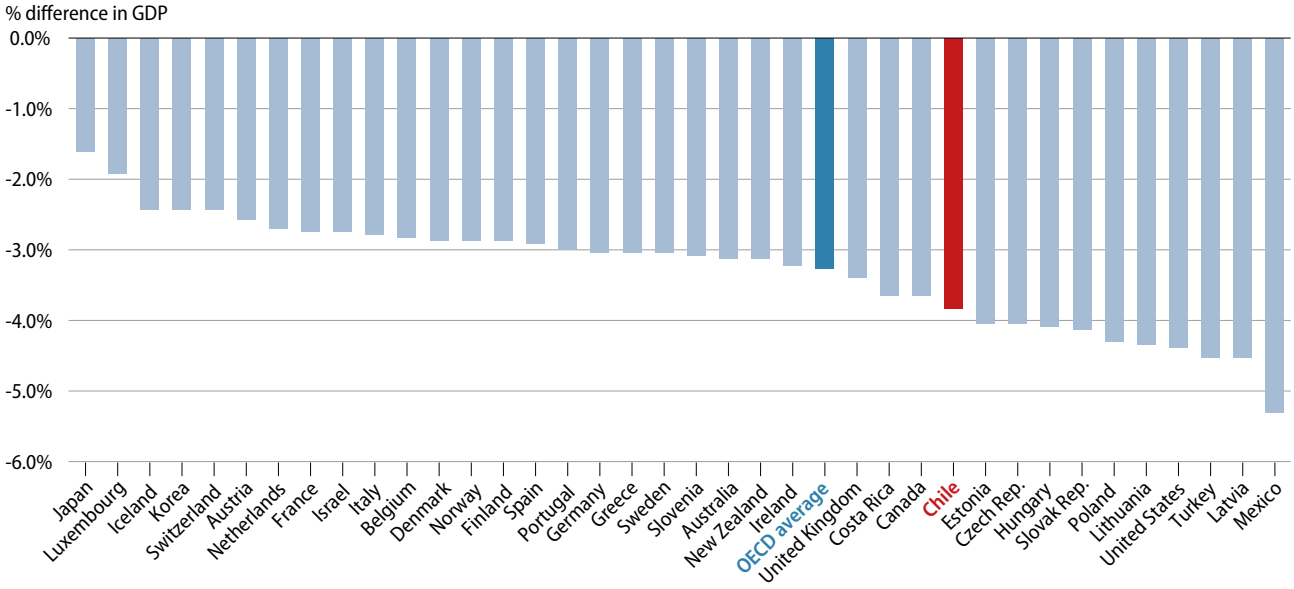


Source: OECD, The Heavy burden of obesity, OECD analyses based on the OECD SPHeP-NCDs model, 2019.

CEPAL in Spanish), estimates that the economic cost of obesity and overweight in Chile was USD 500 million in 2014, or equivalent to 0.2% of GDP. Of that figure, the impact on productivity due to premature deaths and absenteeism accounted for roughly 20% (Fernández, Martínez, Carrasco, & Palma, 2017). Another study, conducted by the Department of Public Health of the University of Chile and funded by the Ministry of Health, estimated that the economic burden of obesity in Chile accounted for 0.5% of GDP in 2016 (Cuadrado C. , 2016). Both the ECLAC and the University of Chile studies estimate that the economic burden of overweight and obesity will steadily increase– according to the University of Chile, it could reach 1.6% of GDP in 2030. This trend is partly explained by the high and rising prevalence of childhood

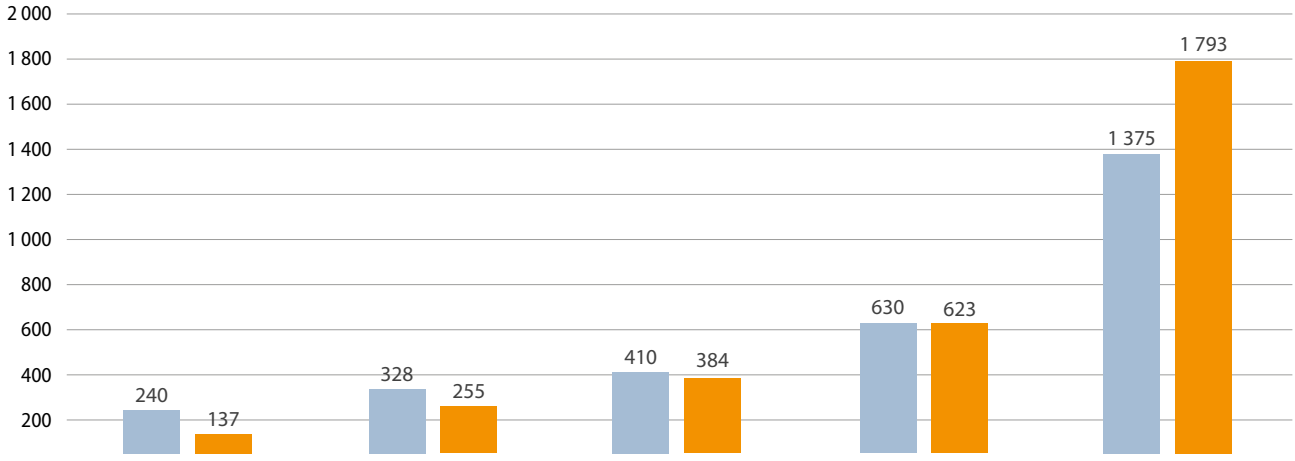
Figure 3.5. Overweight could reduce Chile's GDP by 3.8 % over 30 years

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



Source: OECD, The Heavy burden of obesity, OECD analyses based on the OECD SPHeP-NCDs model, 2019.

Figure 3.6. Average total expenditure by household income in Chile (2018)



Source: Instituto Nacional de Estadísticas (INE), VIII Encuesta de Presupuestos Familiares (EPF), 2018.

Notes: The data is consistent with the high and increasing household debt, which rose from around 30% of disposable income in 2013 to an historic high of 73% in 2018 (Central Bank of Chile, 2019). The data is not presented in PPP, the exchange rate corresponds to 1 CLP = 0.0015 US Dollars, (19/04/2019).

overweight and obesity in Chile – which is the highest rate in any OECD country for which data is available. Children who are overweight are more likely to be overweight as adults, and are at greater risk of poor health and educational outcome in the future (OECD, 2019b).

Health and economic costs are therefore deeply intertwined and the distributional effects on the poorest members of society of any policy taken in Chile to tackle obesity need to be taken into consideration. According to the data from the National Statistics Institute (INE, 2018), from 2018 in Chile, food and non-alcoholic beverages consumption account for roughly 19% of total household expenditure (with comparison to 12% in the EU), and it is the most important expenditure category – the second largest is transports (15%) followed by housing (14%). As shown in Figure 3.6, food and non-alcoholic expenditure accounts for 11.5% of total household expenditure for the richest quintile, and up to 29% for the poorest quintile – and it accounts for roughly 25% of total expenditure for the bottom 60% of Chilean

households. These distributional differences in food expenditure suggest that changes in the food environment may have different economic and health costs for different strata of society, as a similar basket of goods will carry a different weight on the income of different quintiles of the population. Therefore, changes in prices of healthy foods need to be taken into account when assessing the effects of Law 20.606 and its distributional implications.

3.2 CHILE'S OBESITY STRATEGY

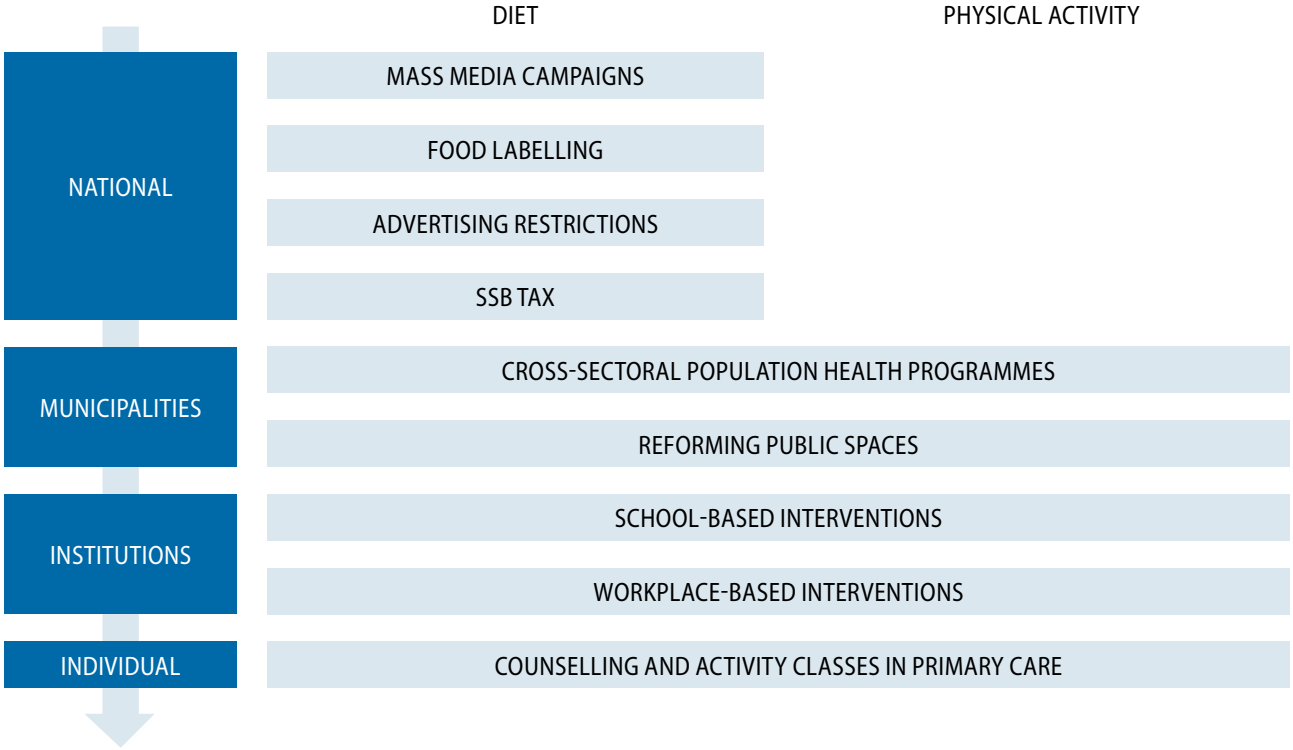
The Ministry of Health in Chile has played an active role in the country's fight against the overweight and obesity epidemic. In addition to Law 20.606, described in detail in the following section, Chile has put in place a comprehensive portfolio of national and local interventions, (see Figure 3.7) as well as interventions at the institutional and individual level.

Policy measures at the national level

At the national level, the National Food and Nutrition Policy (Política Nacional de Alimentación y Nutrición) was launched in early 2018. It provides national guidance about nutrition, food safety, healthy food environments, promotes healthy eating, and the surveillance and evaluation of public policies. Likewise, several health promotion strategies have been developed including the Healthy Municipalities, and Communities Strategy (Estrategia de Municipios, Comunas y Comunidades Saludables), the Promoting Healthy Schools Strategy (Estrategia de Escuelas Promotoras de la Salud) and the Promoting Healthy Workplaces Strategy (Estrategia de Lugares de Trabajo Promotores de la Salud), aiming to reach the different environments to promote healthier behaviours.

Other key policy measures at the national level have been initiatied by the Elige Vivir Sano Secretariat in the Ministry of Social Development and Family, with the goal of promoting healthy behaviors for the prevention of non-communicable diseases through regulation, public policies and health promotion. Under the Elige Vivir Sano system, which is also supported by the Ministries of Health, Education,Labour and Social Welfare, Housing, Sport and Finance, a number

Figure 3.7. Overview of Chile's obesity strategy



Notes: SSB tax = Sugar sweetened beverages tax.

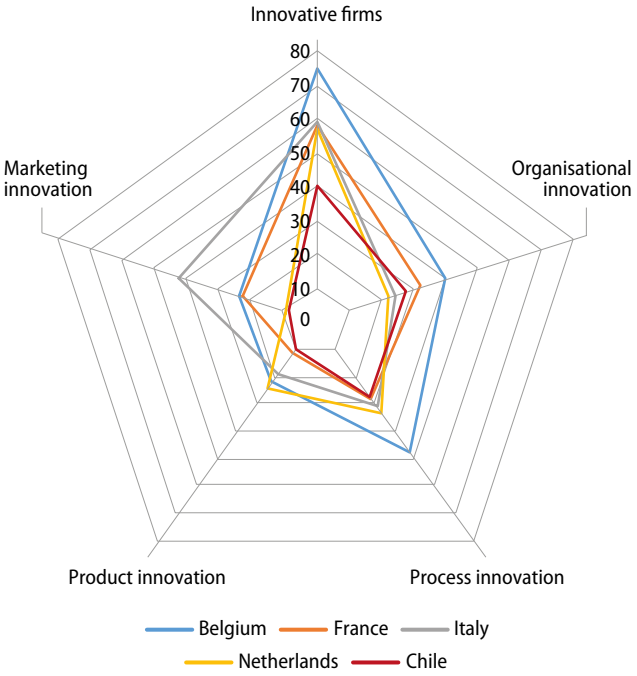
Source: OECD Public Health Review of Chile, 2019

of initiatives have been implemented that aim to create a healthier environment, which promotes and enables an active lifestyle. SEREMIS play an important role in delivering the Elige Vivir Sano approach, by developing Regional Communication Plans and strategies for health promotion at the regional level (OECD, 2019b).

Furthermore, of particular interest are efforts at the national level to encourage food reformulation. Promoting product innovation in the food sector can help reformulation towards healthier food products and support local and global efforts to reduce obesity.

Prior to the introduction of Law 20.606, product innovation within the Chilean food processing industry was low. Based on data for 2014, the food industry in Chile was less innovative than food industries in other countries, and innovating companies tended to focus on process, rather than on product innovations (e.g. food reformulation or the development of new food categories). In 2014, 40% of Chilean food processing companies declared themselves as being active in innovation, compared to 70% in Belgium and around 60% in France and Italy (Figure 3.8) (OECD/UN, 2018).

Figure 3.8. The Chilean food industry innovates less than international leaders (2014)



Notes: For comparing different innovation surveys the authors adopted the scheme proposed by Crespi, G., Tacsir, E. an Latin America and the Caribbean.

Source: (OECD/UN, 2018) Based on the Authors' analysis based on Eurostat (2014), "Community Innovation Survey", http://ec.europa.eu/eurostat/web/microdata/community-innovation-survey; and Chilean Innovation Survey 2013-14, 2017.

The Chilean food industry's reformulation efforts towards healthier food products are supported by a public fund (Fondo de Inversiones Estratégicas) financing initiatives to diversify the economy in key sectors, including healthy food (OECD, 2018a) as well as by a national programme, "Transforma Alimentos", created in 2015 as part of the "Programa Transforma" of the Chilean Development Agency (CORFO). The main objectives of the programme are to promote a more diversified and sophisticated food sector in Chile, to increase its competitiveness and address the global challenges of the food sector in the context of a global and domestic demand shifting towards healthier products.

"Transforma Alimentos" operates as a public-private partnership coordinated by CORFO, which involves 100 different stakeholders including government institutions (i.e. the Ministries of Economy and Agriculture), the main academic institutions, research institutes and the food industry. The initiative will run for ten years until 2025, with a total budget from both private and public funds of CLP 54.5 billion (USD 80 million approximatively). From the 2017 report on functioning of the programme funds have been invested in 20 different projects in 5 strategic areas with investments in projects for healthy food receiving 25% of the budget and investments in high-value ingredients and natural food additives receiving 34% of the budget (CORFO, 2017).

This type of public-private collaboration to boost innovation and competitiveness is key to addressing the major challenges of the Chilean economy (lack of diversification, low productivity level and growth along with low production sophistication), and to tackling Chile's public health challenges (high and growing obesity prevalence) through innovation towards healthier, diversified food products.

In the long term, it will be crucial to specifically involve the supermarket industry in these reformulation efforts, especially since the supermarket industry is very concentrated, with the 4 biggest supermarket chains accounting for 95.5% of the total supermarket sales (Rojas & Berrios, 2016) (Delgado, 2015). The support of the supermarkets industry will be instrumental for the promotion of reformulated products, for example through platforms for online shopping suggesting a healthier option when consumers make their grocery orders (Baragwanath, T., 2021).

Policy measures at the level of municipalities

To complement action at the central government level, the local governments are responsible for organising public education, social services, primary health care, parks and recreation. Under the 'Health for All Policies' decentralised policy approach municipalities have an opportunity to develop cross-sectoral programmes. An example of a population health initiative at the municipal level is the Santiago Sano Programme, in Chile's capital city Santiago.

Policy measures in institutions and targeting individuals

In schools, the Contrapeso programme is in place to promote healthy eating and physical activity among schoolchildren. This programme consists of 50 measures, including a restriction on the sale of unhealthy products in schools and increasing the healthy food choices available for students under the National School and Scholarship Assistance Council (Junta Nacional de Auxilio Escolar y Becas, JUNAEB) Scholarship. Two important scholarships provided by the Ministry of Education and its depending institution JUNAEB (i.e. the Food Scholarship for Higher Education (FSHE) and School Feed Programme, PAE) are overviewed in Box 3.1 below.

The Chilean government has also supported the implementation of voluntary actions in workplaces, and encourages actions such as dedicated walking breaks, physical activity courses, and bicycle parking spaces.

At the individual level, citizens have access to counselling in primary care. The Vida Sana counselling and physical activity programme was started 10 years ago as a pilot, and has been part of the national prevention package in Chile since 2014. This one-year programme aims to improve physical activity and diet in obese patients, or overweight patients with other risk factors.

