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**Committee of Experts on International  
Cooperation in Tax Matters  
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Item 3(o) of the provisional agenda

**Health Taxes**

**Co-Coordinator's Report: New Chapters**

***Summary***

This note is provided to the Committee *for discussion* at its Twenty-eighth Session.

At its Twenty-third Session in October 2021, the Committee established the Subcommittee on Health Taxes. Health taxes are excise taxes on tobacco, alcohol, sugar-sweetened beverages and other harmful products that are intended to reduce their consumption, thus improving health outcomes. Health taxes therefore directly support a number of the Sustainable Development Goals. The Committee's work on this topic would focus on providing tax policy and administration guidance to assist countries in adopting the most effective health taxes, from both a health and revenue perspective.

At its Twenty-fourth Session, the Committee approved a work program ([E/C.18/2022/CRP.4](#)) that would focus on producing a handbook on health taxes for developing countries.

This note includes drafts of *Chapter 3: Role of Health Taxes in National Budgets*, *Chapter 8: Addressing Potential Secondary Effects of Health Taxes*, *Chapter 10: How to Generate Public Acceptability for Health Taxes*, *Chapter 11: Specific Issues with Respect to Tobacco Taxation*, *Chapter 12: Specific Issues with Respect to Alcohol Taxation* and *Chapter 13: Specific Issues with respect to Excise Taxation to Support Improved Nutrition*.

## Chapter 3: Role of Health Taxes in National Budgets

### 1. Introduction

#### a) Additional revenue for sustainable development policies

While other taxes such as value added tax or general consumption taxes are commonly focused on revenue generation with minimum behavioural distortions, the primary goal of health taxes is to reduce harmful consumption (Erbil et al., 2002; World Bank, March 2023). Even so, health taxes have the capacity to generate significant revenues and thus to create fiscal space (Wright et al., 2017). In the current context of growing public debts, such additional revenue can contribute to implementing many policy measures and to achieving the SDGs.

To cover the basic needs of people and to allow growth, it is estimated that a country needs to collect at least 15 percent of its GDP in taxes (World Bank, n.d.a). However, many countries do not reach this threshold and struggle to finance national sustainable development strategies. Based on the latest available data, out of 145 countries for which data were available, 62 remained below this tipping point (World Bank, 2023).<sup>1</sup> For low- and middle-income countries, the average was only around 10.6 percent (World Bank, 2023). While the revenue generating capacity of a state can vary from country to country depending on the context, health tax revenues account on average for around 0.8 percent of GDP in high and middle- income countries and 0.4 percent of GDP in low-income countries (Lauer et al., 2022). When measured as a share of total tax revenues, health taxes account for 2.5 percent in high-income countries, around 4 percent in middle-income countries, and around 3.5 percent in low-income countries (Lauer et al., 2022).

Tobacco products and alcoholic beverages tend to have inelastic demand (in other words, demand for these products decreases at a slower pace than retail price increases) and lack direct substitutes, which opens space for revenue-raising objectives (Lauer et al., 2022). In the majority of the countries (63 percent), tobacco tax revenue was more significant than alcohol tax revenue, with tobacco and alcohol excise taxes generating on average around 0.6 and 0.3 percent of GDP respectively in tax revenue in 2019, with negligible differences between country income groups. For some small countries moreover, tobacco and alcohol revenues represent a much more considerable portion of income, reaching up to 1.0 and 0.7 percent of GDP, and even more in small island nations. In Nauru, tobacco tax revenue accounted for 3.4 percent of GDP, and alcohol tax revenue in the Seychelles for 1.8 percent of GDP in 2019 (Blecher et al., 2023). The revenue-generating capacity of different products depends on the country context. In general, alcohol has the potential to overcome tobacco in terms of potential revenue incomes. In Thailand for example, in 2021, tobacco represented 12 percent of excise tax revenues, while beer and spirits over 26 percent (wine has less significant share) (Ministry of Finance, Thailand, 2022).

Vietnam's excise rate on tobacco products was raised from 65 percent to 70 percent of the taxable (or ex-factory) price in January 2016, and to 75 percent in January 2019. A 'compulsory contribution' earmarked for the Tobacco Control Fund was also raised from 1 percent to 2 percent of ex-factory price over this period. Tobacco tax revenues (including VAT) have increased by around 20 percent in inflation-adjusted terms between 2015 and 2021. However, the tax rate increases were in fact quite modest compared to the pace of economic growth, and consequently the share of tobacco tax-to GDP in Vietnam has actually remained below 0.3 percent over this period compared to around 0.6 percent in other countries. Similarly, the share of tax in the retail price of cigarettes in Vietnam stands at just 34 percent compared to an average of 62 percent globally. Both of these comparisons highlight the enormous revenue generation potential of tobacco taxes in Vietnam which, as yet remains untapped (WHO, 2023; Goodchild, 2024).

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<sup>1</sup> For most of the countries the reference year is 2021, but for some available data are older.

Compared to tobacco and alcohol, revenue-raising capacity is lower for SSBs due to their lower sales value, more elastic demand shaped among others by the availability of close substitutes such as water. Despite that, they too can generate additional tax revenue and provide an important push to a healthier population (World Bank, 2020). Existing SSBs taxes have been shown to raise between 0.1-0.16 percent of GDP in revenue and up to 1.1 percent of total tax revenue (Lane et al., 2021; Petit et al., 2021; World Bank, 2020a). A study by the World Bank in Central America revealed that tax revenues from SSB excise taxes were relatively stable and as a share of total annual tax revenues accounted for around 1.1 percent in El Salvador, 1 percent in Costa Rica, 0.9 percent in Honduras, 0.7 percent in Nicaragua, 0.6 percent in Guatemala and 0.1 percent in Panama (between 2001 and 2015) (World Bank, 2020a). In South Africa and Portugal, despite quite substantial reformulation of products in response to the tax hike, the governmental tax revenue reached 0.15 and 0.18 percent of total tax revenues the first year after implementation (World Bank, September 2020; Goiana-da-Silva, 2018; World Bank – Data-Tax revenue LC, 2023). In Thailand, the tax from SSBs accounted for around 4.45 percent of excise tax revenues and 1.02 percent of total tax revenue in 2021 (Ministry of Finance, Thailand, 2022; World Bank – Data-Tax revenue LC, 2023).

In general, specific taxes and mixed regimes tend to generate more revenue than health taxes based on price (ad valorem taxes) (Blecher et al., 2023).

## **b) Beyond tax revenue**

Besides their revenue-generating capacity, health taxes impact the economy and public finances through multiple other channels (see Figure 1). They have the potential to reduce the healthcare cost linked to treating preventable diseases, the burden of public debts, both through additional domestic resource mobilization as well as indirectly through improved credit ratings and enhanced economic growth. Tax-induced increases in prices of health harming products, such as tobacco, alcoholic beverages and SSBs, motivate consumers to cut their demand of these products. The consumption of tobacco, alcoholic drinks and unhealthy diets, including consumption of SSBs, in turn have been identified as important risk factors of severe health conditions, among others the four main NCDs diabetes, cancer, cardiovascular and chronic obstructive pulmonary disease, be it directly or indirectly through obesity and overweight.

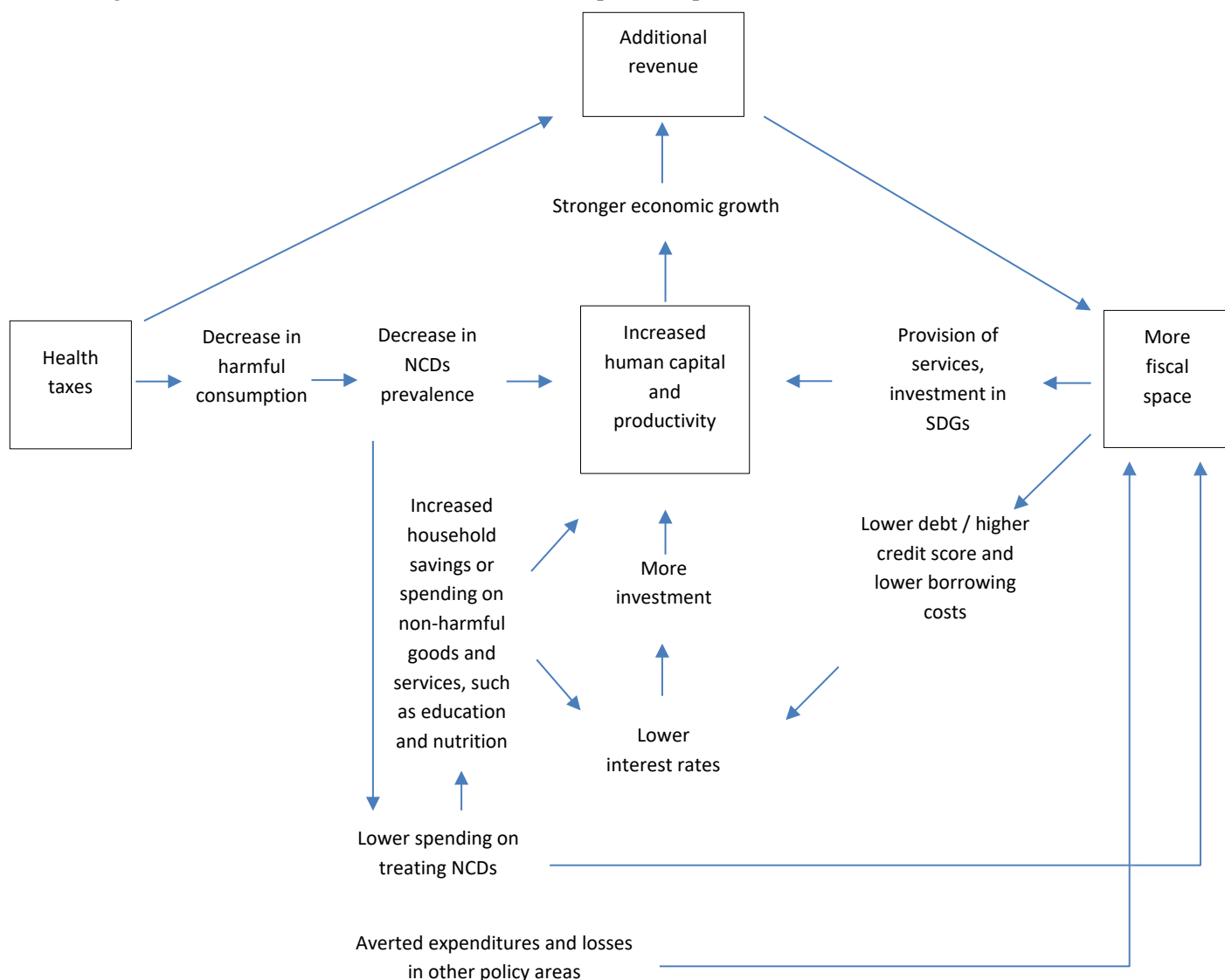
To tackle NCDs, the WHO identified and created a list of ‘best-buy’ interventions, i.e., interventions that have the highest cost-effectiveness ratio in addressing the burden of NCDs (World Health Organization, December 2022). Among the 28 best buy interventions, the following are linked to health taxation policies:

- Increase excise taxes and prices on tobacco products,
- Increase excise taxes on alcoholic beverages,
- Taxation on sugar-sweetened beverages as part of comprehensive fiscal policies to promote healthy diets,
- Reformulation policies for healthier food and beverage products (e.g., elimination of trans fatty acids and/or reduction of saturated fats, free sugars and/or sodium).

Taxation policies are the best-buy interventions with the highest cost-effectiveness ratio, or in other words, the interventions with the lowest investment needed to save lives. For both tobacco and alcohol taxation, less than 100 international dollars (US dollars reflecting the purchasing power of each country) are needed to gain a year of healthy life; for SSBs, this is between 100 and 500 dollars (World Health Organization, December 2022). Only a healthy population can develop and use its full potential. Health is a key factor in sustainable economic growth and health taxes can help governments to foster human capital indispensable for sustainable development and for achieving the SDGs. For example, in Chad, every dollar invested in tobacco taxation would return 52 dollars to the economy over 15 years in averted healthcare costs and productivity losses (UNDP, 2019). Moreover, health taxes have the capacity not only to avert social and economic losses caused by consumption of harmful products,

incurred mainly through decreased work productivity and unnecessary health care expenditures on treating preventable diseases, but also to avert public expenditures beyond health, for example in the areas of environment or traffic accidents. Thanks to these characteristics, health taxes have a unique position in national budgets which can be further amplified by strategic budgeting, i.e. budgeting beyond annual frameworks seeking synergies.