Box 3.1: JUNAEB SCHOLARSHIPS FOR YOUTH

Food Scholarship for Higher Education (FSHE)

The Food Scholarship for Higher Education (FSHE) is a subsidy provided through the National School and Scholarship Assistance Council (JUNAEB) under the Ministry of Education exclusively to tertiary education students who come from families amongst 60% of the most vulnerable or socio-economically disadvantaged in the country (574 000 persons). It consists of a food subsidy delivered through an electronic exchange card, which is used in a network of food outlets and supermarkets.

The food subsidy is intended to support vulnerable students with their higher education, but also to promote consumption of healthy food and foster healthy lifestyles among them.

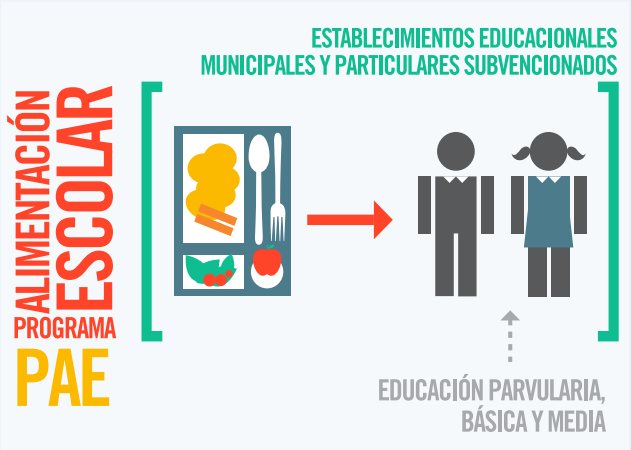
To this end, since 2018, as part of JUNAEB's "Action Plan Against Obesity", the FSHE subsidy cannot be used to buy food with more than two "High in…" stamps according to the Chilean Nutritional Labelling (Law 20.606). In addition, the subsidy can only be used to buy healthy menus -approved by JUNAEB nutritional experts- in fast food restaurants, restaurants chains, university canteens or cafeterias. Additionally, at the restaurants and canteens within the JUNAEB network, students receiving the subsidy can also purchase a special "JUNAEB menu", which is both cheap and healthy.

The network where the FSHE can be used has expanded since 2018, and now includes more than 14 000 street markets and food fairs (called green points), to enable students to eat more vegetables and fruits. Finally, the subsidy cannot be used to buy alcoholic beverages, cigarettes, pharmaceutical products.

School Feeding Programme (PAE)

The School Feeding Programme (Programa de Alimentación Escolar - PAE) provides free breakfast, lunch and snack to school-age children belonging to the 60% most vulnerable families (Chilean Ministry of Education, 2019). Since the implementation of Law 20.606, the dishes and food products proposed in the PAE framework also have to comply with the food restriction regulation. However, the regulation does not affect food sold at canteens that are not part of PAE.

An important fraction of all school age children is not covered by the regulation at lunchtime (i.e. and therefore are able to consume non-packaged food and beverages with nutrient levels above the thresholds) by eating in the school canteen.



Source: JUNAEB, Ministry of Education of Chile.

4. Building a comprehensive framework for the evaluation of the Food Labelling and Advertising Law (Law 20.606)

4.1 THE FOOD LABELLING AND ADVERTISING LAW (LAW 20.606)

As overviewed in Chapter 3, the portfolio of interventions that Chile has put in place to fight obesity is extensive. Among these interventions, Chile's food-labelling policies stand out as highly innovative. Chile was the first country to adopt a warning label approach to delineate ultra-processed or heavily processed foods with high contents of sugar, sodium, saturated fat and energy density (Reyes, 2019).

Chile was also the first country to systematically restrict marketing of ultra-processed foods to children (Corvalán C., Reyes, Garmendia, & Uauy, 2019), including by banning characters on food packages (Mediano Stoltze, 2018). Furthermore, whereby most labelling schemes internationally are voluntary, Chile decided to implement it as a mandatory system.

The Chilean food labelling law was the first of its kind. This warning label system is now increasingly being adopted by other countries: Peru, Uruguay, Israel have already implemented a similar warning label logo, (FAO, 2019), as well as, more recently, Mexico (INSP, 2020) and Brazil (Fonseca, 2020). This chapter overviews how this innovative food labelling policy came about in Chile and possible measures that the government could take to enhance it. It looks at the importance of having a well-designed monitoring and evaluation system to ensure: 1) its correct implementation, 2) measure the impact of the initiative over time, and 3) collect evidence.

Background

In Chile, food labelling first became mandatory in May 1997 under Article 115, decree No. 977/96, requiring all packaged food products to display key nutritional indicators, including energy value and the indication of quantities for specific nutrients.[1] A few years after the initial introduction of mandatory food labelling, the rising problem of overweight and obesity in the country led the Ministry of Health authorities and a number of Senate Members to begin to work together to develop a new Food Labelling and Advertising Act (to become Law 20.606), with the goal of improving the food environment and changing the eating habits of the population.

The new Food Act was intended to respond to two main objectives (Corvalán C. , Reyes, Garmendia, & Uauy, 2013) (FAO, PAHO & WHO, 2019):

1. **to provide clear and salient information to consumers** regarding the nutritional content of packaged food, so as to encourage healthy eating habits.

1. The required nutritional information had to be expressed per average serving size and per 100 grams/millilitres and included: 1) Energy value expressed in calories (kcal); 2) Quantity of proteins, total fats, carbohydrates and total sugars (in grams); quantity of sodium (in milligrams); 3) Quantity of saturated fatty acids, monounsaturated, polyunsaturated and trans fatty acids (in grams) and cholesterol (in milligrams) if the total fat content is above 3 grams per average serving size; 4) Amount of any other nutrients, such as dietary fiber and cholesterol, for which a statement of nutritional/healthy properties is made. Nutritional composition of ingredients had to be derived from laboratory tests or food composition tables validated at the national or international level.

2. **to decrease children's exposure to unhealthy food products** by restricting advertising of unhealthy food products and prohibiting their sale and distribution in schools.

To this end, an initial bill was presented to the Chilean Senate in 2007. The bill was strongly supported by academia and several international institutions - notably the WHO[2], the Pan American Health Organisation and the FAO (PAHO-FAO, 2017) (WHO-FAO, 2002) and corroborated by an evaluation study attesting the inefficacy of the pre-existing labelling system (Chilean Ministry of Health, 2009). Nonetheless, substantial discussions and public consultations were held before final approval of the bill, as the food industry was initially largely opposed (see Box 4.1.) and the Ministry of Health was facing difficulties in developing concrete implementation criteria that would be acceptable to all involved stakeholders (PAHO-FAO, 2017). One of the main arguments against the regulation from the industry was on the expected costs increase, as a result of changing the composition of their products, and the required modifications in labelling and packaging and the adoption of the FOP labels instead of using the existing Guideline Daily Amounts (GDA) labels. In addition, SMEs also contested the potential negative impacts for business.

The Food Labelling Law in Chile was a long and not easy process. In fact, there were no previous examples of this type of reforms in other countries and Chile became the first country in designing and implementing this type of reform. The Ministry of Health was confronted with several political economy and technical challenge on delimiting the scope of the regulation and defining key concepts, involving different actors, having different views among governmental institutions, opposition of the food industry, difficult negotiations processes, etc. In order to overcome many of the political economy issues, and navigate this complex scenario to respond to the industry's resistance, the Ministry of Health organised numerous political debates and discussions to build consensus amongst different stakeholders. One of the main successful strategies to move the debate and regulation forward that the Ministry of Health used is to include measures of flexibility and gradualness in the implementation of the regulation. It agreed with the industry to adjust the period of the implementation of the law over a period of four years, and for an additional period of three years for SMEs. In addition, following the establishment of a technical commission and several amendments emerging from public consultations, the new Law of Food Labelling and Advertising (Law 20.606) was finally approved by the Chilean Senate in 2012 and entered into force in June 2016.

The front of pack warning labels

As a result of the new law, a simplified nutritional labelling scheme was introduced based on four different black octagonal warning labels (Figure 4.1). This was a world first. All packaged products which contain an excess of calories, salt, sugar and/or saturated fats are required to display the warning labels at the front-of-pack (FOP). The labels are non-exclusive and a food product may show up to four labels. The warning labels are only compulsory for packaged food, while unpackaged foods – including bread and food served in restaurants – are exempt from the requirement. The format, shape and size of the labels are governed by Supreme Decree Number 977 and their design follows the recommendations of a study commissioned by the Ministry of Health on how best to convey the information (INTA, 2012).

2. https://www.who.int/nmh/wha/59/dpas/en/

Box 4.1: DISCUSSIONS WITH THE CHILEAN FOOD INDUSTRY ON LAW 20.606

Part of the Chilean food industry was opposed to the introduction of the Law 20.606. The fact that such a regulation had not yet been applied in other countries was a major source of concern. The food industry's opposition centred on the following issues:

- The choice of a **mandatory warning label**;
- labels applied on the basis of per 100g or 100ml and not per serving size;
- the threshold values that were determined;
- banning of advertising and issues related to the freedom of expression and property rights; and,
- business costs resulting from the new law.

Several countries raised concerns about the Law 20.606 and its implications at the World Trade Organization (WTO) Committee on Technical Barriers to Trade (TBT). These related to the trade restrictiveness of the measure, its inconsistency with international standards and the lack of scientific basis for the defined threshold values. (Boza, Polanco, & Espinoza, 2019). However, the WTO recognised that Law 20.606 was not violating the TBT Agreement and no additional complaint has been filed.

Figure 4.1. The Chilean warning labels introduced by Law 20.606

Warning labels for products high in sugar, calories, saturated fat and salt

Source: Ministry of Health, Chile, 2017

Thresholds for the warning labels and transition periods

The key challenge of Law 20.606 was defining the cut-off threshold values above which products would be considered unhealthy and thus have to display the warning labels. Three decisions were made in this regard:

1. The law only applies to food products with nutrients such as sugar, sodium and saturated fats that were added as part of their processing;

2. It is applied per 100 g/100 ml of food products and not per serving size to avoid any controversy on the definition of serving sizes and comparability across products;

3. Threshold values have been introduced (Table 4.1) taking into account the composition of natural food products (for example milk for the beverages and a list of natural products for solid food (MINSAL, 2015).

Table 4.1. Progressively stricter warning label thresholds according to Law 20.606, 2016 - 2019

	Solid food			Beverages		
Energy or Ingredients	Implementation: June 2016	24 months after implementation (June 2018)	36 months after implementation (June 2019)	Implementation: June 2016	24 months after implementation (June 2018)	36 months after implementation (June 2019)
Energy kcal/100g	350	300	275	100	80	70
Sodium mg/100g	800	500	400	100	100	100
Total sugar g/100g	22.5	15	10	6	5	5
Saturated fats g/100g	6	5	4	3	3	3

Source: MINSAL, 2015.

The introduction of the composition threshold values have been progressively stricter since June 2016 when the law was first implemented. This was meant to give the food industry time to progressively adapt its technological processes and eventually reduce the content of critical nutrients in order to comply with the regulation. The most stringent thresholds have now been in place since June 2019, and are stricter than the nutrient profile used in the traffic light food labelling system in the United Kingdom (UK Department of Health, 2011).

Another flexibility to enable compliance with Law 20.606 was the three year grace period granted until 27 June 2019 for microenterprises, which represent the 0.7%of total sales in Chile (Table 4.2.). During this period, microenterprises were trained by regional authorities (Seremis) of the Ministry of Health, Ministry of Economy and Ministry of Agriculture in order to prepare their products to comply with the regulation. In June 2019, the Ministry of Health further extended the entry into force of the law for microenterprises by 36 additional months.

Food products that exceed the nutritional limits set by the regulation face additional restrictions:

- They cannot be sold or promoted in schools.

They cannot be advertised to children under the age of 14. This includes any means of advertisement and marketing to children. Hence, products subject to the warning labels cannot be given away for free, or accompanied by gifts such as toys or games. They also cannot use children-friendly cartoon characters to appear more attractive to children and their families (OECD, 2019b).

Table 4.2. Processed food industry 2017, OPEN, Ministry of Economy of Chile

Processed Food Sector	No. Companies	Sales (MMUS$)	Employees
Small business	4 643 (26.5%)	1 415 (2.9%)	41 830 (12.2%)
Micro business	1 1753 (67.1%)	314 (0.7%)	6 576 (1.9%)
MIPE (Micro and Small Businesses)	16 396 (93.6%)	1 729 (3.6%)	48 406 (14.2%)
Total Industry	17 522 (100%)	48 048 (100%)	341 945 (100%)

Source: 2019 Report of the National Productivity and Enterprise Office (OPEN), Ministry of Economy of Chile.

Since June 2018, the message "Prefer foods with fewer stop signs" (*Prefiere alimentos con menos sellos de advertencia*) must accompany all food advertisements for products that exceed the nutritional limits set by the Law 20.606[3] (Figure 4.2).

Figure 4.2. Example of message on a food product's advertisement

Source: Minsal.

Furthermore, Law 20.606 is complemented by the law on Food Advertising (Law 20.869) which was introduced in November 2015. The Law 20.869, prohibits the promotion of unhealthy foods with a warning label on television and in cinemas between 6am to 10pm (Chilean Ministry of Health, 2015). It also includes an exception for advertisements during specific events or shows. Under certain conditions advertising on television and in cinemas carried out during the transmission of cultural, artistic, social welfare or sport events is exempt from the advertising restriction measures.[4]

Finally, Law 20.606 also contains an element of nutrition education and promotion of physical activities for the youth as it requires all pre-school, elementary and secondary educational establishments to carry out educational and physical activities that encourage eating habits and educate the youth about the risks related to excessive consumption of "high in" products (FAO, PAHO & WHO, 2019). To this end, Article 4 provides that "*Educational establishments in the country must include physical activity and sports in order to promote an active and healthy lifestyle of their students*"[5]. This initiative is particularly welcome, as obesity can have negative impacts on school performance itself. It is therefore key for schools to be at the forefront in the fight against obesity and overweight – not only for the public health impact, but also for the ramifications on education, and ultimately, productivity.

Economic costs of Law 20.606

It is difficult to provide an exact estimation of the costs associated with the design and implementation of the new policy. To date, no exact calculation exists, however, rough estimates of the necessary costs had been produced before

3. This was a result of Decree 1/17, passed in December 2017.

4. The advertisement can be exempt if: (1) the advertising is limited to the exhibition of the name of the product or its brand; (2) the advertising is not intended or directed, directly or indirectly, to minors under 14 years of age; (3) the event or show is not organised or financed exclusively by the company interested in advertising the product, or by its affiliates or related parties, and (4) the advertising does not show consumption situations, such as people or fictional characters ingesting the "high in" product.

5. Ley sobre composición nutricional de los alimentos y su publicidad. Ley 20.606.2016. Available at https://www.leychile.cl/Navegar?idNorma=1041570

implementing the law. Expected costs included those incurred by Parliament, health authorities as well as by industry players that would have to spend on new packaging, specialised human resources, and food reformulation and innovation (FAO, PAHO & WHO, 2019).

One of the expenses the government had to sustain was for an educational media campaign launched to promote the newly introduced warning labels. The campaign's purpose was to raise awareness on the benefits of this Law for the population. This campaign lasted for one month, and saw spots aired 3 to 4 times a day on television and 10 to 12 times a day on the radio (OECD, 2019b). The campaign's high cost has led the Ministry to review other options for future campaigns, including online video website YouTube.

Furthermore, to strengthen the nutritional labelling control processes, greater resources were assigned to the central and regional offices of the Ministry of Health. According to the Ministry of Health, since 2016, the resources allocated for the monitoring and enforcement of the Law 20.606 have corresponded approximately to USD 1,022,000 per year – including costs of recruiting and paying new staff.

The food industry had to bear compliance costs associated with Law 20.606, in terms of changing their food packages or reformulating their food products. The food industry complained that it was forced by retailers to comply with the regulation earlier than the implementation date (Box 4.1) and that it suffered reduction in sales in those categories of food products with warning labels.[6]

Compliance with Law 20.606: monitoring and enforcement

The Ministry of Health (MINSAL) is responsible for applying and enforcing Law 20.606 and has set up a centralised surveillance system supported by monitoring agreements with a set of different public institutions. Under these agreements, the various public institutions provide information about possible non-compliance cases to the Department of Food Nutrition and to the respective Health Regional authority (SEREMI), to instigate compliance checks. The following agreements are in place (Chilean Ministry of Health, 2018):

- **Agreement with the National Television Council** (Consejo Nacional de Televisión, CNTV): The CNTV has provided the Ministry of Health with the registry of all national open television broadcasts, and the records of the audience of these transmissions. This information contributes to the processes of surveillance and oversight of food advertising.

- **Agreement with the National Consumer Service** (SERNAC): The SERNAC provides the Ministry of Health information regarding all programmes on national open television that could present a breach of the advertising restrictions aimed at children under 14 years of age. Furthermore, SERNAC and the Ministry of Health coordinate to monitor the nutritional composition of foods, focusing on the critical nutrients (sugars, sodium, saturated fats and calories).

- **Agreement with the National School and Scholarship Assistance Council (JUNAEB)**: The Ministry of Health and JUNAEB coordinate on actions that contribute to the monitoring of school food environments. This has included monitoring the compliance of food service providers with the provisions of Law 20.606 in the context of anti-obesity programs (i.e. "Contrapeso" initiative).

- **Agreement with the Superintendence of Education** (*Superintendencia de Educación*): In conjunction with their normal duties (to check compliance with the education regulations) school inspectors must now monitor the food and beverages sold inside educational establishments, to verify the school restrictions are being respected. At the same time, the inspectors must provide guidance[7] (about the correct implementation) and explain the Law 20.606 to the administrative staff of the schools and the managers of food providers operating inside the school (Chilean Ministry of Health, 2018).