Figure 1: The effects of health taxes on human capital and public finance



## 2. Health taxes and public debt

### a) Current context of growing public debt

In the current context of growing public debts, domestic revenue generation is a key tool for governments to ensure financial sustainability. Public debt has increased 5-fold since 2000 and continues growing in most countries (United Nations, July 2023). The COVID-19 pandemic put a further strain on government spendings, not only through increased healthcare costs, but also through programmes supporting enterprises during lockdowns and people losing their jobs, and at the same time lowered government tax revenues as countries experienced sharp GDP drops. Deficits and debts remain

above pre-pandemic levels and the gap is largely covered by increased borrowing (Kurowski et al., 2021). In developing countries, often further burdened by rising costs of living, climate change or a lack of alternative financing, debt levels are growing faster (United Nations Global Crisis Response Group, 2023). Some countries, mostly lower income countries, have been forced to reduce their public spending, and 52 countries, home to around 900 million people, are not expected to reach their pre-pandemic levels of expenditure per capita until 2026 (Kurowski et al., 2021).

The level at which a country's debt becomes unsustainable may vary depending on context and vulnerabilities. However, the number of countries that reached the debt threshold of 60 percent of GDP - often considered a tipping point of sustainable finance - climbed from only 22 in 2011 to 59 in 2022 (Yartey & Turner-Jones, 2014; European Commission, n.d.; United Nations Global Crisis Response Group, 2023). According to the IMF, as of August 2023, among low-income and emerging economies, 10 countries are in debt distress and 26 countries are at high risk of debt distress. Another 26 countries are at moderate risk, and only 7 countries are at low risk of debt distress (IMF, 2023a).

Evidence suggests that having a debt-to-GDP ratio above 77 for prolonged periods slows down economic growth (Caner et al., 2010). In 2022, 22 countries were above this threshold (IMF, 2022). Because of rising global interest rates and a strong dollar, borrowing costs increased drastically and interest payments as a share of government revenues in 2023 were at the highest level since 2010 (Financial Times, 2023). Higher interest costs are often financed by further borrowing, which can lead again to debt-to-GDP ratio increases. Low- and middle-income countries are more vulnerable to interest rate hikes. It is estimated that the gross government debt burden of low- and middle-income countries will reach an average of 78 percent of GDP by 2028, up from 53 percent a decade earlier (Financial Times, 2023).

As a result of fiscal stresses, many countries will be forced to reduce public spending, including on healthcare. Extensive and prolonged debt can put pressure on budgets due to repayment requirements which can become higher and borrowing more expensive. Debt repayment and servicing can push out expenditures that could otherwise be dedicated to sustainable development. Some regions already spend more on interest payments than on education, investment, or healthcare. Among developing countries between 2019 and 2021, 19 countries spent more on debt servicing than on education (up from 13 in 2012), 21 more than on investment (up from 9 in 2012) and 45 spend more on debt servicing than on health (up from 36 in 2012) (United Nations Global Crisis Response Group, 2023). By 2030, 54 of the poorest countries will lack around \$176 billion annually to finance the Universal Health Coverage that would support equitable and inclusive growth (World Bank, June 2019).

Health taxes, besides their potential to directly increase excise tax revenues, increase the tax base for VAT and other taxes (e.g., earmarked surcharges in Thailand), which are commonly derived from the price of goods including excise tax. Increasing excise taxes would therefore increase the tax base for these taxes and would contribute to additional tax revenue generation in the countries where this applies. The revenue generation potential depends on the country context and market characteristics, such as the elasticity of demand of the concerned products, availability of substitutes, as well as the relative rates of VAT and other taxes. The additional revenue would create more fiscal space so urgently needed to tame public deficits and reduce the necessity of borrowing.

## b) Potential impact on sovereign credit ratings

Developing countries pay much more than their high-income counterparts when borrowing (United Nations, July 2023). While Germany issued bonds in 2022 and 2023 with 1.5 percent yield and the U.S. with 3.1 percent, for African countries it was 11.5 percent on average and for Latin America and the Caribbean 7.7 percent (United Nations Global Crisis Response Group, 2023). The COVID-19 pandemic led to credit rating downgrades in many countries, including 95 percent of LMICs. In 2021, only 24 emerging and developing economies and no low-income country held an investment grade rating<sup>2</sup> (UNDP, 2022).

Health taxes may not only widen fiscal space and improve fiscal outlooks but may also send an important signal about political will for reforms, and efforts to mobilize domestic revenues. Such steps may indicate a greater ability of a country to repay its debts and consequently enhance the country's credit rating. Better sovereign credit rating can facilitate access to international financing at more favourable terms, mainly through lower interest rates and longer maturities. Better position for borrowing can ease the size of debt servicing obligations and create space for investment in sustainable development. Health tax reforms contributed to the enhanced credit rating of the Philippines in 2013 and coincided with a rating upgrade in 2019, which was justified by enacting increasingly effective fiscal policies, solid government fiscal accounts and low levels of indebtedness of the country (S&P, 2019) (see Box 2). Singapore's high taxes on alcohol and tobacco (and betting taxes) and high revenues from these taxes<sup>3</sup> contribute to the robust fiscal metrics of Singapore and form part of the broader picture of its strong credit quality (Aaa rating) (Moody's, 2023). In 2023, S&P upgraded the rating of Brazil from BB- to BB based on the country's microeconomic and structural reforms, including a tax reform that consolidated taxes on products detrimental to health and the environment, with a view that these combined measures would provide greater certainty about key economic policies, including fiscal and monetary policies and enhance productivity (S&P, 2023; Marcello et al., 2023).<sup>4</sup>

Diversification of revenues through new or increased health taxes can be positively perceived by rating agencies in their rating considerations and can thus lower borrowing costs (Okolo et al., 2020; Hitchcock et al., 2019). Furthermore, pursuing and implementing health taxes can serve as a tool for strengthening fiscal position and to sending the right signal to potential investors.

### Box 1: The case of the Philippines

In 2012, the Philippines passed a law that increased tobacco and alcohol taxes. The following year, the four main rating agencies (Moody's, S&P, Fitch Ratings and the Japan Credit Rating Agency) improved the rating of the Philippines to 'investment grade' (i.e., the country is safe to invest in) for the first time in the country's history (Fitch Ratings, 2013; Araneta, 2013; Francisco & Lema, 2013; Moody's, 2013; Orinario, 2013; UNDP, 2022). The expected additional revenues from the tax hike and the willingness of the government to address fiscal challenges were among the drivers for the upgrade (Moody's, 2023; Fitch Ratings, 2013). The tax revenue stemming from these taxes rose from about Philippine Pesos (PHP) 50 billion (US\$0.99 billion) in 2012 to around PHP332.3 billion

<sup>2</sup> Rating from AAA to BBB/Aaa to Baa3- are considered investment grade (bonds with relatively low risk of default), while bonds with rating from BB+ to D/Ba1 to C are considered a higher risk of default.

<sup>3</sup> The sum of receipts related to alcohol, tobacco and betting have typically amounted to 4-5 percent of the government's operating revenue (Moody's, 2023).

<sup>4</sup> At the time of the rating change, it was not clear whether the reform would lead to increased health taxes, only that the tax structure would be simplified.

(US\$6.6 billion) in 2020. This is equivalent to 1.8 percent of GDP and about 11.3 percent of total government revenue in 2020 (UNDP, 2022). In 2019, the Philippines again increased tobacco taxes and in the same year, S&P upgraded Philippine's credit rating again based on the country's sustainable public finance and tax reforms (Philippines Department of Finance, 2019).

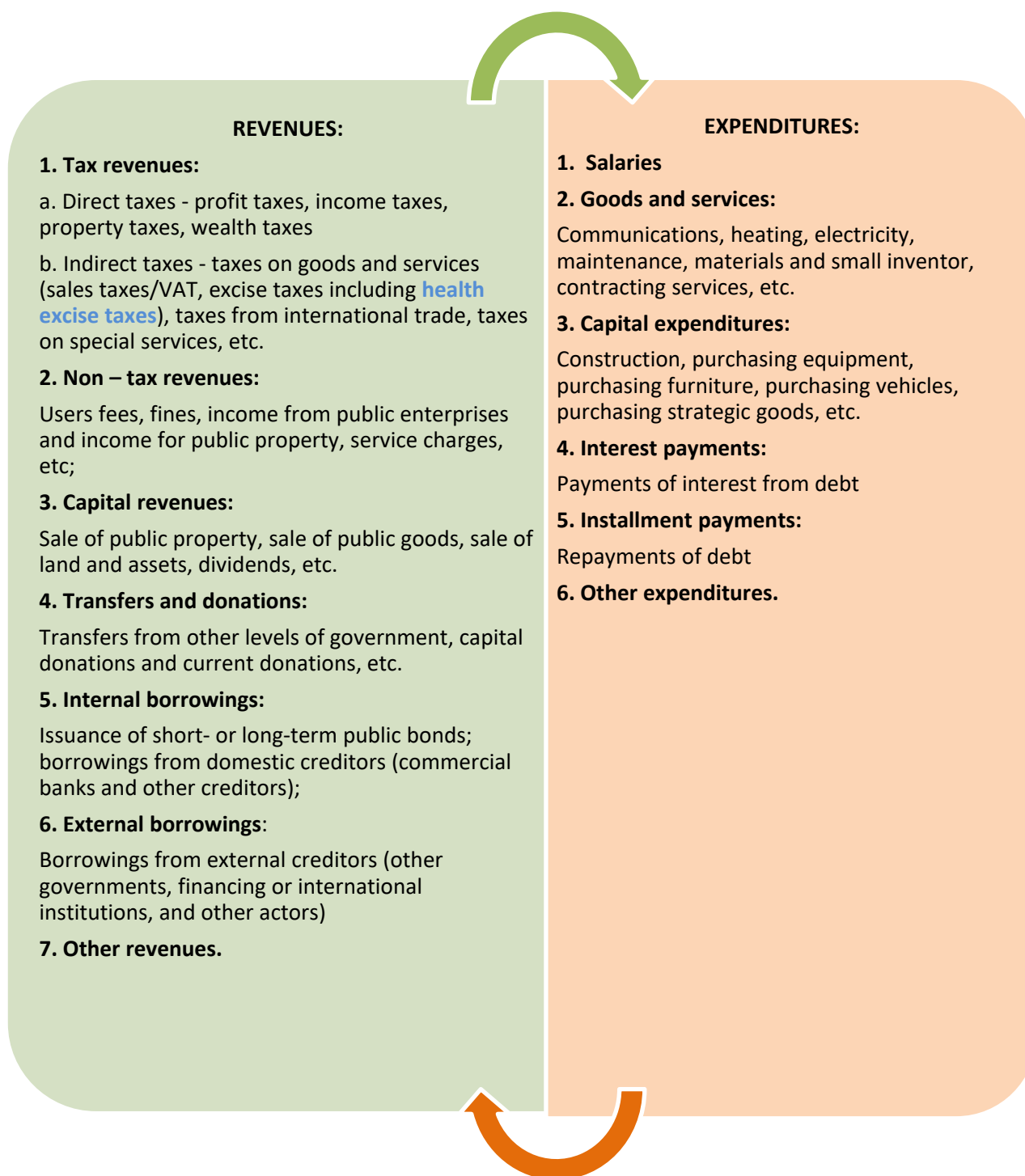
### **3. Health taxes and strategic budgeting**

#### **a) Position of health taxes in the budget**

Budgets are key government documents; instruments that help to identify and define priority policies to meet the needs of its population, to achieve sustainable, inclusive growth and implement the Agenda 2030. They represent a contract between citizens and the state, outlining how resources that have been raised are intended to be allocated, including for the delivery of public services (OECD, 2015).

Health taxes are usually considered taxes that target products with adverse effects on health. These can take different forms, such as a higher VAT rate or higher customs duties on products detrimental to health, or other taxes or surcharges applicable only on selected health-harming products. However, health taxes are most commonly applied as excise taxes, which are taxes on specific goods or services, usually those that are considered luxury items or detrimental to society. While direct taxes, such as personal or corporate income taxes, are paid directly by the entity whose wealth or activity is taxed, indirect taxes, including health taxes, are paid to the government at a given point in the supply chain, either by the manufacturer, importer, or retailer, but are passed on to the consumer in the final retail price either partly or fully (depending on market characteristics) (Lauer et al., 2022).