6. Information on the evolution of sales per product categories is not available.

7. To support the implementation of the Law, a 20.606 in schools, an explanatory guide was prepared for school directors and food providers operating in schools. These materials have been distributed to promote understanding of the regulations and the surveillance actions undertaken educational establishments as carried out by school inspectors of Superintendency of Education. These materials can be downloaded from: http://www.minsal.cl/guia-y-evaluacion-de-kioscos-y-colaciones-saludables.

Food labelling - monitoring compliance with Law 20.606

All manufacturers, processors, distributors and importers of food and beverage products in Chile are required to comply with Law 20.606 throughout the whole cycle of food production, import, processing, packaging, storage and sales, including in the case of food products made abroad and sold in Chile (FAO, PAHO & WHO, 2019).

The Ministry of Health has also designed surveillance plans to monitor whether a number of selected products (prioritised on a risk approach) present adequate nutritional labelling based on their nutrient composition. The surveillance plans have been undertaken by the Nutrition and Food Department of the Ministry of Health, together with the SEREMI of the Metropolitan Region, and the Public Health Institute (ISP), the latter performing the chemical analyses of the critical nutrients in its laboratories.

The 2017 National Plan for the Surveillance of Food Nutritional Quality included 82 different packaged food and beverages available on the market (corresponding to 41 product categories). Seventy eight percent of the products (32/41) had labelling that complied with the Law 20.606. This percentage of compliance is high according to the Ministry of Health, given that the National Plan for Surveillance of Food Nutritional Quality has specifically selected those foods with the highest risk of presenting differences, based on results from previous nutritional surveillances ongoing since 2014. Based on these results the Ministry of Health considers that this level of compliance would be similar or even greater in other products identified as having a lower risk of non-compliance.

Importantly, citizens can also flag suspected infringements of the law to the Regional Ministry of Health's Office for Information, Complaints and Suggestions (OIRS, SEREMI de Salud) (FAO, PAHO & WHO, 2019).

Advertisement – monitoring compliance with Law 20.606

In order to monitor compliance with regulations on food advertising, the Ministry of Health has acquired databases that report advertisements and campaigns featuring on radio, in newspapers, magazines, open television, internet and subscription-based television. These databases have made it possible to identify breaches of publicity in all channels, including channels not monitored by other state entities (CNTV, or SERNAC).[8] Advertisements are reviewed by the Ministry of Health to detect possible infractions of the advertising regulations. These cases are referred to the corresponding SEREMI for inspections.

Inspections and cases of non-compliance with Law 20.606

Between June 2016 and December 2017, 4 458 inspections were carried out across the 15 regions of the country in different establishments where food and beverages are produced or sold. Schools accounted for 60% of the establishments inspected with inspections of supermarkets and food distributors accounting for 35%. Five percent of inspections were carried out at cinemas, and on food producers.

During this 18 month period, 1 236 cases of non-compliance were detected. "High In" products being sold within educational establishments accounted for 46% of the infringements, non-compliance with the labelling restrictions (i.e. there being differences between the label and the level of nutrients) accounted for a further 36.4% on non-compliance, and violations of advertising restrictions for the remaining 17.6%.

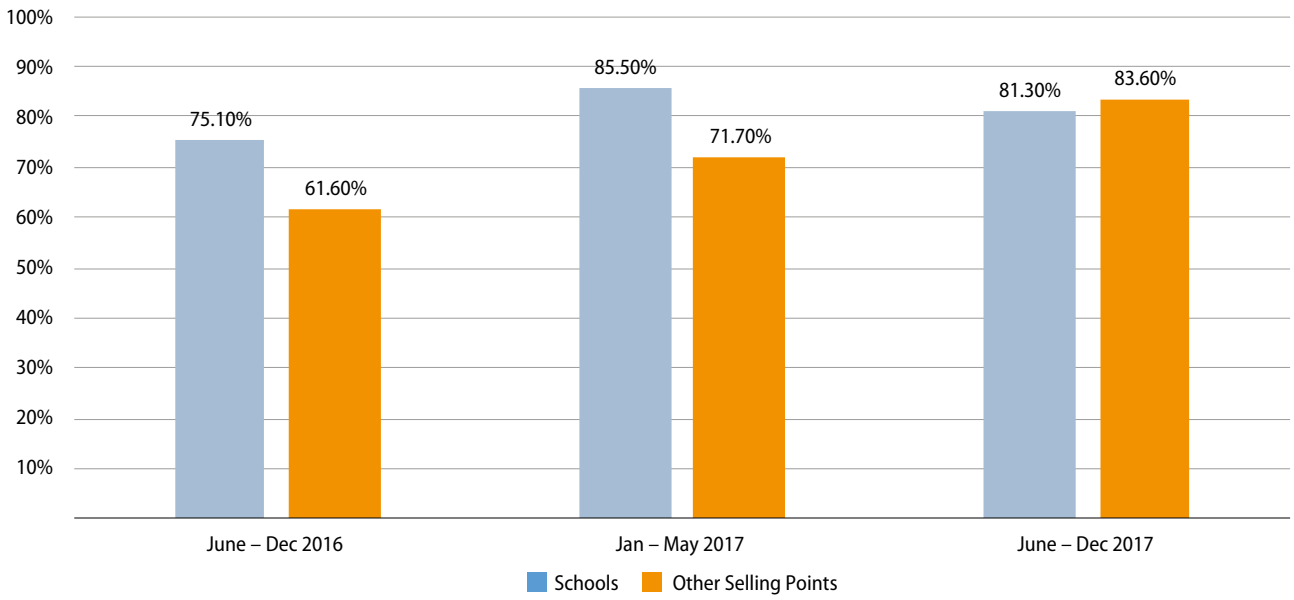
If inspections detect a violation of the law, companies are imposed progressive sanctions, which can range from warnings, to fines, removal of non-complying products, and termination of sale activities. Establishments violating the law for the first-time are issued a warning and deadline for aligning with the law, after which a fine is issued if the infringement persists (FAO, PAHO & WHO, 2019).

8. It is important to note that the Ministry of Health (MINSAL) does not systematically receive reports from other public entities on potential breaches of the food advertising regulation, as part of their monitoring activities. To monitor compliance with the Law 20.606 the main source of information is the MINSAL database, and not data coming from SERNAC or CNTV.

Between 2016 and 2017, infringements resulted in the following sanctions:

- In 90% of cases a warning was issued along with a period of time in which to comply with the regulation was given.
- In 7% of the cases a fine ranging from between USD 36 and USD 3 600 was issued (MINSAL, 2017).

Figure 4.3. Evolution of compliance with Law 20.606 of food and beverages selling points from June 2016 to December 2017



Notes: Selling points correspond mainly to supermarkets or any other types of food distributors e.g. cinemas, and includes food producers (the latter represent less than 1%).

Source: Ministry of Health (2018), "Informe de evaluación de la implementación de la ley sobre composición nutricional de los alimentos y su publicidad", División de Políticas Públicas Saludables y Promoción, Departamento de Nutrición y Alimentos. (MINSAL, 2017)

4.2 HOW TO ESTABLISH A FRAMEWORK TO EVALUATE THE LAW 20.606

Several studies have already attempted to provide preliminary assessments of aspects of Law 20.606, such as the awareness and understanding of the labels. Most recently, research has found a reduction of 25% in purchases of high-in beverages following implementation of Law 20.606 (Taillie LS C. A., 2019); a significant reformulation of foods and beverages high in added sodium and added sugar, as well as reductions of saturated fat in selective food groups (Reyes, 2019).

While these studies point at promising results, so far the law has not been fully evaluated and future efforts should evaluate the impact of the new Law on purchases of high-in foods, dietary intake, and long-term purchasing changes (Taillie LS R. M., 2020). It will be difficult to assess ex-post the impacts of Law 20.606 *per se*, as food consumption may also have changed due to other factors. However, given the broad policy objective of improving the nutritional quality of food consumption in Chile, any assessment of a move in that direction is of interest. Chile will need to develop a well-designed evaluation and monitoring system to: 1) ensure its correct implementation, 2) identify areas for further implementation improvements, 3) measure the impact of the initiative over time, 4) identify new evidence.

Which type of information is needed to evaluate Law 20.606?

An assessment of the effectiveness of a policy instrument such as Law 20.606 requires a structured food information system regarding (Giner & Brooks, 2019).

1. **The food environment:** to keep track of the evolution of food products available on the market as well as their ingredients, sale records and production methods.
2. **Consumers' food choices:** to follow households' food purchases and acquisition and link them to individual food intake.

The sections that follow assess the availability of data on food environment and consumer choices in Chile and overview previous studies on the topic. Ideally, an evaluation framework would also monitor potential effects of Law 20.606 on public health outcomes and demographic. However, indicators of the general prevalence of obesity and overweight in the Chilean population can only be observed with a delay and their evaluation remains outside the scope of the current assessment.

Availability and use of information on the food environment

Developing a healthier food environment was one of the objectives of Law 20.606. In that sense, exploring and documenting the evolution of the food environment since the implementation of the law is key. Any evaluation of the Chilean food environment will require information on:

- food products (ingredients, nutritional compositions and associated warning labels or claims, recommended portion sizes as well as prices);
- food served in schools and in their surroundings;
- the food advertising sector; and,
- the out-of-home catering sector.

However, it appears that information on all these different elements is not available at the public level for the period prior to the law implementation. Existing data sources are overviewed in Table 4.3.

Overview of food information in Chile

Currently, it appears that the food information base in Chile is not very broad and that it relies mostly on non-public sources. Developing a thorough food information base in Chile will require collaboration with the entities who are collecting the data or who own the data. In particular, to further develop the information available on the food environment, collaboration with the Nutrition and Food Technology Institute (INTA) and food processors will be necessary. Regarding consumers' food choices, it will also be necessary to develop collaboration either with private market research companies who run households' panel surveys or with retailers who run loyalty cards' programs. Another possibility is to develop a tailored source of information by running a food purchases survey.

Table 4.3 summarises the main purposes, characteristics and availability of different sources of information on the food environment (Categories 1, 2 and 3) and on consumers (Categories 4 and 5) and how they are covered in Chile.

Existing studies evaluating Law 20.606

Do consumers understand the new labels?

Two surveys were ordered by the Ministry of Health to gauge whether Chileans understand the new labels. These were reported in the Law 20.606 implementation report (MINSAL, 2017). They highlighted that the warning labels are well-known across the country and that they are understood. They identified people that may be more responsive to the labels (in particular women and people higher levels of educational attainment (Correa, et al., 2019)); explored the understanding of mothers of young children from lower socio-economic backgrounds based on interviews during focus groups that were undertaken in July 2017, one year after the implementation of the labels and also found great awareness and understanding of the scheme. Preliminary results from a project conducted jointly by the Nutrition and Food Technology Institute (INTA) of the University of Chile and the University of North Carolina Chapel Hill, based on two Chilean population cohorts, found similar results (INTA-UNC, 2018). In addition, a study assessing consumer perception of front-of-package food labels, revealed that the black octagon shaped labels stating "high in…" are more effective than other colours, shapes and texts in terms of influencing consumers (Cabrera, Machín, Arrúa, Antúnez, Curitchet, Giménez y Ares, 2017).

Table 4.3. Current food information system in Chile

Classification	Objectives	Main characteristics	Availability across the OECD	Data source in Chile
Category 1 Food availability	Monitoring the evolution of food availability	– A major comparable economic indicator for the agro-food sector (food production, availability and trade) – Commitment to provide the information to the FAO – Long tradition, since 1950s – Limitations: highly aggregated sources of information, at the agricultural commodity level	– Widely available – Published on an annual basis by the statistical agencies or by the agriculture ministries	FAO FBS Database http://www.fao.org/faostat/en/#data/FBS (Last year available 2013) Oficina de Estudios y Políticas Agrarias (ODEPA) https://www.odepa.gob.cl/
Category 2 Food sales	Monitoring of sales of food products at the retail level	– Measure of the economic performance of the processing and retail sectors – Measure of price changes and food choices, including nutrient quality – Limitations: cost and confidentiality issues	– Not public, owned by the private sector – Expensive source of information: not widely used by public entities	Regular reporting by the private sector https://www.euromonitor.com/packaged-food-in-chile/report Information is owned by supermarket chains
Category 3 Food product information	Monitoring the nutritional composition of food	– Provides the nutrient composition of dishes based on their ingredients – Limitations: cost of undertaking the lab test, may not reflect actual packaged food product composition	– Collected in most countries – Partial update on an annual basis or less frequently	FAO FBS Database http://www.fao.org/faostat/en/#data/FBS Last year available 2013 ODEPA Fruits and Vegetables Sales
	Monitoring packaged food products	– Tracks information on food products – Uses the UPC codes – Limitations: difficulty to cope with changing food products	– Developed either by private companies, the civil society or the public sector – When administered by the private sector: cost is an issue, otherwise accuracy might be an issue	USDA food composition databases https://ndb.nal.usda.gov/ndb/ INTA undertook a review of packaged food products on the Chilean market prior and after the law implementation (INTA, 2018)
Category 4 Food intake	Assessment of food intake	– Often associated with health surveys to link food intake with health outcomes and dietary guidelines – Harmonisation of methods due to EFSA guidelines, commitment and funding – Limitations: under-reporting, low response rate on the population sample	– Undertaken in most OECD countries – Often irregular frequency due to lack of funding – Sometimes surveys on specific groups: children, babies, low income population	Encuesta de consumo alimentario en Chile https://www.minsal.cl/enca/ Run by Ministry of Health Last update in 2010 (reported in 2014)
Category 5 Food purchases and acquisition	Monitoring of households' spending on food	– Used for CPI calculations – International guidelines – Limitations: data at household level and limited product disaggregation	– All countries undertake households' budget surveys – Regular basis (often annually)	Household Budget Survey (Encuesta Presupuesto Familiar, EPF: https://www.ine.cl/estadisticas/ingresos-y-gastos/epf Every 5 years, last version 2016-2017
	Monitoring of all food purchases of households	– Scanner data at the households level – Information used for market research purposes by the private sector – Used by the public sector usually on a project basis – Data on out-of-home consumption is not always captured – Limitations : access costs, confidentiality and quantity of data to analyse	– This type of data is gathered mostly by private companies such as Kantar, GFK, Nielsen – Access is bought by public entities in the United States, United Kingdom, the Netherlands, Korea, Italy and France – In the United States, FoodAPS run by USDA	Kantar households panel https://www.kantarworldpanel.com/cl Nielsen households panel https://www.nielsen.com/cl/es/about-us/nielsen-families/ Private databases such as retailers' loyalty cards information

Source: Adapted from Giner & Brooks, 2019.

Did the new labels affect the food environment and related advertisements?

In the absence of a public source of information on the composition of food products in Chile, Kanter et al. (Kanter, Reyes, Swinburn, Vandevijvere, & Corvalán, 2018) (Kanter, Reyes, & Corvalán, 2017) have developed a photographic method for INTA to gather information on packaged food products available on the Chilean market prior to the implementation of Law 20.606.

Kanter et al. were able to get ingredient and nutritional information on more than 7 000 food products. They assessed this information using the strict nutrient thresholds for 2019. The found that only 17% of the food products did not show any of the four warning labels and concluded that reformulation was much needed for most product categories. They undertook a similar study (INTA, 2018) few months after the law implementation and found important reductions in sugar contents in beverages, dairy products and breakfast cereals and of sodium content in cheeses. Araya et al. (2018) also collected nutritional information on food products in four categories (breakfast cereals, chocolates and candies, juices, and biscuits) and associated warning labels. Similarly to Kanter et al., the information has been collected and stored using product's barcode. MINSAL also investigated the extent to which the industry engaged in food reformulation and commissioned a related report to the trade federation SOFOFA. This indicated that nearly 20% of surveyed products were reformulated—most notably dairy products (65%) and cured meats (48%)—in order to minimise the number of black warning labels (Chilean Ministry of Health, 2018).

With regard to food marketing, Correa et al. (2018) undertook a review of food advertising on television prior to the law implementation in 2016. They highlighted that advertising for products high in energy, saturated fats, sugar and sodium represented about a third of all food products advertised and this frequently targeted towards children. In a more recent follow-up study, (Correa T. , Reyes, L., & Corvalán, 2020) found an advertising shift away from foods high in energy, saturated fats, sugars, or sodium and toward healthier foods across daytime television in the first year after implementation of Law 20.606. While before the law, about 40 in 100 food ads contained a "high in" product, after the law, only 15 in 100 food ads did. This reduction occurred across both children's programs and general audience programs and was a reduction in both the frequency and the duration of ads for unhealthy products.

Overall, this suggests that children in Chile are now less exposed to unhealthy food advertising, a result which is broadly in line with earlier preliminary assessments by INTA (2018), which also indicated a decrease in exposure by children and teenagers to advertising of unhealthy foods, estimating them at about 50% and 60% respectively.

Did the new labels affect consumer choices?

Two studies have been carried out using households' purchases information either based on households' panel data (INTA, 2018) or on customers' loyalty cards (Araya, Elberg, Noton, & Schwartz, 2018). Both studies focused on changes in food purchases of unhealthy food products in certain food categories (breakfast cereals are included in both cases) prior and post law implementation. While the methodology developed by (raya, Elberg, Noton, & Schwartz, 2018) is well documented, the (INTA) methodology is not documented. Both studies conclude to preliminary positive effects of the Law 20.606. (raya, Elberg, Noton, & Schwartz, 2018) suggest that people with higher incomes and levels of educational attainment may be more sensitive to the label.

Information on consumers' food choices – what is needed

While the studies that have been undertaken appear to have been clearly focused on the population awareness and understanding of the warning labels, information on the general nutrition literacy of the population is missing and would be useful.

So far the studies have not explored whether any modification of the warning labels could be of interest. This is however clearly topical as any possibility to signal positively products with a better nutritional content could become attractive to the food industry and encourage them to reformulate or to innovate.

For the purpose of evaluating the impact of Law 20.606, it is of particular interest to analyse how consumers have responded in terms of food purchases. This requires access to data on food purchases at the household level. Such data

exist but are not publicly available. There are currently two main sources of these data. A market research company Kantar has developed a panel of 2 000 Chilean households[9] that reports on a weekly basis their food and beverages purchases. This information is available for the period prior to the law implementation and post law implementation. The household panel information is of particular interest when linked to information on the nutritional composition of food products. In that case, an analysis can focus on the healthfulness of consumers' food purchases. It is also possible to get information on households' purchases based on loyalty cards information that is gathered by retail companies. Nielsen has developed a similar panel.[10]

In addition to monitoring purchasing trends, it would be valuable to gather qualitative information about the psychological and behavioural motives guiding food purchases. To this end, it would be advisable to design a periodical survey with representative samples of the Chilean population in order to accurately capture their understanding of and reaction to the new policy. The aim of the survey would be twofold:

1. **Assessing the population's level of nutrition literacy**. The survey should primarily include questions assessing consumers understanding of ministerial nutritional guidelines, but also questions eliciting their own perception of what constitutes a *normal* diet and what constitutes a *desirable* diet. The survey would provide information on whether consumers are aware of the composition of a healthy diet and would evaluate the level of awareness and of understanding of the warning labels within the population. Particular attention should be given to some population subgroups such as families, teenagers or to different geographical/socioeconomic strata of the population. To this end, the survey shall collect information on socioeconomic status (SES) (as an indicator of income, education and employment status), demographic variables (age, gender) as well as anthropometric measurements (height, weight, body mass index (BMI), body circumferences and skinfold thickness) of participants. It would also be interesting to assess whether the introduction of the warning labels together with its accompanying measure has changed people's perception regarding their diets and helped them make more informed food choices.

2. **Identifying the key drivers of purchasing decisions.** Priority should be given to determining what are the decision-making factors that consumers optimise for when grocery shopping. In particular, it would be crucial to understand whether health is consumers' primary consideration when grocery shopping or whether their purchasing decisions tend to be based on other competing variables, such as price, taste, cooking time, packaging, social trends or purchasing habits.

The survey could also be an opportunity to test consumers' perceptions about a few key aspects of the food labelling policy. Survey items could be designed to capture elements such as: consumers' perception regarding the availability of healthy non-labelled options; their perception of whether the four different types of labels have different relative weights (e.g. consumers might attribute more importance to the calorie stamp than the sodium one). More general questions could be included to also gauge consumers' perception about the relative price of healthy versus unhealthy options and their purchasing habits in terms of where, and how often, they purchase food products. Finally, an additional question of interest would be to test consumers' understanding of other types of simplified nutritional labels or of evolutions of the current label to assess whether there could be any value in thinking about changes to the labelling scheme.

4.3. INTERNATIONAL EXPERIENCES

This section provides relevant information to inform the evaluation process of the Chilean warning label scheme. It provides information on existing Front of Package (FOP) simplified nutritional labelling schemes in other countries and how they compare with the Chilean labelling scheme, including a discussion of a French randomised experiment to determine the most efficient label to be implemented. The section then provides information on how other countries are gathering information on the food environment and on consumers' food choices. Finally, reformulation strategies implemented in different countries are briefly discussed.

9. https://www.kantarworldpanel.com/cl

10. https://www.nielsen.com/cl/es/about-us/nielsen-families/

Front of pack simplified nutritional labelling schemes

Food nutritional labelling and the Codex Alimentarius

The Codex Alimentarius[11] (Joint FAO/WHO Food Standards Programme, 2007) defines a *food label* as "any tag, brand, mark, pictorial or other descriptive matter, written, printed, stencilled, marked, embossed or impressed on, or attached to, a container of food or food product". According to the Codex, *food labelling* corresponds to "any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal". A food label may provide information on a product's nutritional composition or quality. The Codex guidelines on nutritional labelling[12] (Joint FAO/WHO Food Standards Programme, 2017) recommends that nutrition labelling should be mandatory on all pre-packaged foods even when no health claims are made. According to European Food Information Council (EUFIC) (Global Update on Nutrition Labelling, 2018), the vast majority of OECD countries as well as a certain number of countries in Latin America (including Argentina, Brazil, Colombia, Equator, Paraguay and Uruguay), Asia, Middle East and Africa mandate nutrition labelling and encourage the provision of additional information on nutrition.

Development of FOP simplified nutritional labelling schemes

There is a long history of front of pack (FOP) labels regarding quality, origin, production methods or nutritional aspects of food. In 1989, Sweden became the first OECD country to implement a simplified FOP nutritional label (the Keyhole logo, a voluntary initiative with public backing) that aimed at making healthy choices easier by assuring certain nutritional characteristics.

Over the last few years, in an attempt to improve the nutritional quality of consumers' food purchases, simplified labels recommended or mandated by governments have been implemented in 15 OECD countries.[13] Some are undertaken at the supra-national level like the Nordic Keyhole (Sweden, Denmark, Norway, Iceland, and Lithuania) and the Health Star Rating system (Australia and New Zealand).[14] They have many common characteristics in terms of goals, implementation methods and major challenges (see Table 4.4 for a summary of the different labels).

While all packaged products are required to display FOP labels under the warning labels scheme, compliance with all other simplified FOP labels schemes is voluntary and at the discretion of food companies.[15] Their recommendation by public entities is often the result of consultation and dialogue among public entities, food chain stakeholders, consumers' association and the research community (Jones, et al., 2016). Labels are also subject to ongoing evaluation in terms of their development and use across the food chain industry and their efficiency in influencing consumers' food choices.

Major challenges remain in terms of the wider implementation of simplified FOP labels by the food industry and their implications for product reformulation (Mantilla Herrera AM, 2018).[16] Other industry stakeholders are developing apps that can provide nutritional information to consumers when they shop using their smartphones.[17]

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11. Codex Alimentarius is the international standard setting body responsible for developing internationally agreed food standards, guidelines and related texts. More information on the Codex can be found online: http://www.fao.org/fao-who-codexalimentarius/codex-texts/

12. Nutrition labelling is defined as "a description intended to inform the consumer of nutritional properties of a food".

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

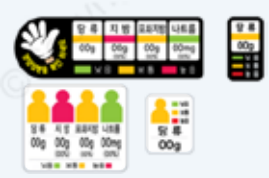
14. A reflection on simplified FOP labels is also occurring at the European level. Member States experts met in October 2018: https://ec.europa.eu/food/expert-groups/ag-ap/adv-grp_fchaph/wg_2018/presentations-2018_en#20181022

15. However, the French Government is currently discussing the possibility of making the Nutriscore mandatory.

16. A recent study based on the Australia/New Zealand Health Star Rating system found that the label has tangible implications for reformulation and is quite efficient in promoting reformulation http://www.aceobesitypolicy.com.au/wp-content/uploads/2018/11/Reformulation-in-response-to-HSR-FINAL.pdf (Mantilla Herrera AM, 2018)

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

Table 4.4. Simplified nutrition labelling recommended or mandated by public entities across OECD countries

	Nutrient-specific labels	Warning labels	Endorsement labels	Summary labels
Information conveyed	Interpretation of mandatory nutritional information with a colour scheme	Warning on nutrients (sugar, fat, salt or calorie contents) that are present in levels that are assessed as non-healthy	Summary indicators of nutrition claims e.g. less saturated fat, less sugar, less salt, more fibre	Rating based on an evaluation of how healthy a product is
Examples	 – Traffic light system in the United Kingdom  – Traffic light system for children food products in Korea	– High in salt label in Finland – High in sodium, high in sugar, high in saturated fat labels Chile and Israel 	– Keyhole label in place in Sweden, Denmark, Norway, Iceland and Lithuania  – Heart label in Finland	 – Health Star Rating system in Australia and New Zealand  – Nutri-Score in France, Belgium and Spain
Rationale for implementation	To improve the nutritional quality of consumers' diets. The choice of colour (red, amber and green) indicates if a serving has high, medium or low amounts of fat, saturated fat, sugars and salt	To signal to consumers products that are not meeting certain criteria in terms of nutritional content and to stimulate reformulation by the industry	To have an uniform logo that make healthy choices easy for the consumers, to encourage the industry to innovate and reformulate	To provide convenient and easily understandable nutrition information in order to help consumers make healthier food choices and to encourage reformulation
Date	2011 (Korea), 2013 (United Kingdom)	1993 (Finland), 2016 (Chile), 2020 (Israel)	1989 (Sweden), 2000 (Finland), 2009 (Denmark, Norway), 2013 (Lithuania, Iceland)	2014 (Australia and New Zealand), 2017 (France), 2018 (Belgium, Spain)
Implementation option	Voluntary with guidance provided to private sector stakeholders	Mandatory The different limits are defined by public entities and are subject to change	Voluntary with guidance provided to private sector stakeholders	Voluntary with guidance provided to private sector stakeholders
Issues	– Monitoring of the label by public entities – Development of the use of the label by food chain stakeholders and push towards reformulation to achieve a better score – Information provided per serving or per 100g? – Capacity of consumers to interpret the guidance provided – Actual implementation by the industry – Impact on product improvement and reformulation – Implementation in the food away from home sector	– Monitoring of the label by public entities – Definition of the unhealthy limits and of their evolution towards stricter levels – Dialogue with the food industry – Implementation in the food away from home sector	– Monitoring of the label by public entities – Development of the use of the label by food chain stakeholders and push towards reformulation to achieve a better score – Long term adherence to the logo by consumers – Adoption by the industry and push towards reformulation – Keeping up-to-date with new eating habits especially as changes take time – Implementation in the food away from home sector	– Monitoring of the label by public entities – Development of the use of the label by food chain stakeholders and push towards reformulation to achieve a better score – Reaching consumers: necessity of awareness campaign as well as a critical mass of products presenting the label – Evolution of the label to take into account other components (additives) – Implementation in the food away from home sector

Source: (Giner & Brooks, 2019)

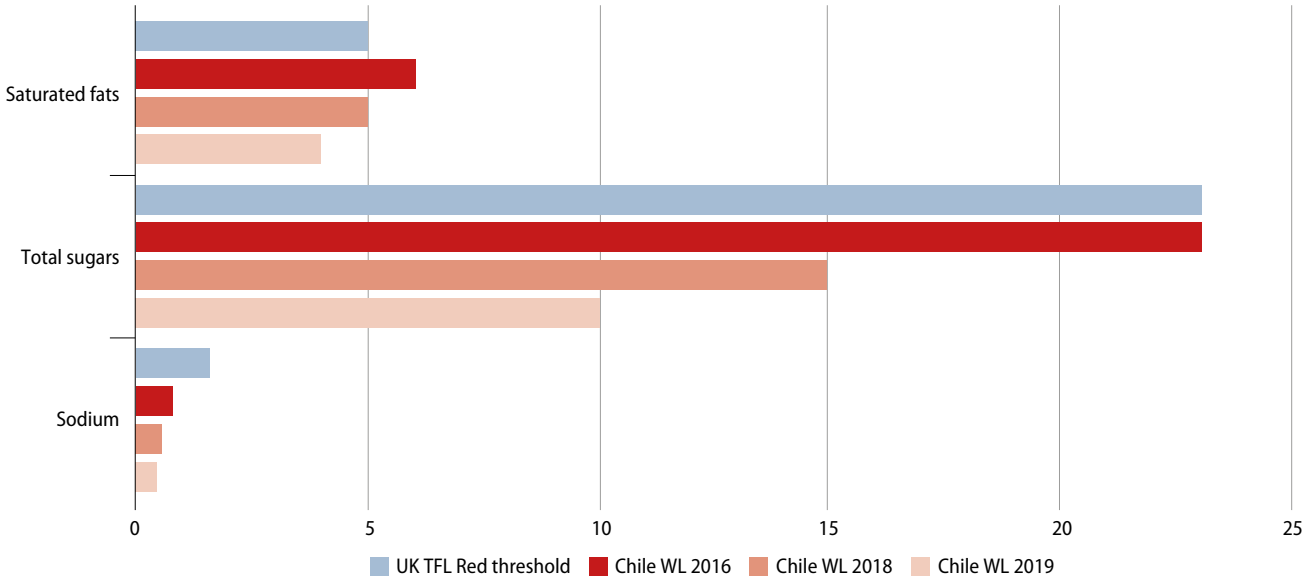
An important challenge associated with different simplified FOP labelling schemes relates to consistencies between them and trade implications. The Codex Committee for Food Labelling is working to provide guidance on this issue.[18]

How do the Chilean warning labels compare with other simplified labels?

According to research on how effective different types of FOP labels are, a nutritional warning such as the Chilean one is easier and quicker to understand than other possible labelling system (FAO, PAHO & WHO, 2019).In terms of thresholds, in comparison to other international labels, the Chile's nutrient thresholds for the warning labels are lower.

It is possible to directly compare the progressive nutrient thresholds chosen in the Chilean warning labels and the UK traffic light labelling systems. **Figure 4.4** shows that the thresholds used for Chilean warning labels on saturated fats, total sugars and sodium in place since June 2019 are far more strict than those used for the "red light" (or the worst) category in the United Kingdom label. This is very apparent for "total sugars".

Figure 4.4. The Chilean warning label (WL) thresholds are becoming stricter than the red category of the UK traffic light system (TFL)



Source: OECD Secretariat based on (UK DH - FSA, 2016).

The French Nutri-score and the Australian/New Zealand Health Star Rating system are summary labels that provide an evaluation of how healthy a product is. They use similar nutrient profiling models than that used for the UK traffic light systems. Table 4.5 compares the labels in the UK, French and Australian/New Zealand systems that a product would have to show if its composition corresponds to the threshold limits established for the Chilean label. This table illustrates how, currently, products that would be qualified as most unhealthy in the Chilean system, would not qualify as the "worst products" in the classification systems of other countries. Indicating that the Chilean requirements are stricter. However, the different labelling approaches are broadly aligned, and a recent study comparing the systems from Chilean and New Zealand specifically, indicated significant convergence, with only one in 12 (8%) of products found to be non-aligned (Söderlund, 2020).

French experience in testing simplified FOP nutrition labels

On 26 January 2016, as part of a wider reform of the health system, France proposed the adoption of a simplified nutritional labelling system that would be understandable for everyone. In order to determine whether the provision of

18. A working group established under the Codex Committee on Food Labelling (CCFL) has developed a draft guideline to ensure to ensure the international consistency of front-of-pack labelling in order to reduce the potential for trade barriers that may result from different labelling schemes. This guideline will continue to be discussed by the CCFL in 2020.

Table 4.5. Comparison of the simplified labels that could appear on a solid food product that would need to show the 4 warning labels in Chile

At the time of the law implementation – June 2016

Chile	United Kingdom	France		Australia/New Zealand	
		High fibre content	Low fibre content	High fibre content	Low fibre content
					

Three years after law implementation – June 2019

Chile	United Kingdom	France		Australia/New Zealand	
		High fibre content	Low fibre content	High fibre content	Low fibre content
					

Source: OECD Secretariat calculations based on information concerning the labelling system in place in the UK (UK DH - FSA, 2016), in France (Julia and Hercberg, 2017[63]) and in Australia/New Zealand (FSANZ, 2018)

simplified nutritional labelling would influence consumers' food purchasing decisions, in particular purchases by lower income households, and decide on the label, a field trial testing four different FOP nutrition labels was undertaken between September and December 2016. This controlled test involved 60 retailers and 1 300 food products from four food categories: fresh prepared foods, pastries, breads, and canned prepared meals.

For the purposes of this experiment, the French national institute for agricultural research (INRAE – National Research Institute for Agriculture, Food and Environment) developed an open software called Getiq, which by scanning a product's barcode could assesses its nutritional content and match it with the related simplified nutritional label.

Results from the field trials showed that the labels significantly improved the nutritional quality of food purchased. As the Nutri-Score label was the most impactful for modest income households and in the two unhealthier food categories, this was the FOP label selected by the French Government in March 2017 among the four options tested.

As of March 2020, the Nutri-Score is now used on a voluntary basis by about 300 companies including several major retailers and food processors. An evaluation of the label will be undertaken in 2020.

Development of a food information base

International experience in gathering information on the food environment

The sections below describe the experience of developing a food information base in different countries. In France, this was done in collaboration with the stakeholders of the food chain sector and more recently with GS1, a not-for-profit organisation that develops and maintains global standards for business communication, including barcodes. In New Zealand, the NutriTrack database was developed to gather information on the nutritional composition of food products using a smartphone app. The Irish experience in conducting a thorough review of all products labelled as children food is also described. Finally, the US experience is presented in more detail.

FRANCE

In France, a Food Observatory project (Oqali) was set up in 2008 by the ministries in charge of agriculture, health and consumption. The French National Research Institute for Agriculture, Food and Environment (INRAE) and the French Agency for Food, Environmental and Occupational Health & Safety (ANSES) are responsible for the implementation of Oqali. The Oqali project aims at monitoring changes in processed food products available on the French market, by measuring nutritional quality evolution over time (nutritional composition and labelling information). Information on food products is stored based on each product's barcode.

Oqali management is based on partnerships with manufacturers and retailers. These collaborations are essential to facilitate data collection and to provide interpretive elements. The private sector partnership is governed by an "operational charter for partnerships". A technical orientation committee with representatives of public entities, food chain stakeholders and consumers' associations meets on a regular basis to define a roadmap for Oqali work.