Figure 2: Position of health taxes in national budgets



Source: Adapted from Eurasian Harm Reduction Network (2018).

## b) Planning beyond annual budgets

While annual budgets are central tools for governments to assess expected revenues and expenditures for each year, planning beyond annual budgets can contribute to optimized prioritization and better outcomes towards achieving the sustainable development goals as well as preventing the current use of resources to the detriment of future years (Schick, 2011). Annual budgeting is the main instrument of



short-term fiscal policy; however medium-term expenditure frameworks (MTEFs) and medium-term revenue strategies (MTRS) have become key tools available to authorities for planning for longer horizons (Lauer et al., 2022).

Compared to other taxes, health taxes represent a relatively more reliable and stable source of revenue, as they are less affected by economic expansions and contractions. This is an important factor for planning, especially in the medium and long term. Excise taxes tend to have weaker responses to economic fluctuations (lower so-called buoyancy, i.e., the measure of how taxes respond to economic growth through both automatic changes and discretionary, non-automatic, measures) than other taxes (IMF, 2014; OECD, 2022; Timsina 2007).<sup>5</sup> Excise taxes are more buoyant in long term than in the short term, but in both cases the response remains below 1 (i.e., a 1 percent change in GDP would lead to less than 1 percent response in the tax revenue in the same direction).<sup>6</sup> As a result, excise taxes may serve as an automatic stabilizer both during growth and recession (IMF, 2014). The response to economic growth or recession may vary for different products and depend on the tax structure as well (Economou et al., 2022). Specific excise taxes (taxes applied as a fixed amount per unit of a product or per unit of harmful substance) represent a more stable source of revenue than ad valorem taxes (taxes calculated as a percentage of the price of the product) or mixed structures. This is because they are not subject to price policy changes by the industry, such as introducing cheaper product brands or reducing product size while keeping prices unchanged in response to a tax introduction or increase (Blecher et al., 2023). Unified specific taxes, which tax products in all price categories equally, do not motivate consumers to switch to cheaper products as much as ad valorem taxes, which further supports the stability of revenues. On the other hand, a specific tax rate needs to be regularly indexed for inflation, otherwise tax revenues as well as the tax effect on affordability reduction would be eroded by general price level increases not reflected in the tax rate itself; in other words, the tax rate would not keep up with the speed of general price increases and the relative share of tax in retail price and tax revenue would relatively decline.

The revenue-raising capacity will be also impacted by the response of the market both on the demand and supply side. The population can respond differently to price changes caused by tax increases, which can be influenced by availability and price of substitution products, income, local preferences, habits, marketing, and/or ease of cross-border shopping (Wright et al, 2017; Summan et al., 2020; Bittschi, et al., 2019; Cawley et al., 2019). On the supply side the revenue gains will be influenced by the market characteristics, such as competitiveness of the market, existence of dominant players, the ability (or willingness) of the industry to pass the tax on to the customer (pass-through rate) and on the space for product reformulation, which can be shaped among other factors by policy environment and consumer's habits.

In a very long term, as health taxes targeting tobacco, alcohol and sweetened beverages are aimed primarily at reducing the consumption of these products, the revenue-generating capacity of these taxes may decrease and may be more difficult to forecast if the tax successfully incentivizes a reduction in consumption (Lauer et al., 2022; World Bank, June 2020). This can especially be the case if the tax policy is complemented by other policy measures focused on reduction of the consumption of health-harming products in question (e.g., provision of free cessation services) (Wright et al., 2017; World Bank, June 2020). Extra tax revenue should be estimated and communicated conservatively, or else any failure to generate the predicted revenue can be used as an attack against the tax. However, as part of policies aiming at reducing consumption of health-harming products, other products may be targeted by health taxes, such as e-cigarettes (unless banned), high-sodium products, sugar in general, red or processed meat, junk and/or processed food to widen the tax base. Colombia introduced, in 2023, health excise taxes that target both SSBs based on their sugar content and ultra-processed food (food with high levels of sugar, sodium and saturated fats) (Función Pública, 2023).

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<sup>5</sup> This was not the case during the COVID-19 pandemic when tax revenues were impacted by the social restrictions.

<sup>6</sup> In the long-term, the weaker response may be also due to the lack of indexation of excise tax rates to income growth.

In general, thorough budgetary planning may contribute to addressing potential secondary effects of health taxes (see chapter 6 and chapter 8) and to help address and/or prevent inconsistencies in national budgets and fiscal policies, such as imposing taxes on health-harming products while at the same time providing tax incentives to the industries that produce these products; VAT exemptions on unhealthy products while taxing SSBs (see chapter 9); providing fossil fuel subsidies that harm the environment and health while imposing a carbon tax (ref. to the UN Handbook on Carbon Taxation).

### **c) Health taxes and public financial management**

Annual budget cycle serves as a tool for public spending decisions. It consists of strategic budgeting, formulation, approval and execution, which are followed by monitoring, auditing, and evaluation processes. Transparency, accountability, and public participation in the processes strengthens the capacity of public finance to provide needed services to the public. Public financial management (PFM) consists of planning, formulating, implementing, and evaluating the use of budgets. PFM takes into consideration not only annual budgets, but also multi-year budgeting for improved outcomes. Well-performing PFM can support stability, including during and after crises, inclusive growth, and achievement of the SDGs. Health taxes could support the successful execution of PFM.

In medium-term revenue strategies (MTRS), governments plan tax system reforms. On the other hand, in the medium-term expenditure frameworks (MTEF), the governments focus on identifying goals, ensuring accountability, and addressing efficiency. In the planning and formulation phase, priorities are determined. At this stage, the financing needs to achieve national priorities are estimated, which ought to be paired with mapped resources that can be expected, including health tax revenues. Analysis may be required to assess the potential impacts of newly implemented or increased health taxes on concerned industries and households. Such impacts may be reflected in the revenues expected from other taxes. In the planning phase, the potential need of mitigating policies to address secondary effects of health taxes should be evaluated (see chapters 6 and 8). This may also require an assessment of measures needed to support the effectiveness of the introduction or increase of health taxes, e.g., additional tobacco control measures, such as supporting cessation, media campaigns, and linked costs.