In addition to developing a software that eases the process of gathering the information on food products, Oqali is currently exploring whether part of the heavy data gathering work could be eased through a collaboration with GS1, a not-for-profit organisation that develops and maintains global standards for business communication including barcodes. In the United Kingdom, GS1 has developed its product DNA service: Associated to the barcode of any food product is a certain range of its nutritional and composition characteristics.

Under Oqali, the nutritional quality of food products in different food categories is regularly reviewed every 4 or 5 years. The information is linked to food purchases data from a Kantar household panel. Oqali information is the basis of numerous scientific papers (Perrin C. , et al., 2018); (Perrin C. , et al., 2017); (Menard, et al., 2011).

NEW ZEALAND

The Nutritrack database project is run by the University of Auckland to monitor trends in food purchases, availability, and nutrient quality of the national food supply in New Zealand. Annual store surveys are used to collect food availability and composition data. Each year, barcode, package, labelling, ingredient and nutritional information are collected for about 14 000 unique packaged food products and non-alcoholic beverages. A smartphone app is used to take photographs of all packaged products on sale. Product and nutrient data are also collected from all major fast food chains. Availability and nutrient composition information are linked with food purchase data from the Nielsen Homescan panel, a nationally representative household panel.

IRELAND

The Irish food safety authority undertook a thorough review of all food products labelled as baby (Geraghty, et al., 2018) or toddler (Taleghani, et al., 2018) food in the country. They highlighted the fact that, although some efforts were made regarding lower sodium content or higher fibre content, many new products on the markets and in particular in the snack and breakfast cereals segments were inappropriate for children with elevated saturated fats and sugar levels. This study will be undertaken on a regular basis and will be used to discuss children food formulation with food chain stakeholders.

UNITED STATES

Among OECD countries, the United States has developed the most advanced food data system (Baragwanath, T., 2021). The system is updated continuously on an ongoing basis, so as to adapt to changes in the food system, policy environment, and new sources of data and data collection methods as they become available. As discussed in detail in (Giner & Brooks, 2019), the US data system monitors information on:

- **Food availability**. The source for this data is the Food Availability Data System, which provides time series for the availability of over 200 commodities;

- **Food intake**. This has been monitored since the early 1960s through the National Health and Nutrition Examination Survey;

- **Food expenditure**, via the Consumer Expenditure Survey, a survey of 7 500 nationally representative households by the Bureau of Labour Statistics; and,

- **Food composition**, as tracked by the Food Composition Database, which has been compiled since 1892 to provide information on nutritional content for food products.

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

USDA also developed its own survey, the National Household Food Acquisition and Purchase Survey (FoodAPS) to understand better the source and healthiness of food purchases by the US population. FoodAPS was run in 2012 and 2013 with data released in 2016. Food purchases of approximately 5 000 households over a seven-day period were recorded with proportionally higher surveying of low income households and those participating in the Supplemental Nutrition Assistance Program (SNAP).

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

In terms of method, the FoodAPS survey was undertaken as a paper and pencil survey in 2012-2013. Work is underway to design a smartphone application for FoodAPS-2 to facilitate the data collection. Using the app respondents will be able to scan the Universal Product Codes (or barcodes) of food purchased and barcodes will link directly to the USDA food composition databases. This automation will reduce manual data entry and responder fatigue as well as improve the quality of the data collected. Field tests of FoodAPS-2 will begin in 2021.[19]

Reformulation strategies

Food and beverage product reformulation has been proven to be an effective public health strategy to improve dietary intake and population health (Cobiac, Vos, & Veerman, 2010); (Monteiro, Levy, & Claro, 2010); (WHO, 2004); (WHO, 2008). This section provides examples of reformulation initiatives that have been undertaken across OECD countries in a collaboration between the private sector and with governmental entities. Most of them were focusing on the reduction or replacement of content of salt, trans fats and saturated fats and the reduction of sugar content.

In Australia, a Reformulation Working Group under the country's Healthy Food Partnership was established in 2016 to tackle obesity in the country through the promotion of healthy eating (OECD, 2019a). The Working Group engaged with the public health sector as well as the food industry to address issues such as portion size, product reformulation and public health education. After conducting an analysis of the foods contributing to the largest consumption of the negative nutrients in the population, the Working Group set targets for food/nutrient reformulation. If one-third of products already met the target, the Working Group considered it was technologically possible to meet the target.

In 2016, the United Kingdom published the report Childhood obesity: "A plan for action", which called for the industry to reduce the level of sugar in their products by 20% by 2020. This initiative focused on the products that contribute most

19. https://www.ers.usda.gov/data-products/foodaps-national-household-food-acquisition-and-purchase-survey/faqs/#whysurvey

to sugar intake in children consistent with the Public Health England published guidelines for the total level of sugar and calories in the top food categories in England. This work was conducted through expert consultation of members in the food industry, non-governmental organisations and government departments. To meet the 20% reduction in sugar levels businesses can either reduce sugar levels (reformulate products), produce smaller portions, or encourage consumers to purchase lower or no sugar products. In a primary assessment of the program, Public Health England reported a reduction of sugar in several food categories (biscuits, chocolate, ice cream, and yogurts). An additional report measuring the progress of the intervention between 2015-18 was published in September 2019 demonstrates mixed results (Public Health England, 2019). The next report is due in the first half of 2020. While the UK guidelines are voluntary, the Government has stated that if progress against the targets is not sufficient by 2020, it will consider other levies.

Germany has created a nationwide strategy to reduce the content of sugar, salt and fat in packaged food products. This strategy focuses on the reduction of calories in processed food and reduction of nutrient dense content by 2025. Similar to other countries, Germany will focus on product- and nutrient-specific reductions including a reduction of sugar in breakfast cereals by 20%, soft drinks by 15%, in addition to a reduction of portion size.

While trying to reduce the calorie content of products, it is important to pay attention to other substances as well to avoid switching one harmful substance for another. In particular, trans-fats need to be avoided as there is a direct link between trans-fats consumption and such outcomes as heart disease (Stender & Dyerberg, 2004). Another issue relates to the replacement of sugar by artificial sweeteners. Gradually reducing the overall sweetness of products may be better than using artificial sweeteners as this allows for people's palates to gradually adjust to less sugary foods. WHO's Nutrition Guidance Expert Advisory Group (NUGAG) - Subgroup on Diet and Health is working towards some guidance on the use of artificial sweeteners (or non-sugar sweeteners)[20].

4.4. IMPLEMENTATION ACTION PLAN TO MONITOR AND EVALUATE LAW 20.606

Need for an evaluation framework

Law 20.606 aimed to signal unhealthy food products and to encourage changes in food consumption patterns as well as to decrease children's exposure to unhealthy food. It constitutes a comprehensive and innovative policy package to fight rising trends in overweight and obesity prevalence. While preliminary assessments of Law 20.606 exist, a full evaluation of the law has not been performed yet. In order to assess the impact and potential side-effects of the law, the OECD suggests building an evaluation framework that would focus on two main elements in line with the objectives of the law:

1. The food environment: keeping track of food products available on the market (ingredients, nutritional compositions, warning labels or claims, recommended portion sizes, sale records and prices), as well as monitoring the evolution of food products' ingredients (e.g. reformulation efforts) or production methods.

2. Consumers' food choices: following households' food purchases and acquisition and linking them to individual food intake. In addition, it will be important to assess the level of nutrition literacy and identify the primary decision-making factors behind food purchases, notably by understanding the weight of health considerations in purchasing decisions.

This evaluation framework should be made public and clearly documented online for transparency reasons. Potential effects of the law on public health outcomes may only be observed with a delay and will not be the focus of the evaluation framework. It is recommended to continue monitoring the prevalence of overweight and obesity in the Chilean population, and in particular for vulnerable groups including infants and children.

While it will be difficult to isolate the effects of Law 20.606 from other changes that might be occurring in the same timeframe, the evaluation framework will be extremely valuable in providing an indication of any improvements in the nutritional quality of food consumption in Chile.

20. See: https://www.who.int/nutrition/events/2019-13th-NUGAG-meeting-16to19Dec/en/

The following Policy Actions present the recommended actions for an evaluation of the law according to the elements identified above. These actions are not intended to be alternative options, but rather, they constitute complementary measures to enhance Chile's obesity strategy on various fronts. Therefore, it is not excluded that a single taskforce/ Food Observatory could enact all of them and subdivide the work in smaller groups.

POLICY ACTION 1

Set up a consultative process leading to an institutionalised mechanism to monitor and evaluate the food environment.

Objective

The objective of this consultative process is to develop a mechanism to gather trusted information on the nutritional quality of food products that are sold on the Chilean markets and to monitor this information over time. This mechanism will help develop collaboration across involved stakeholders.

Actions and timeframe

Short term (1 year)

- Set up a working group on the Chilean food environment: this working group would involve representatives of different ministries (i.e. Ministry of Health, Ministry of Economy, Ministry of Agriculture, Ministry of Education, and Ministry of Social Development) of the Chilean food industry and of the civil society. It would meet every 6 months and be facilitated by the Ministry of Health.

- The working group should be set up as soon as possible as it will help build trust around the implementation of the Law 20.606 and recognise the efforts undertaken by food chain stakeholders as a response to the Law 20.606.

- Once established, gradually scale up the working group into a food quality observatory (similar, for instance, to the French food observatory).

- Build an evaluation framework through data gathering that focuses on keeping track of food products available on the market as well as monitoring the evolution of food products' prices, ingredients and production methods. Ensure granularity of the food environment data at the geographic level (e.g. by regions, municipalities, etc.), to assess those regions and sectors more exposed to unhealthier food environments (or to analyse the places most exposed to the relatively most expensive healthier food options).

- Agree on food categories to be covered and identify priority categories. Cover food categories that contribute most to excessive salt, sugar, calories and fat intake and focus in the first stage on product categories that are of particular importance for children.

- Build an information system on the food environment:
  - Develop a partnership with academia and research institutions like INTA and others to access data collected since 2015;
  - check historical data collected by academia and research institutions in Chile and correct errors if needed;
  - develop an agreement with the food industry to provide nutritional formulation information on reformulated products or new products on the market and introduce related regulations if necessary;
  - Alternatively, undertake a yearly scanning of all processed food products available on the Chilean market. INTA has developed its own scanning methodology. For instance, France and New Zealand have developed methodologies based on the developments of apps. It is suggested to explore collaboration opportunities to lower the data gathering burden. The possibility of collaborating with GS1 (barcode provider) should be explored to ease the burden of information collection.

- Communicate transparently on the evolution of the nutritional quality of food products with regular reports approved by the working table. It is advised to focus first on the priority categories.

Long term (> 1year):

- Transform the working group into a food observatory.
- Continue the monitoring process and regular reporting. Review a given food category about every 3 years.
- Develop a sub technical committee that provides advice on potential reformulation targets for food products by categories.

Institutions/stakeholders involved

- Public entities: Ministries of Health, Economy and Agriculture; Ministry of Social Development and Family (Elige Vivir Sano, Consejo de Desarrollo Saludable).
- Private sector stakeholders: Key actors and industry associations (for instance, Chile Alimentos or/and AB Chile).
- Academia: INTA and other academic/research institutions related to the topic.
- Civil society: Consumer organisations.

POLICY ACTION 2

Develop a framework to assess changes in consumers' behaviour related to the Law 20.606, following households' food purchases and acquisition and linking them to individual food intakes.

It would be important to link consumers' behaviour data to the food environment data recovered by the institutionalised mechanism described in Policy Action 1.

Objective

Evaluate how Law 20.606 is understood by consumers and affects consumers' food choices.

Actions and timeframe

Short/medium term (1-2 years)

- Regularly run surveys on the population's awareness and understanding of the warning labels and extend them to include broader behavioural questions to assess the level of nutrition literacy and identify the primary decision-making factors behind food purchases, notably by understanding the weight of health considerations in purchasing decisions.

- Develop specific surveys for more vulnerable population sub-groups and different geographical/ socioeconomic strata of the population.

- The surveys could be run on an annual basis.

- Set up a working group aimed at developing an information base on consumers' food acquisition that could be linked to the food environment information base:
  - Explore the possibility of developing partnerships with retailers to get access to their loyalty cards data;
  - explore the possibilities of developing a new public-based source of information on consumers' food acquisition based on the US FoodAPS example;
  - explore the possibility of buying on an annual basis a license for the perpetual use of household panel data over the pre and post law implementation period; and,
  - explore the possibility of commissioning researchers to undertake studies focusing on the healthfulness of consumers' food purchases.

- The food consumption working group should possibly be put in place in connection with the food environment working group. The working group should explore the costs of the different possibilities to get access to data on actual consumers' food purchases and provide guidance on the most appropriate option.

Institutions/stakeholders involved

- Ministries of Health, Economy, Agriculture.
- National statistical institute (INE).
- Industry and retailers.
- Consumer associations

POLICY ACTION 3

Set up a monitoring process to assess the quality of food served or sold in public and private school canteens.

This process would complement JUNAEB current efforts and expand them by also capturing schools that are not part of the JUNAEB network.

Objective

Evaluate and improve the healthfulness of the food served and sold in Chilean schools.

Actions and timeframe

Short term (1 year)

- Build on JUNAEB *Mapa Nutricional* existing database and methodology to design a survey based on a representative school sample exploring the type of food served or sold in the schools and their surroundings. Importantly, this sample should include both public and private school institutions.

- Develop an evaluation task force for schools that want to evaluate the food served or sold in their premises.

Institutions/stakeholders involved

- Ministry of Health.
- Ministry of Social Development and Family (Elige Vivir Sano).
- Ministry of Education, including JUNAEB.
- Schools.

POLICY ACTION 4

Communicate on the evaluation process in a clear and understandable way. Provide opportunities for researchers to conduct research and evaluations that could contribute to the institutional evaluation.

Objective

Disseminate information on the main outcomes of the law in terms of changes in the food environment and in food consumption choices to all interested parties (private sector, other countries, researchers, international organisations and consumers' organisations). Increase the number of studies that are looking at the impact of the Law and other related features regarding the food environment and consumption.

Actions and timeframe

- Launch a governmental web portal dedicated to food and health and provide updates on the different components of the evaluation framework on a regular basis. The web portal should be set up in the course of the first year and report on the evaluation framework. It should include a page dedicated to researchers to get access to the collected information.

- Set up a research board who could grant access to the data collected as part of the evaluation framework to researchers based on a research proposal (similar to what USDA is doing in the United States).

- Encourage the participation of Chilean experts in international fora and networks to share and disseminate information on the Chilean experience and benefit from other countries' approaches.[21]

Institutions/stakeholders involved

- Ministries of Health, Economy and Agriculture; Ministry of Social Development and Family (Elige Vivir Sano).
- Research institutions/universities.

21. For example, the OECD Food Chain Analysis Network, (FCAN), an expert group of the OECD Committee for Agriculture. The FCAN specialises in agro-food system analysis, with an emphasis on the potential to gather and exploit food system data, and meets annually to discuss multi-country approaches and identify good policy practices. FCAN meetings are attended by national experts from government ministries and related institutions.

5. Expanding Chile's obesity strategy

Chile's portfolio of interventions to fight obesity and overweight is impressive and innovative. However, more can be done to expand its strategy and complement it with new policy measures. This section presents additional policies for consideration by the Chilean authorities, with a focus on reviewing the potential for national menu labelling schemes and the potential use of behavioural insights to improve the food environment.

5.1 INTRODUCING LABELLING FOR MENUS IN OUT-OF-HOME DINING SETTINGS

The consumption of food outside of the home and in places such as cafes, restaurants and cafeterias is an important contributor to excess energy intake in adults and children (Rosenheck, 2008). Such settings can offer food that is often larger in portion size and can be high in calories and low in essential nutrients (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008). Several studies have shown that consumers are often unaware of the calorie, fat and sodium content of many purchased meals if nutritional information is not available to them at the point of purchase (Burton, Howlett, & Tangari, 2009).

Menu labelling has been viewed as an important public health strategy to reduce energy intake and to decrease the prevalence of obesity. Menu labels can show the number of calories in a product, or indicate healthier choices. These initiatives have gained support from public health experts and governments as they empower the consumer to make informed food choices. For instance, in response to the alarming levels of child and adult obesity, parts of Australia, Canada, and the United States have introduced legislation requiring restaurants or similar food establishments with 20 or more locations to post calorie content on their menus.

A systematic review and meta-analysis (Sinclair, Cooper, & Mansfield, 2014) of mostly mandatory initiatives found that participants who received menus with labels consumed 41 fewer calories per purchase, compared to the control group. The same study also found that contextual or interpretive labels were more effective, by reducing calorie consumption by 81 kcal. Emerging evidence also suggests that menu labelling with the exercise component (i.e. so-called PACE labelling) can be as effective as calorie labelling at reducing the number of calories ordered at fast food places (Antonelli & Viera, 2015; Seyedhamzeh, Bagheri, Keshtkar, Qorbani, & Viera, 2018). Similarly to what has been shown for food labelling, there is tentative evidence that mandatory menu labelling, besides influencing consumer behaviour, might also encourage restaurants to reformulate their menus by offering lower calorie content (Block & Roberto, 2014; Bleich, Wolfson, Jarlenski, & Block, 2015). However, the evidence on the effectiveness of menu labelling on calories consumption is still mixed and not definitive ((Bleich SN, Spiker, VanEpps, & Elbel, 2017); (Swartz JJ, 2011)) and therefore calls for further experimentations.

While the Law 20.606 requires labeling of packaged non-natural foods, Chile does not yet have a policy on menu labeling. Testing such a policy could complement the existing law and further improve the food environment.

International experience – Menu labelling schemes

Starting in 2017, in the United States, restaurants and similar retail food establishments that are part of a chain with 20 or more locations are required to provide customers access to calorie and nutrition information. This includes foods on menus, menu boards, and foods on display and self-service foods at the point-of purchase in fast food and full-service restaurants (US Food & Drug Administration, 2016). For standard menus, calories must be listed clearly and prominently next to the name or price of the food or beverage. There is additionally the requirement that menus and menu boards provide a succinct statement concerning the suggested caloric intake and that additional nutritional information can be made available upon request. The statement "*2 000 calories a day is used for general nutrition advice, but calorie needs vary*" must appear on the bottom of menu boards and at the bottom of each page of multi-page menus, and must meet certain size and colour requirement. The statement "*Additional nutrition information available upon request*" must appear on the bottom of the first page of a menu.

However, there are several limitations to this initiative. For instance, marketing material such as paper inserts, advertisements or coupons from the establishment would not require calorie statements. There are a number of food products that are exempt from this regulation including custom orders, temporary menu items, general use condiments and foods that are not on a menu or menu board and are not on display or self-service (US Food & Drug Administration, 2019). An evaluation of the US menu labeling policy found that consumers express a significant interest in energy and nutritional information on restaurant menus and at points of purchase (Bleich & Pollack, 2010) and 68% of individuals surveyed view the requirement favourably. In one evaluation conducted in the Washington State, such legislation resulted in a per-purchase decrease of calories by 38 kcal after 18 months of implementation (Krieger, et al., 2013). Overall, women are more likely to base purchases on menu labels (Bleich & Pollack, 2010); (Piron, Smith, Simon, Cummings, & Kuo, 2010).

In Australia, menu labeling was recommended as part of the Australian food labelling law created by the Australia's National Preventative Health Taskforce (Hwang & Lorenzen, 2008). In 2012, New South Wales passed legislation requiring energy in kilojoules to be listed on menus in certain chain fast food outlets. Standard products included ready-to-eat items of a standard portion size that are displayed on a menu or menu board. These items must be sold at more than one location and the business must be present in 20 or more locations in New South Wales. Businesses had 12 months to comply with the requirements. Similar to the US example, a statement starting the daily average adult energy requirements (8 700 kilojoules) was listed as well.

Simultaneously, the New South Wales Government provided AUD 1.18 million to a consumer education campaign. The campaign was targeted towards 18 to 24 year olds as frequent consumers of fast food and was developed in collaboration with representatives from industry, community and government stakeholders.

An evaluation of the menu labeling initiative indicated a significant decrease in the median kilojoules per person purchased during the evaluation period (Blewett, Goddard, Pettigrew, Reynolds, & Yeatman, 2011), with an overall reduction of 519 kJ (15% decrease). It was found that 38 or the 39 food chains voluntarily chose to comply with the regulation before it came into force.

Similarly, on 1 January 2107, Ontario (Canada) introduced the Health Menu Choices Act, which requires food establishments with 20 or more locations to display calories on menus for standard food items and display contextual information to help educate customers about their daily caloric requirements (i.e. approximately 2 000 to 2 400 calories per day, with individual variations). This includes establishments such as restaurants, convenience stores, grocery stores, movie theaters, bakeries, ice cream shops and coffee shops. Items excluded from this regulation include temporary items available for less than 90 days a year, free of charge condiments, patient meals in hospitals, long-term care homes, and retirement homes, and special order items (ORHMA , 2016).[1]

1. A Guide to Menu Labelling Requirements in Regulated Food Service Premises in Ontario Understanding Ontario's Menu Labelling Rules. (2016). Retrieved from https://www.orhma.com/Portals/0/Insider/2016/Menu%20Labelling%20Guide.pdf

Box 5.1: ISSUES TO CONSIDER IN THE CREATION OF GUIDELINES FOR A MENU LABELLING SCHEME

- What type of label should be used?
- Who must comply with these requirements? In case of a voluntary scheme, who can participate?
- Who is exempt/excluded from this scheme?
- What is the timeframe?
- Where should the label be displayed?
- How big should the label be?
- How should the label be displayed for menu items intended to for more than one person?
- How should the label be displayed for combination meals?
- How should the label be displayed for self-service food and beverages or buffets?
- To what extent will nutrient content be displayed along with calorie content?
- How should calorie or nutrition information be determined to ensure proper compliance?
- Will there be a contextual statement? What are the requirements for the display of the contextual statement? Where and how should it be displayed?

Currently, the majority of menu labelling schemes offers only information on calories in a numeric format. As said before, research has suggested that symbols conveying the nutritional quality of a meal may be more effective. As countries move toward menu labelling as a population health strategy in obesity prevention, additional studies are required to understand the most effective design and implementation of menu labelling as a public health strategy. Chile can contribute to the international evidence by piloting different menu labelling options.

A first step for Chile would be to run a pilot study to explore the effectiveness and feasibility of different labels. There are a large number of issues to consider when designing a menu labelling scheme (see Box 5.1.), and a pilot study would provide the opportunity to explore different options.

5.2 MEASURES TO ADDRESS BEHAVIOURAL BARRIERS TOWARDS HEALTHIER LIFESTYLES

The global rise in obesity rates can be linked to a number of environmental factors, including an increase in urbanisation and sedentary lifestyles, and an increase in the availability of energy dense processed foods and beverages (WHO, 2016). These foods and beverages are often available at relatively low prices and in large portions and sizes. For some years public health professionals have tried to nudge consumers to choose healthier lifestyles, in order to prevent obesity and other obesity-related metabolic diseases (Agudo, 2004) (Van Duyn & Pivonka, 2000). Public health research suggests that an obesity strategy should target two areas: (i) changing individual behaviours; and (ii) making improvements to the broader social, institutional and policy environment in which those behaviours occur (Kelly & Barker, 2016). Although there is increasing knowledge surrounding obesity prevention and healthy eating, such awareness has for the most part proven insufficient to change the dietary habits of most Chileans, as evidenced by recent trends in obesity prevalence and food consumption overviewed in the Introduction of the assessment.

To address this challenge, policymakers have started to explore the potential behavioural insights to improve public health policy. Behavioural insights are defined by the OECD as "the evidence-based approach integrating insights and methodologies from the behavioural sciences in public policy to provide better and more effective public policies" (OECD, 2019d). Drawing from rigorous research in behavioural economics, cognitive science and social psychology, behavioural insights builds on the assumption that individuals do not always rely on full rationality to make decisions. Rather, individuals make decisions based on biased judgements and flawed perceptions. Behavioural insights tries to create policies that take into account how people behave in practice, as opposed to assuming that individuals make rational decisions.

To identify the main behavioural factors that can impact decision-making – and ultimately the success or failure of a policy – the OECD has recently developed the ABCD framework, which summarises the key ways in which individuals deviate from traditional concepts of rationality (See Table 5.1 below).

Table 5.1. Overview of ABCD framework developed by the OECD

Aspect	What rationality says	What behavioural insight shows	Example
Attention	People should focus on what is most important in light of their knowledge and preferences.	People's attention is limited and easily distracted.	Forgetting a doctor's appointment.
Belief Formation	People should form their beliefs according to the rules of logics and probability.	People rely on rules-of-thumb and often over/underestimate outcomes and probabilities.	Over/underestimating the quantity of calories of a product contains.
Choice	People should choose so as to maximise their expected utility.	People are influenced by the framing and the social as well as situational context of choices.	Preferring the food or drink that friends like rather than the least expensive.
Determination	Provided that one decides to pursue certain long-term goals, one should stick to the plan.	People's willpower is limited and subject to psychological biases.	Failing to eat healthy when on a diet.

Source: (OECD, Tools and Ethics for Applied Behavioural Insights: The BASIC Toolkit,2019d).

These behavioural drivers of decision-making are of direct relevance for policymaking and have been widely used to address public health issues such as smoking, alcohol, diet and weight, diabetes, and physical activity, among others. For example, installing motion-sensor piano keys on the steps of stairs can encourage people to use the stairs as it makes it more fun and therefore attractive. Similarly, because eating is largely habitual and prone to self-regulation failures, behavioural strategies can be particularly effective in improving diet quality. For instance, decreasing the size of a standard meal can help with portion control as people tend to stick to the default option. Displaying healthy options prominently can draw attention to them. Creating a dedicated zone in a shopping cart for fruits and vegetables can provide a strong message to buy enough of that produce. Moreover, countries are exploring the opportunities that digital tools can provide to improve consumer demand for foods associated with better health outcomes (Baragwanath, T., 2021).

Some of these interventions can be relatively low-cost. The section below presents some examples of behaviourally-informed interventions that have been conducted in other countries. As individual behaviour can be affected by the cultural and social context, their effectiveness would need to be tested carefully to design interventions that are adapted and effective.

Applying behavioural insights to promote healthier behaviours in other countries

UNITED KINGDOM

In the United Kingdom, the Behavioural Insights Team is currently running a pilot that follows successful studies from the Unites States, showing that shoppers are heavily influenced by visual prompts to purchase their food items. The Behavioural Insights Team will be reaching out to partners in the private, public and voluntary sectors to begin experimenting with the design of shopping carts, and with the order and display of healthier options on supermarket shelves. The aim is to see if changing the physical environment in supermarkets can encourage consumers toward healthier options.

AUSTRALIA

In 2014, the Victorian Health Promotion Foundation (VicHealth) was funded by the Department of Health to develop the Leading Thinkers Initiative to use behavioural insights to promote good health and prevent chronic disease. Seven

behavioural trials were designed for delivery by VicHealth and partners to understand how human behaviour can inform policy and practice (VictHealth, 2016). One example is the project "Nudging healthier beverage consumption in retail settings: Alfred Health." This study evaluates whether hospital staff members and patients could be encouraged towards healthier choices by making small changes to the food environment in the hospital. By moving the drinks with a negative nutritional label to a position outside of the main viewpoint of customers, the sales of such drinks was decreased.

UNITED STATES

The United States Department of Agriculture (USDA) is working on new types of approaches based on behavioural economics to help consumers make healthy choices, with a particular focus on low income households (Mancino, Guthrie, & Just, 2018). USDA has undertaken studies on how low income households acquire food and found that households participating in the Supplemental Nutrition Assistance Program (SNAP) tend to purchase most of their calories from retail outlets (Guthrie, Lin, & Smith, 2016). This, coupled with the fact that grocery shopping food nutritional quality is generally higher than the nutritional quality of food consumed away from home (Guthrie, 2012), means that USDA focuses on encouraging healthier purchases directly in retail stores. To encourage consumers to reassess existing unhealthy preferences at point-of-purchase in-store experiments have been undertaken as part of a cooperative agreement between the Economic Research Service of USDA and New Mexico State University. In particular, one experiment consisted of placing fruits and vegetables near checkout lanes with cashiers asking whether shoppers were interested in those products while checking out. The result of the experiment was that the sales of fruits and vegetables increased significantly among all shoppers, including those that used SNAP benefits (Payne & Niculescu, 2018).

DENMARK

Similarly, in Denmark, the Danish Agriculture & Food Council partnered with the REMA 1000 franchise supermarkets and the behavioural team of iNudgeyou to design an intervention to test the impact of strategically arranging the position of healthy foods in supermarkets. The project started from the observation that when consumers shop for food, they often shop for composite meals and particular dishes – and there is a mismatch between the traditional layout of supermarkets and the behaviour involved in grocery shopping. The intervention was designed to tackle this mismatch by strategically placing pre-cut vegetables next to minced meat, paprika and grapes next to cheese, packed fruit next to cakes (to create an alternative or supplement), and cauliflower next to potatoes (to offer a healthier alternative). By placing a healthy addition next to a possible and easy dinner, the sales of pre-cut vegetables more than doubled with sales increasing by 61.3% per customer and turnover for participating supermarkets increasing (Nielsen, Hansen, & Skov, 2016).

GERMANY

Along the same lines, in Germany, an experiment conducted by the Ministry of Defence in the canteen of an Air Force Base managed to significantly increase healthy nutrition choices by the Ministry's employees (OECD, 2017). This was achieved by changing lunchroom displays and settings such as placement and arrangement of food products, the colour of dishes, posters to enhance awareness.

CANADA

Finally, in Canada, the Agency's Centre for Chronic Disease Prevention set up an incentive-based pilot project to test whether it could motivate Canadian citizens to exercise more. By rewarding customers with loyalty point incentives (i.e., Air Miles Reward Miles) in return for participation in physical activity at YMCA Canada fitness facilities, the initiative produced promising evidence for behaviour change (OECD, 2017). Over 98 000 participants registered for the programme (above the expected target of 25 000) and YMCA members enrolled in the project visited the fitness facilities approximately 17% more frequently than members not enrolled in the project.

Relevant behavioural options for Chile

Behaviourally-informed strategies towards healthier food choices have the potential to help consumers achieve a more balanced diet and also to generate additional sales, despite potential re-organisation costs. These measures need to be acceptable to food chain stakeholders and to consumers. The main challenge is in scaling up these types of approaches and allowing for replicability as well as longer term assessments.

Building on evidence from other OECD countries, Chile could identify strategies to complement its obesity strategy with behavioural insights. Table 5.2 opposite overviews potential strategies to this end.

5.3 POTENTIAL POLICIES TO EXPAND THE OBESITY STRATEGY IN THE LONGER TERM

In this section, additional policy actions are briefly discussed as potential long-term considerations, building on the 2019 OECD Public Health Review of Chile (OECD, 2019b). Notably with regards to three topics: 1) subsidies on healthy foods, 2) additional policies targeting youth and 3) measures related to advertising.

Subsidies on healthy foods such as fruit and vegetables

Chilean stakeholders are currently considering subsidies for fruits and vegetables. This proposal has been developed and studied by a panel of 50 experts in 2017, following the request of the Ministries of Health and Finance.

One approach to implementing a fruits and vegetable subsidy is through schools. The European Union School Fruit Subsidy Program encourages healthy eating by donating fruits and vegetables in schools. The scheme also includes educational measures on healthy diets. On average over the year, children consumed 53 portions of 135 grams of fruit and vegetables provided by the scheme (European Commission, 2016).

Another approach is by integrating the subsidy into existing food stamp or subsidy schemes. The United States ran the Healthy Incentives Pilot (HIP) over 2011 and 2012. This pilot 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). SNAP is the largest nutrition assistance program 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 USD 0.30 back for every USD 1 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 USD 0.30 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).

Finally, there is some evidence that the potential for positive effects might be amplified if a subsidy on fruit and vegetables is combined with targeted food taxes, which can function as price incentives to reduce demand of unhealthy foods (Mhurchu, 2010); (Powell & Chaloupka, 2009). For example, (Nnoaham KE, 2009) found that a combination of a targeted food tax and fruit and vegetable subsidy could reduce deaths from cardiovascular diseases (CVDs) and cancer. In their study, the potential impact of a tax on unhealthy foods in the United Kingdom was estimated through a model based on national consumption data and demand elasticity, drawing estimates of the effect on CVD and cancer mortality from previous meta-analyses. Results suggested that taxing 'less healthy' foods and using all tax revenue to subsidise fruits and vegetables could prevent up to 6400 CVD and cancer deaths yearly in the United Kingdom, indicating potential health benefits of joint tax and subsidies mechanisms.

Accordingly, changing the relative price of non-core foods high in energy, saturated fat, trans-fatty acids, sugar or salt, combined with fruit and vegetables subsidies, could positively influence the purchases and dietary intake of the Chilean consumers and strengthen the impact of the labelling law, if implemented as a complementary strategy.