In the implementation phase, proper processes need to be established to channel resources raised from health taxes through the national budget to ensure efficient use of health tax revenues (see chapters 6 and 7). The evaluation phase may include processes such as assessing the accuracy of forecasted revenues, a search for errors in estimates, understanding of the reasons behind these errors to improve revenue forecasting for future periods, or the evaluation of the use of resources and the applied methodologies. The control and audit phase increase transparency and may help in gaining public support for health taxes, ensure the viability of the taxes established and sustain the progress of these taxes against resistance from potential interest groups (see chapter 10).

Within the national planning and financing systems, health taxes are part of both annual and medium-term implementation strategies (Lauer et al., 2022).

Figure 3: National planning and financing systems

Timeframe	Planning	Financing
Long-term (10 years +)	National development plan, Economic development plan	Finance strategy or chapter of National Development Plan
Medium-term (3-5 years)	Medium term action plan (sector plan, thematic plans, subnational plans, infrastructure investment plan)	Medium term expenditure frameworks, Medium-Term Revenue Strategy (Tax revenue strategy including <b>health taxes</b> ), Public- private Partnership Policy, Investment promotion policy, Development cooperation strategy, Policies on other flows
Annual	Annual action plan	National budget (tax revenues including <b>health taxes</b> )

Source: Adapted from Lauer et al. (2022)

#### d) Addis Ababa Action Agenda on Financing for Development

The Addis Ababa Action Agenda (AAAA) was adopted by the 193 UN Member States at the Third International Conference on Financing for Development in 2015 in Addis Ababa, Ethiopia (OECD, July 2015). It provides a global framework for financing sustainable development by aligning all financing and policies with economic, social, and environmental priorities. Resource mobilization, especially domestic revenue mobilization, was identified as the key tool in achieving the 2030 Agenda for Sustainable Development. This is particularly important for least developed countries (LDCs), as Official Development Assistance (ODA) is expected to be scaled back as they transition out of LDC status. Halfway to 2030, most countries are seeing progress on the SDGs that will likely keep the goals out of reach at the end of the set period. It is estimated that with the current level of resource mobilization developing countries alone face a US\$ 4 trillion financing gap (United Nations, 2023).

The Addis Ababa Action Agenda includes a comprehensive set of policy actions. Several of these are linked to health taxes. The AAAA points out the need to “improve the fairness, transparency, efficiency and effectiveness of our tax systems, including by broadening the tax base” (para. 22). Health taxes are in line with this objective by introducing or restructuring taxes on additional products as part of the national tax mix. That paragraph of the AAAA also highlights a need for “efforts by countries to set nationally defined domestic targets and timelines for enhancing domestic revenue as part of their national sustainable development strategies”. Introducing or reforming health taxes can be conducive to such public finance planning.

The AAAA highlights the “enormous burden that non-communicable diseases place on developed and developing countries” and the challenges that such costs represent. (para. 32) The document recognizes that “as part of a comprehensive strategy of prevention and control, price and tax measures on tobacco can be an effective and important means to reduce tobacco consumption and healthcare costs and represent a revenue stream for financing for development in many countries.” This explicitly emphasizes the role tobacco taxes can play in domestic revenue mobilization.

Health taxes are also linked indirectly to action area E dedicated to debt and debt sustainability, where the document states that “debt sustainability challenges facing many least developed countries and small island developing States require urgent solutions”. (para. 93) Health taxes can be one such solution.

#### Box 2: Integrated National Financial Frameworks

Low- and middle-income countries have begun to take a strategic approach to explicitly address the financing and implementation of the AAAAA and of the priority actions to reach the SDGs. The tool, known as Integrated National Financing Frameworks (INFFs) (INFF, n.d.), assists countries in linking financing needs and resources. Making this link is important, since it is estimated that 70 percent of the 107 national development plans are not costed (INFF, May 2022). Countries have agreed to use INFFs to support the national implementation of the AAAAA, and so far, have been developed in 120 countries (INFF, May 2022). Within INFFs, health taxes have been specifically mentioned in the INFF Development Finance Assessment Guidebook as a tool to broaden the objectives of tax collection and revenue mobilization strategies and recommended for example to Cambodia and Timor-Leste as a measure to raise and diversify public revenues while reducing the burden of health expenditures on NCDs (INFF, 2019a; INFF, July 2021; INFF, 2019b).

#### e) Gender responsive budgeting

Gender responsive budgeting is one of the key tools for achieving gender equality and the SDGs, especially the SDG 5: Achieve gender equality and empower all women and girls. Gender responsive budgeting means that a gender lens is integrated into all fiscal policies, including taxes. Countries, when designing or modifying their tax policies, should ask what the impact of the tax system is on women and on gender equality, and whether there is still room for making the system more gender positive. To support countries in doing so, the UN Inter-Agency Task Force for Financing for Development developed a technical guide to mainstream gender equality into the INFFs. The manual recognizes taxation as a tool to support women and advance equity.

No or low taxes on tobacco, alcoholic beverages and SSBs that do not reflect all the negative impacts of their consumption are equivalent to subsidizing the consumption of these goods because some of the costs of consumption are not paid by the consumer but by someone else; by other individuals being sick due to second-hand smoke or through increased public healthcare costs linked to increased prevalence of NCDs (IMF, February 2022). As tobacco, alcohol and SSBs are commonly consumed more by men, low taxes on these products can be perceived as being gender negative, i.e., a policy that goes contrary achieving gender equality and SGD 5.

Harmful consumption impacts women differently than men. Women experience different health impacts of harmful consumption and are more affected by secondary impacts, such as by second-hand smoking, gender-based violence or allocation of household budgets. On the other hand, women tend to be more sensitive to price changes of the harmful products. When designing or reforming the tax system, potential gender bias should be considered, and a gender perspective should be part of the decision-making process (see chapter 8 for more details on gender implications of health taxes). According to the latest data covering 105 countries, only 26 percent of countries globally have systems in place that “track and make public allocations for gender equality and women’s empowerment” (SDG indicator 5.c.1); 59 percent have some features of such a system in place, and 15 percent do not have minimum elements of such systems (UN-DESA, n.d.).

### 4. Expenditures and growth

#### a) Non-communicable diseases represent a substantial economic burden

Non-communicable diseases (NCDs) reduce productivity, deplete human capital, and increase healthcare costs through serious illness, disability, and death. Globally, around 11.5 million people died in 2019 (around 20 percent of all deaths) because of tobacco or alcohol use or a diet high in sugary

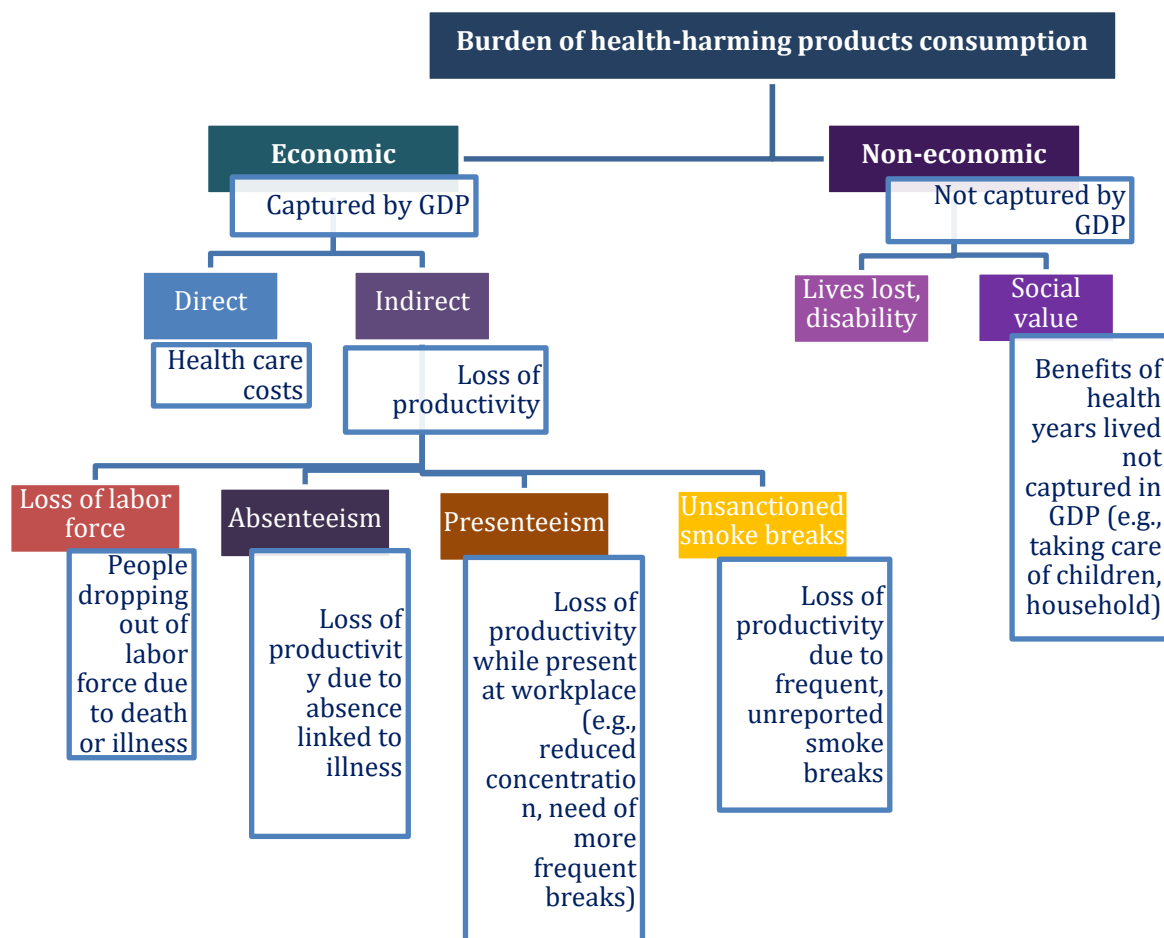
drinks, which are among the leading risk factors of NCDs (Global Burden of Disease, 2023). Almost 330 million days of healthy lives were lost due to these harmful products (Global Burden of Disease, 2023); days when people could not or could not fully live their lives due to death or disability; days when people could not participate in the economy (either actively working for persons in working age or contributing through consumption for older age groups). Another 6.8 million people died in 2019 due to diets high in red or processed meat, trans fatty acids or sodium. In total, NCDs claim 41 million lives each year, equivalent to 74 percent of all deaths (World Health Organization, September 2023).

On average, NCDs cost economies 4.4 percent of GDP annually, ranging from 1.1 to 9.7 percent (UNDP, NCD Investment Case Data, 2024).<sup>7</sup> This burden is created not only by healthcare cost linked to treating preventable NCDs (direct costs), but also through loss of productivity (indirect costs).

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<sup>7</sup> Based on data from investment cases in 24 countries across income groups.

Figure 4: Burden of health-harming products consumption



Source: Adapted from UNDP, WHO (2024). Investment Case for Tobacco Control in North Macedonia; The case for scaling up WHO FCTC implementation

Health taxes can reduce both the direct and indirect burden of NCDs by decreasing consumption of health-harming products and thus the prevalence of chronic diseases in the population (World Health Organization, September 2023).

### b) Expenditures on preventable NCDs

Healthcare spending represents a significant portion of governmental expenditures. On average, countries spent 9.68 percent of GDP in 2018 on healthcare expenditures, which jumped further to 10.9 percent of GDP in 2020 (influenced by the COVID-19 pandemic), up from 8.6 in 2000 (World Bank - Data, 2023b). However, large inter-country differences remain. While high income countries spent on average 12.28 percent of their GDP on healthcare in 2018,<sup>8</sup> it was only 5.2 percent for low- and middle-income countries (World Bank-Data, 2023b) and similar patterns appear for prioritizing health care

<sup>8</sup> Newer data are available; however, data for 2018 are used to show values not biased by the COVID-19 pandemic.

spending in public budgets— high-income countries tend to spend larger portions of their budgets on health (World Health Organization, 2020). Public spending on health was insufficient to meet the health-related SDGs already prior to COVID-19 and the pandemic only put further pressure on healthcare funding (Gaspar et al., 2019; World Bank, September 2021).

Healthcare costs spent on treating NCDs (NCDs direct costs) accounted for 30 percent of all health spending in middle-income countries and 15 percent in low-income countries (World Health Organization, 2020). Health taxes aim at reducing the modifiable risk factors of NCDs and therefore have the capacity to reduce spending on treating preventable NCDs. Healthcare costs for smokers can be up to 40 percent higher than for non-smokers at a given age (Barendregt et al., 1997). In Japan for example, around 4 percent of healthcare costs were attributable to smoking in the age group of 45 years and older (Izumi et al., 2001). In China, the number was even higher at 7.24 percent (Huang et al., 2021) and globally, it was estimated that 5.7 percent of health expenditure occurs due to smoking-attributable diseases (Goodchild et al., 2016).