Table 5.2. Potential Strategies using Behavioural Insights for Healthy Eating

Enhancing visibility	**Make healthier products more visible than unhealthy ones** (Foster 2014), (Buscher 2001). The Chilean food industry could be engaged to redesign supermarkets so that healthy products (as identified by the new food labels) would be easiest to purchase. This could be done by enhancing their visibility and displaying healthy products at eye-level or in transparent containers (Cadario R. & Chandon P., 2019).
Enhancing convenience	**Make healthier products easier to select or consume**, for example by placing healthy products early in a shopper's path when consumers' baskets are relatively empty (Wansink B, 2013). Other options include producing more convenient utensils for healthy products, creating a healthy "grab and go" line or ensuring healthy food is pre-sliced or pre-proportioned (Hansen, 2013). Finally, the check-out register could be transformed into an important decision-making point by replacing unhealthy snacks usually displayed at this area with healthier options. The opposite policy option of **making unhealthier options less convenient to select** has also shown positive results on healthy eating, by making unhealthy food less accessible or harder to reach ((Rozin P, 2011), (Hanks AS, 2012))
Adjusting the food offer	**Align products and behaviour.** It is simpler for individuals to substitute a similar behaviour than to eliminate an entrenched one. For this reason, reformulation of products is a behaviourally smart strategy, as it allows customers to engage in similar behaviours (e.g. still drinking sodas) but for the behaviour to be healthier (e.g. reduced sugar). In Chile, with only 17% of products not being labeled and low levels of product diversification and innovation, **providing incentives for the creation of new healthy products** is key for aligning products and behaviour. By making more healthy foods and drinks available, people will be more likely to choose them and the risk of having too many products with stop-signs on them will be avoided. The behavioural lens also suggest that it is possible to incentivise the private food sector to innovate their production by introducing an element of competition among companies, such as a prize or recognition for healthiest or most sustainable food product of the year. Additionally, if the initiative was specifically targeted among small/medium enterprises, it could simultaneously tackle issues in market dominance. Finally, to further align products and people's motives for behaviour, reformulation efforts should also aim to make healthy foods easy and quick to prepare.
Support Meal Planning	**Providing structured meal plans and grocery lists** has been shown to improve diet quality (Wing RR, 1996). People have difficulties planning for future meals and keeping health considerations into account when grocery shopping. Additionally, they have little time to devote to nutrition planning and specifically for Chile, lack of time has been shown as the second biggest barrier to healthy eating ((GFK-Adimark, Fundación-Chile, & Chile-Saludable, 2018)). Therefore, **meal planning** could be a powerful tool to offset time scarcity and encourage healthy home meal preparation. In France, similar interventions supporting meal planning found that meal planners were significantly more likely to display a higher adherence to the ministerial nutritional guidelines, as well as higher overall food variety and lower odds of being obese for both men and women ((Ducrot P, Méjean C, & Aroumougame V, 2017)). Specific technologies could also be developed and harnessed to facilitate meal planning, e.g. **to allow consumers to pre-order their groceries online to pick up later**. The impact could additionally be complemented by a digital interface designed to encourage healthy purchases (e.g. via defaults; recommended options or pre-set grocery lists and recipes based on nutritionists' recommendations). One such example is the USDA ChooseMyPlate website, which offers menu suggestions for individuals and households, including shopping lists, and recipe tutorials. The website also features tailored budgetary advice for recipients of food assistance programmes, which is important given recipients are more likely to have less skills concerning food preparation (Baragwanath, T., 2021).
Feedback and Rewarding Systems	**Feedback** could be provided to consumers in loyalty programs regarding how healthy their grocery shopping is. For instance, an algorithm could calculate the variation of a purchased basket of goods from an ideal diet based on information input in loyalty programs, such as family size. The systems could also be designed so that **customers would be rewarded with loyalty point incentives in return for substantial healthy purchases**. Alternatively, the feedback on the food receipt could indicate what are some healthier products that the consumers could have bought or leverage social comparison to encourage people to eat better that their peers or adhere to the behaviour of the majority of other clients.
Create healthy social norms	Purchasing decisions are often dependent on social incentives (what others in our group consume or considered desirable). Therefore, social norms can be activated through educational campaigns or positive marketing to **rebrand products so that healthy ones are appealing for reasons beyond health** (e.g. re-conceptualise eating a salad as "cool" or quick to prepare). As part of this effort, particular emphasis could be placed on enhancing the image of healthy products for kids.
Digital tools	Digital apps and / or platforms are being developed around the world to offer bespoke nutritional guidance and advice for individuals. Examples include Ireland's Weight-Mate app, Finland's Fineli database, Hong Kong, China's NuCal nutritional calculator, the United States MyPlate app, and Canada's Carrot Rewards app. These apps offer access to tailore-made nutritional information, and many allow users to set health goals (such as weight loss) according to their personal circumstances and share their results with friends and family (Baragwanath, T., 2021). Research indicates online grocery shopping sites could achieve positive health outcomes for users through automatically suggesting healthier alternatives to products with high salt or sugar content (Hartmann-Boyce, 2018).

Expand coverage of existing canteen-related policies

In order to reduce the high levels of obesity prevalence among school-age children, the Law 20.606 introduced restrictions to all public schools, including nurseries. The law prohibited giving or selling any type of bulk and pre-packaged food products exceeding the thresholds in all cafeterias, kiosks, and vending machines inside schools (Corvalán C. , Reyes, Garmendia, & Uauy, 2019). However, these regulations do not apply to food outlets surrounding schools, or other places highly frequented by school-age children such as playgrounds. Moreover, the regulation does not apply to food and beverages products bought away from school that children bring to school, such as products with "high in" labels (Corvalán C. , Reyes, Garmendia, & Uauy, 2019).

However, overall, and as overviewed in section 3.2., current programmes and scholarships provide the Chilean youth with a good range of interventions to improve diets and increase physical activity. To bring these interventions to a larger audience, in the long term the Chilean government could expand the coverage of the programmes to a larger number of canteens.

Expanding the school policy to cover all schools and other children's locations

The existing policy could be extended to canteens in private schools, either through a voluntary agreement or through legislation. Currently about 80% of students (i.e. all students attending a public school or a school receiving funding from the government) are covered. Extending the policy to private schools would result in virtually universal coverage of children. Moreover, other places where children gather (such as sports clubs or playgrounds) could be covered. The Guides and Scouts of Chile are already involved in Contrapeso, and this example could be followed by other extracurricular clubs.

Expanding the healthy food policy to other canteens

An important element of the Contrapeso policy is the provision of healthy foods in the canteens of school. Salad bars, fruits and vegetables are made available, and sugar and fat are reduced. Law 20.606 complements this by prohibiting both the sale or donating of products with a warning label at schools. The Chilean government could consider expanding the healthy food provision of the Contrapeso policy to other public canteens, such as government buildings, hospitals, or army canteens. If central purchasing is implemented, this could provide an addition benefit by increasing the buying and negotiation power for the School Feeding Programme.

Additional measures restricting advertisement of unhealthy food

While Chile has made tremendous progress in implementing comprehensive restrictions on the advertising of unhealthy foods and beverages, there remain a couple of areas where regulation can be expanded.

Restrictions on the marketing of unhealthy foods and beverages to children

The promotion of unhealthy food can contribute to increased consumption. Several systematic reviews have concluded that food promotion has an influence on children's preferences and purchasing requests (Hastings, McDermott, Angus, Stead, & Thomson, 2007); (Cairns, Angus, & Hastings, 2009). Reviews have also found that there is a considerable amount of food promotion to children and that advertising is typically for highly processed, energy dense, unhealthy products, which children remember and enjoy engaging with.

Children and adults are persuaded by advertising that promotes fast foods, sugary cereals, and other foods high in fat, sugars, or sodium or low in nutritional value. Advertisers use different mechanisms to promote their products to youth, such as creating an appearance of "fun" which features laughing, smiling, or playing children. Snack foods are often promoted by focusing on the novelty of the foods shape, colour or flavour. Additionally, fast food is promoted by offering toys to children (Cezar, 2008).

To address the link between food marketing and obesity, the World Health Organization published 12 recommendations on the marketing of food and non-alcoholic beverages. This includes a recommendation that the "overall policy objective should be to reduce both the exposure of children to, and power of, marketing, of foods high in saturated fats, tans-fatty acids, free sugar, or salt" (WHO, 2010).

To address these issues, in Chile, Article 6 of Law 20.606 prohibits the marketing of products that carry the warning label "high in" or whose content has excess calories, sugars, sodium, or saturated fatty acid even if it is not labeled "high in", to children under 14 years old. This includes mediums of communication such as posters, printed materials, television, radio, internet, magazines, among others, where over 20% of the audience is made up of children aged 14 years or under. The law explicitly limits the interaction between the child consumer and advertisers through games, toys, or accessories for products with the warning label.

There has been ambiguous interpretation of the law causing a dispute between private and public interests. The dispute has been regarding the terminology of what "hooks" children to purchase unhealthy foods. The Law 20.606 has determined that food with labels may no longer feature cartoons, such as those found on sugar cereals that target children. In general, the food industry states that Chile's Law 20.606 is an overreach of government. ChileAlimentos, an industry association, has stated that the nutrition labels are invasive and are based on an incorrect correlation of obesity and unhealthy food promotion.

As mentioned earlier, the law on Food Advertising (Law 20.869) introduced in 2015 normally prohibits the promotion of unhealthy foods with a warning label on television and in cinemas between 6am to 10pm, although there are some exceptions to these restrictions (Chilean Ministry of Health, 2015).

Expanding the ban on advertising of food with a label to areas near schools

In addition to banning the marketing and sale of unhealthy foods with labels inside school, these activities could also be restricted around schools. Some municipalities have already banned outdoor advertising around schools, and these initiatives should be evaluated to determine their effectiveness. If they are proven to have an impact, the Chilean government could work with the other municipalities to extend this programme to all regions.

Prohibiting advertisement of "high in" foods during sports and other cultural events

Currently, there are exceptions under the Food Advertising Law (Law 20.869) for advertisement of "high in" foods during the broadcast of specific events, including sports events (see section 4.1. above). A study in the journal of Pediatrics reveals that, in the United States, 76% of food products shown in advertisements promoting a sports organisation sponsorship are unhealthy and that 52% of beverages shown in sports sponsorship advertisements are sugar-sweetened. This study used Nielsen audience data to select popular sports teams among young viewers in the United States, and showed these sports programs were viewed over 412 million times in one year by young people (Bragg et al, 2018).

Creating a more comprehensive policy of banning unhealthy food marketing on the internet and through social media

Currently, Law 20.606 prohibits the marketing of products "high in" to children under 14 years old, including on media such as internet and social media and a centralised surveillance system has been established at the federal level of the Ministry of Health to monitor the advertising of unhealthy products on social media. Any breaches are referred to the regional Health Authorities when applicable, and it is the responsibility of the Health Authority to impose sanctions on such violations.

With the restrictions on other forms of marketing and advertising, it is likely that food and drink companies will increasingly use these alternative channels. This has already been observed in other countries. One study in the United Kingdom examined 100 websites and concluded that 80% of the products advertised were products that were not permitted to be advertised on television to children (British Heart Foundation, 2011). Similarly, a study conducted in the United States of popular websites among youth found that these websites advertised between 60-84% of products labelled by the government as "foods to avoid".

To address this issues, different policy options are available. Governments can work together with the industry to improve self-regulation or require the use of age verification systems. Another option is to implement more restrictive policies. For example, a watershed ban would restrict any advertising of unhealthy food, through any channel (including social media or websites) before a certain time in the evening. This would be similar to advertising food policies in the United Kingdom, where, since 2017, the government has linked its advertising restrictions for TV and online of products high in

fat, sugar and salt to the United Kingdom FSA nutrient profiling score, especially for food marketing targeting children (UK Government, 2019); (Placzek, O., 2021). As Chile has already implemented such a ban on advertising on television and in cinemas, it could consider other policies, if needed, to restrict the marketing of unhealthy food .

5.4. IMPLEMENTATION ACTION PLAN TO EXPAND CHILE'S OBESITY STRATEGY

POLICY ACTION 5: EXPLORE MEASURES TO EXTEND LABELLING TO FOOD CONSUMED OUTSIDE HOME

Explore and test additional means to encourage healthy choices when consuming food outside home including through labelling and nutritional information in restaurant menus. Other measures to be considered over the long-term (and not included in the actions below) could include limitations on advertising near schools, advertisements during sports and cultural events, as well as subsidies on healthy foods, such as fruit and vegetables, possibly combined with joint tax mechanisms on unhealthy products.

Actions and timeframe

Short term (1 year)

- Explore the possibility of developing a national menu labelling scheme:
  - Create a Working Group[2] that includes relevant stakeholders, including members of both the public and private sector, to identify feasible labelling options;
  - Explore how the existing food labelling scheme can be leveraged and adapted to menus:
    - Explore whether similar thresholds can be used, to ensure a coherent policy message;
    - Explore whether the same design can be used, to increase consumer recognition and understanding in out-of-home dining settings.
  - Test different types of menu labelling implemented in several cities in Chile to guide the roll out of the menu labelling initiative;
  - Develop guidelines for the use of the selected labelling approach (see Box 5.1.).

- Develop mechanisms that encourage companies to voluntarily display the label on their menus:
  - Consult with the food industry to understand potential barriers and facilitators to implementation of the agreed labels;
  - Establish incentives and agreements for the voluntary commitment of the food and restaurant industry.

- Develop a marketing campaign targeting consumers of fast foods, to educate individuals on the menu label and how to use it to make healthier choices.

- Design upfront an evaluation of the menu labelling scheme to track its effectiveness and coverage. The evaluation framework should include:
  - Baseline evaluation of uptake and consumer response;
  - Continuous monitoring and surveillance system.
  - Annual progress reports.
  - Evaluation should cover:
    - Uptake of the scheme, e.g. number of chains/restaurants with a menu label.
    - Recognition of the scheme, e.g. percentage of consumers who recognise and understand the label.
    - Effectiveness of the scheme, e.g. average calories per meal ordered.

2. As highlighted in previous sections, this would not necessarily be a distinct entity from the other working groups proposed – this will depend on which policy actions Chile will effectively implement.

Long term (> 1year):

- Evaluate progress made – and potentially adjust the labelling, the guidelines or expand the scheme to more settings.
- Evaluate the need and feasibility of transitioning from voluntary to mandatory regulation.
- Evaluate the food industry's costs associated with menu labelling.
- Continue to monitor the impact of the label on purchasing decisions.
- Involve lawmakers and food industry to re-evaluate the effectiveness of the voluntary scheme and whether regulation is needed.

Institutions/stakeholders involved

- Ministries of Health, Economy.
- Private sector (the food Industry and supermarket chains).
- Researchers - to contribute or be in charge of the independent evaluation of the policy.

POLICY ACTION 6: INCREASING NUTRITIONAL AWARENESS

Objective

Further raise consumer awareness of possibilities and opportunities for healthy eating, through behavioural interventions such as projects enhancing the visibility and convenience of healthy products. These measures could be accompanied by the progressive expansion of school policies supporting healthier nutrition.

Actions and timeframe

Short term (Year 1)

- Engage in discussions and brainstorming sessions with key stakeholders to zoom in on behavioural issues affecting nutritional awareness.

- Engage in discussions with the food industry and supermarket companies to evaluate potential partnerships on behaviourally-informed projects to inform Chile's obesity strategy. Possible topics for considerations and design of experiments could include:
  – Supporting meal-planning and overcome problem of commitment to a course of action;
  – adopting strategies to make healthier products more visible and easier to select and consume; and,
  – using loyalty programs to encourage healthy eating and reaction to tangible incentives.

- Run at least one or two experiments and evaluate results.

- Identify partnerships and evaluate whether any regulatory intervention is needed to facilitate implementation.

- Encourage the participation of Chilean experts in international fora and network exchanging experiences and insights on applications of behavioural insights and other health economics tool.[3]

Institutions/stakeholders involved

- Ministries of Health, Education and Economy
- Private sector (the food industry and supermarket chains)
- Consumer Associations
- Researchers

3. The OECD's Economics of Public Health (EPH) programme organises yearly meetings, which take place with experts from member countries and international organisations. In these meetings of the Expert Group on the Economics of Public Health (EGEPH), member countries learn about the latest work undertaken by the Secretariat, provide feedback and contributions to this work, and exchange experiences with other countries.

6. Defining and regulating food supplements and supplemented foods

6.1 THE CURRENT SITUATION IN CHILE

Consuming an adequate intake of micronutrients such as vitamins and minerals is an essential component of a healthy diet. Under ideal conditions of food access, education and availability, food diversity should fulfil micronutrient and energy needs (FAO/WHO, 2001). However, a large portion of older adults does not attain enough nutrients from their diets (Harvard Health Publishing, 2015) and dietary surveys suggest that there are suboptimal intakes for several micronutrients in a number OECD countries (Mensink GB, 2012). In the EU, Directive 2002/46/EC[1] of the European Commission regulates the sale of concentrated sources of nutrients which might be lacking in the population, such as vitamin C, vitamin D, folic acid, calcium, selenium and iodine across the population.

As a complement to a normal diet, food supplements and supplemented foods can therefore be important elements to satisfy nutritional needs, correct nutritional deficiencies, maintain an adequate intake of certain nutrients, and support specific physiological functions (European Food Safety Authority, 2018).

In Chile, the market for food supplements, which are usually in a pill or capsule format i.e. as vitamins, and supplemented food, which usually take the form of a food product with enhanced nutritional content, has grown considerably in recent years (see Figure 6.1).

Nevertheless, currently there is no comprehensive regulation of supplements in Chile and this is needed to further facilitate access to healthy food options. Comprehensive legislation for food supplements and supplemented foods can benefit both the consumers and the producers of supplements. Legislation can ensure the quality and safety of products, and provide consumers with the information they need through labelling requirements. Regulation that clearly defines supplements and supplemented food can also create new market opportunities for producers.

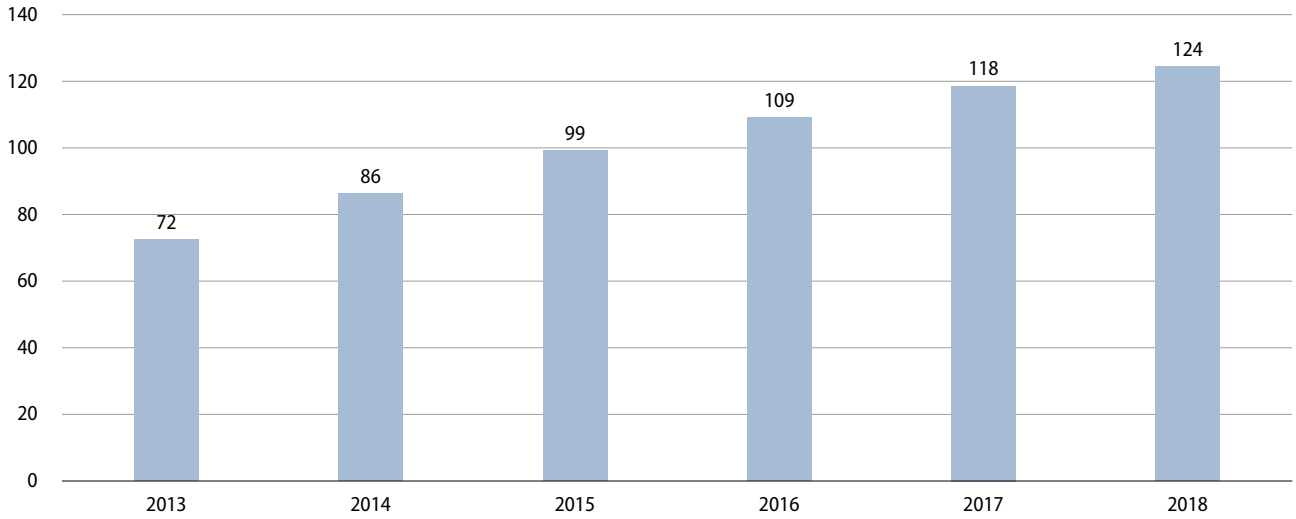
At present, nutritional supplements and supplemented foods are only legally regulated for athletes. Regulation XXIX of food supplements and food for athletes[2] prohibits the promotion of nutritional supplements for consumption and prevention of diseases. Under existing rules, Chile's National Public Health Institute (ISP) classifies substances or products as either medicines, cosmetics, pesticides or medical devices, according to their characteristics or purpose pursued. These products are then regulated by the relevant government entity.

The government of Chile is working to modify the current regulation to formally regulate food supplements and supplemented food. From mid August until mid October 2019 the Ministry for Health ran a public consultation on

1 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32002L0046

2 This is title XXIX of decree 977/96 by the Ministry of Health (MINSAL)

Figure 6.1. Vitamins and Dietary Supplements Market in Chile (USD millions)



Source: Passport Statistics Data..

the following elements: the food supplement section in MINSAL's Decree 977/96, the guidelines for nutrient function claims (which relate to declarations that may be used on iron, zinc, folic acid, vitamin B12, vitamin D and calcium.); authorised nutritional properties (concerning conditions for claims on calories, total fat, saturated fat, cholesterol, sodium, sugar etc.); and nutritional guidelines on food supplements and supplemented foods and their contents in vitamins, minerals and other substances (that propose new minimum and maximum values for amino acids, caffeine, lactase, dietary fibre and probiotics, among others). In August 2019 the Health Ministry of Chile released new draft guidelines regarding the labelling of food supplements.

Currently, Chile is exploring the following definition for food supplements:
"*Food supplements are those products especially made as a concentrated source of vitamins, minerals or dietary fibre or other substances naturally present in food, in order to supplement an individual's diet with these nutrients or other substances, to contribute to the maintenance or improvement of a nutritional or physiological function in the different systems of the organism, without exerting the proper properties of medications.*"

It has been suggested by the Government of Chile that these products be labelled to declare two messages:
- "this product is a food supplement of…"; and
- "this product can complement the diet and does not replace food according to dietary guidelines".

It would be important to test and pilot these labels to ensure consumers understand them and that they are familiar with the dietary guidelines.

To further assess the approach proposed by Chile in the development of a definition of food supplements, it is useful to review the approaches taken by other countries.

6.2 FOOD SUPPLEMENTS AND SUPPLEMENTED FOODS DEFINITIONS IN OTHER COUNTRIES

EUROPEAN UNION

Food supplements

In recent years, the European Union has tried to harmonise the regulation of nutritional supplements and other health foods. While the European Commission is in charge of developing regulation, the European Food Safety Authority (EFSA) is the expert organisation that evaluates the scientific advice (European Food Safety Authority, 2018).

Box 6.1: VITAMINS AND MINERALS WHICH MAY BE USED IN THE MANUFACTURE OF FOOD SUPPLEMENTS AND SUPPLEMENTED FOODS IN THE EUROPEAN UNION

1. **Vitamins:** Vitamin A; D; E; K; B1; B2, B12, B6, C; Niacin; Pantothenic acid; Folic acid; Biotin;

2. **Minerals:** Calcium; Magnesium; Iron; Copper; Iodine; Zinc; Manganese; Sodium; Potassium; Selenium; Chromium; Molybdenum; Fluoride; Chloride; Phosphorus; Boron (for supplemented foods)

Food supplements in the EU are regulated by the Food Supplements Directive (FSD) 2002/46/EC, which establishes a definition for food supplements[3], sets labelling requirements[4] and lists allowable vitamins and minerals (see Box 6.1). However, this list only includes vitamins and minerals – and not other substances such as plant and herbal extracts. These other substances can still be used in supplements, but are subject to provisions in the specific national legislations.

Supplemented foods

Supplemented foods are regulated by the European Regulation No 1925/2006 in relation to the addition of vitamins and minerals and of certain other substances to foods. This regulation identifies vitamins and minerals that may be added to food (similar to the list for food supplements, see **Box 6.1**) and sets out rules about their labelling and marketing.

Importantly, the regulation of food supplements and supplemented food in the European Union has a focus on safety (prohibiting or restricting the use of some substances, setting maximum daily levels, ensuring proper labelling). The European Union has separate regulations in place on the use of health claims, or whether the supplements are actually beneficial for health. European Regulation No 1924/2006 on nutrition and health claims covers both foods and food supplements (EUR-Lex).

The European Union differentiates between nutrition and health claims (EUR-Lex) (European Food Safety Authority, Health claims):

- A nutrition claim is any claim that states, suggests or implies that a food has particular beneficial nutritional properties due to its energy or its nutrients (e.g. "low fat", "no added sugar" and "high in fibre").

- A health claim is any claim that states, suggests or implies that a relationship exists between a food category, a food or one of its constituents and health. These can be claims towards general functions (e.g. "reinforces the body's natural defences" or "enhances learning ability") or claims on the reduction of disease risk or specific functions of the body (e.g. "reduce cholesterol levels, a risk factor in the development of coronary heart disease").

The European Commission is in charge of compiling a "positive list" of proven general function health claims (European Food Safety Authority, Health claims), which is based on advice from the European Food Safety Authority. Producers wanting to use a claim for a nutrient not in the positive list can apply for a review. For example, in 2017 the EFSA received a request to review the evidence for the claim that curcumin supports the normal functioning of joints. It concluded that there was insufficient evidence to support such a claim (EFSA Panel on Dietetic Products, 2017).

3 The EFSA defines food supplements as: "concentrated sources of nutrients (i.e. mineral and vitamins) or other substances with a nutritional or physiological effect that are marketed in "dose" form (e.g. pills, tablets, capsules, liquids in measured doses)" (European Food Safety Authority, 2018)

4 Food supplements are subject to the following labelling requirements: the names of the categories of nutrients or substances that characterise the product or an indication of the nature of those nutrients or substances; the portion of the product recommended for daily consumption; a warning not to exceed the stated recommended daily dose; a statement to the effect that food supplements should not be used as a substitute for a varied diet; a statement to the effect that the products should be stored out of the reach of young children.

NEW ZEALAND

In New Zealand, dietary supplements (e.g. most often presented in a pill, capsule or tablet form) have to comply with the New Zealand Dietary Supplement Regulations 1985 with regard to composition and labelling requirements. The Dietary Supplements Regulations 1985 are administered by the Medsafe division of the New Zealand Ministry of Health.

The Dietary Supplements Regulations 1985 define a dietary supplement as:

1. An amino acid, edible substance, herb, mineral, synthetic nutrient, or vitamin.

2. Sold by itself or in a mixture.

3. Sold in a controlled dosage form as a liquid, powder, or tablet (which might be described on the label as a cachet, capsule, lozenge, or pastille instead of as a tablet).

4. Intended to be ingested orally.

5. Intended to supplement the amount of the amino acid, edible substance, herb, mineral, synthetic nutrient, or vitamin normally derived from food.

The Regulations specify the requirements for the labelling of dietary supplements and daily maximum dosages. In addition, they state that no dietary supplement can be advertised or labelled with a statement relating to treating or preventing disease, altering the shape, structure, size, or weight of the human body, or otherwise preventing or interfering with the normal operation of a physiological function.

In New Zealand, supplemented foods (such as a fruit juice or cereal bar with a higher level of vitamins or minerals) need to comply with the Supplemented Food Standard 2016. The Supplemented Food Standard 2016 is administered by the Ministry for Primary Industries.

Under the Supplemented Food Standard 2016 a supplemented food is defined as:
"*a product that is represented as a food that has a substance or substances added to it, or that has been modified in some way, to perform a physiological role beyond the provision of a simple nutritive requirement.*" (Ministry for Primary Industries, 2016)

According to this definition, *supplemented* food is not:
a) A dietary supplement (as defined in the Dietary Supplements Regulations 1985).

b) A medicine (as defined in the Medicines Act 1981).

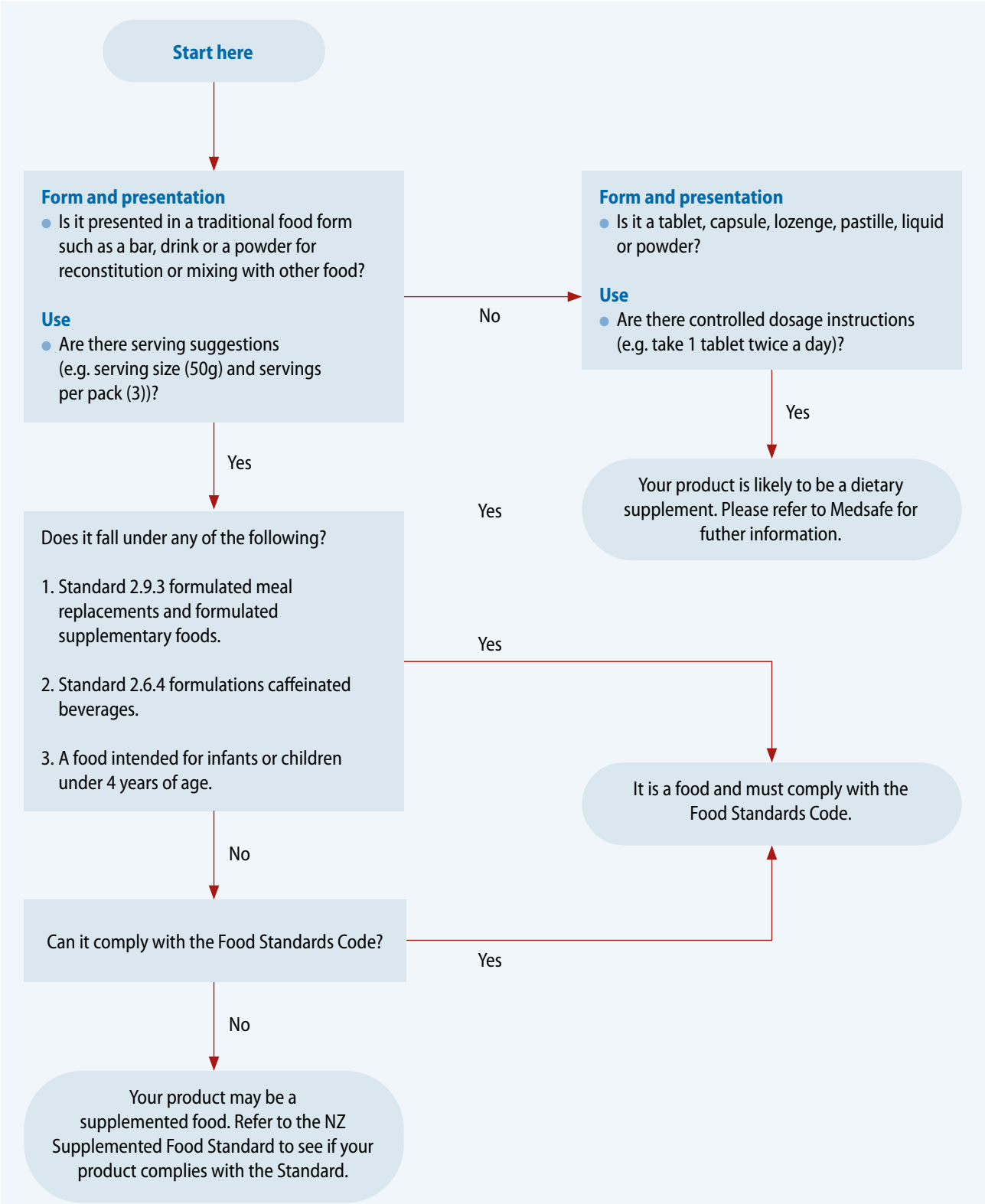
c) A controlled drug or restricted substance (as defined in the Misuse of Drugs Act 1975).

d) A formulated meal replacement or a formulated supplementary food.

e) A formulated caffeinated beverage.

The Ministry for Primary Industries of New Zealand has created a Supplemented Food Standard User Guide to help the consumer and the producer decide if the product falls into the category of dietary supplement or supplemented food (see Figure 6.2), (Ministry for Primary Industries, 2016).

Figure 6.2. New Zealand classification flowchart



Notes: "Food Standards Code" is the Australia New Zealand Food Standards Code

Source: Ministry for Primary Industries, New Zealand (2016), "Supplemented Food Standard User Guide", available from: https://www.mpi.govt.nz/dmsdocument/13092-supplemented-food-standard-user-guide

BRAZIL

In 2018, Brazil adopted regulation to define and regulate food supplements (Agência Nacional de Vigilância Sanitária, 2019). With this new definition, regulation was introduced on maximum limits and conditions of use; labelling requirements; a list of authorised ingredients; and a list of health benefits claims that may be written on the packaging of supplements. To guide consumers and producers, the National Food Safety Agency (Anvisa) produced an extensive Question and Answer document (Agência Nacional de Vigilância Sanitária, 2019).

Brazil defines food supplements as products for oral ingestion, presented in pharmaceutical forms intended to supplement healthy individuals with nutrients, bioactive substances, enzymes or probiotics (isolated or combined). Food supplements can be associated with food claims, which describe the metabolic and physiological role of a substance in the human body (e.g. vitamin D helps in the absorption of calcium and phosphorus). In contrast, drug claims describe the effect of the substance on the treatment, cure or prophylaxis of the disease (e.g. vitamin D helps treat osteoporosis).

Anvisa maintains a list of accepted substances for food supplements, with a separate list of substances allowed for infants (0 to 12 months) or young children (1 to 3 years). Any new substances nominated by producers need to be evaluated by Anvisa. Once they are accepted and incorporated into the Regulation, any manufacturer can use them.

In terms of health claims, food supplements labels cannot contain words, trademarks, images or any other graphic representation, which states, suggests or implies, expressly or implicitly, that the product has a medicinal or therapeutic purpose; that food is not able to supply the nutrients necessary for health; or that the product is comparable or superior to conventional foods. Normative Instruction 28/2018 does provide a list of accepted health claims, for example "Folic acid helps in the synthesis of amino acids" or "Vitamin A helps in the functioning of the immune system" (Ministério da Saúde/Agência Nacional de Vigilância Sanitária, 2018). Generally, these claims are limited to food supplements that meet a certain threshold quantity, also defined in the Normative Instruction.

6.3 IMPLEMENTATION ACTION PLAN FOR CHILE'S REGULATION OF FOOD SUPPLEMENTS AND SUPPLEMENTED FOODS

POLICY ACTION 7: REGULATING FOOD SUPPLEMENTS AND SUPPLEMENTED FOODS

As part of its efforts to modify the current regulation related to food supplements and supplemented food, Chile should build on the experience from other countries to develop a comprehensive regulation that can benefit both the consumers and the producers of supplements. Regulation should ensure the quality and safety of products while providing consumers with the information they need through labelling requirements.

Objective

Develop a clear regulation that will both differentiate between food supplements and supplemented food, safeguarding consumers' safety and well-informed consumption decision-making.

Actions and timeframe

Short term (Year 1)

- Create a clear differentiation between food supplements and supplemented food.
  - The former is usually in pill or capsule format, while the second takes the form of a food product but with enhanced nutritional content.
  - Regulation as to composition and labelling will be different for these two groups.
- Establish a list with accepted food supplement ingredients.

- Establish a process for producers to nominate new ingredients to be added to the list, with a requirement of providing basic scientific evidence to assure safety and prove the health or nutritional claims to be made. The evidence should be assessed by the appropriate regulator (e.g. ISP) in order to decide whether to accept, modify or reject the proposal.

- Ensure there is capacity to review new ingredients.

- Regulation should address safety issues, including:
  1. Prohibited or restricted ingredients.
  2. Daily minimum and maximum consumption levels.
  3. Accurate, informative and non-deceptive labelling.

- In addition to safety, regulation should specifically addresses the use of health or nutritional claims of food supplements or supplemented foods.

- Test and pilot the labelling message alternatives with different consumer groups to ensure understanding and usefulness in consumption decision-making.

- Finally, create guidelines for producers and consumers to explain the new regulation in an understandable way (for example with flow charts, frequently asked questions, or schematic illustrations.

Institutions/stakeholders involved

- Ministries of Health.
- Private sector (the food Industry).
- Consumer Associations.

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Over the past few decades, Chile has experienced rising levels of obesity and overweight, associated with severe health and economic consequences. The country has the second highest obesity prevalence level and the highest percentage of overweight or obese adult population among OECD countries. To create a healthier food environment, Chile has put in place a comprehensive portfolio of interventions: from population-level fiscal policies, school and workplace-focused programmes, to individual interventions through primary care. In July 2012, the Chilean Congress approved the Law No. 20606 on Food Labelling and Advertising, introducing an innovative policy to mandate warning labels for packaged food and drinks. With its mandatory labelling law and taxation of sugar-sweetened beverages, Chile is at the vanguard when it comes to obesity policy. Despite all the efforts, Chile continues to struggle with high costs and high morbidity related to overweight and obesity in children and adults. At the request of the Government of Chile, this OECD Assessment lays out a number of suggested policy actions based on international practices to further improve the ongoing efforts to promote healthy attitudes and behaviours, while enhancing the productivity and competitiveness of the economy.

To help address the cross-sectoral nature of the obesity problem, the Assessment was prepared by an OECD multidisciplinary team with experts from the Economics Department, the Employment, Labour and Social Affairs Directorate and the Trade and Agriculture Directorate. The OECD team worked closely with a number of Chilean institutions, including the Ministries of Economy, Health, Social Development and Agriculture, as well as representatives of the food industry, academia, civil society and consumer organisations.

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