Evidence confirms that also alcohol users and people with obesity, especially with severe obesity, have considerably higher annual healthcare costs (Miquel et al., 2018; Ward et al., 2021).

Government consumption - such as expenditures on NCD treatment - when covered by borrowing (issuing bonds) can make money more expensive through increased interest rates. This may discourage the private sector from investing and slow down growth. If, on the other hand, the government uses public funds for investments, such as investing in preventive and primary care, the effect on the economy can be positive (Argimon, Gonzalez-Paramo & Roldan, 1997).

### **c) Health as an essential factor in sustainable development**

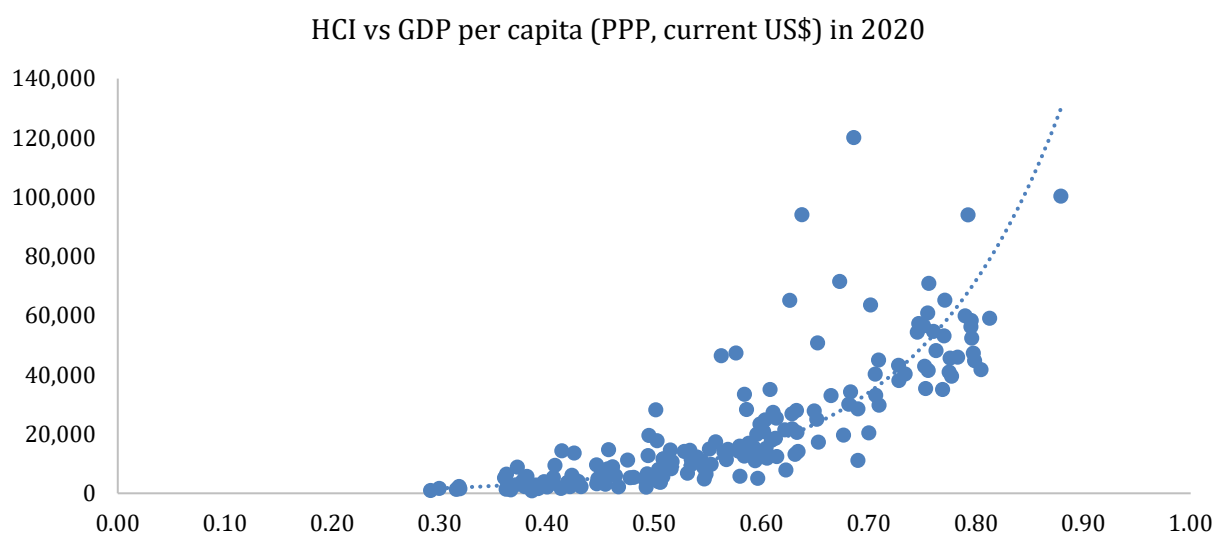
Investing in health and human capital are key to sustainable development. Health, knowledge, skills, and experience gained, sustained and accumulated throughout people's lives allow them to realize their potential as part of society and are important factors of economic growth (IMF, 2000). Human capital complements the physical capital invested in production (such as machinery), allows the optimal use of technology and innovation, and supports growth. Between 10 and 30 percent of the differences in countries' GDP per capita are caused by differences in human capital (World Bank, 2020). Developing human capital by investing in nutrition, health, education, jobs, and skills can end extreme poverty (World Bank, March 2019), increase incomes both for people and governments, as well as improve cohesion in populations. Health represents a crucial factor in human capital as it enables people to work longer, more productively and efficiently. In Figure 5, a strong relationship can be observed between GDP per capita (adjusted to purchasing power) and human capital measured by the Human Capital Index.<sup>9 10</sup>

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<sup>9</sup> Human Capital Index takes values between 0-1. A country in which a child born today can expect to achieve both full health and full education potential (14 years of high-quality school by age 18) will score a value of 1 on the index. For example, a score of 0.8 means that the productivity as a future worker for a child born today is 20 percent below what could have been achieved with complete education and full health (World Bank Group, 2018)

<sup>10</sup> Coefficient of determination 0.64 at 95 percent confidence level.

Figure 5: Human Capital Index (HCI) and correlation with GDP per capita (PPP, current international US\$) (2020)



Source: data from World Bank - Data, Human Capital Index (2020); World Bank - Data, GDP (2020)

Countries lose human capital due to people dropping out of the labour force resulting from premature deaths or sickness, presenteeism and absenteeism caused by NCDs (productivity losses). Productivity losses account for the majority of the NCDs burden, making up on average 73 percent of total NCD costs (UNDP, NCD Investment Case Data, 2024). Lost human capital is reflected in lower economic output, income, as well as tax revenue generation. From the 11.5 million deaths mentioned above, 5.8 million deaths occurred among people between the 'productive age' of 20 and 70 years which is equivalent to 193 million years of productive life lost (Global Burden of Disease, 2023). Reducing NCDs morbidity and mortality through health taxes would support a stronger labor force with lower drop-out rates, absenteeism and presenteeism. Smokers who quit smoking before the age of 40 lower their risk of premature death from smoking-related illness by 90 percent, for those who quit before the age of 54, the risk is lower by two thirds. Even smokers who quit after being diagnosed with cancer have better chances in their treatment and healing, and for some types of cancers are up to 40 percent less likely to die from the illness (Hopkins Medicine, n.d.). Smoking-attributable diseases alone cost the world 1.8 percent of the annual GDP in additional healthcare costs and productivity losses with 40 percent of this burden occurred in developing countries (Goodchild et al., 2016).

People living with NCDs experience severe restrictions in their daily lives and have a lower probability of being economically active. For example, while healthy men over 50 years of age have a 63 percent probability of being employed, for those with cancer this drops to 42 percent. For women, the probability falls from 43 percent to 34 percent (Barnay & Debrand, 2006). Overall, sickness leads to people being more absent from work or working with reduced productivity that may be caused by limited capacity to concentrate or require additional breaks (Gordois et al. 2016; van der Burg et al., 2014). A person with cancer loses 16.9 days per year due absenteeism caused by the illness and, in addition, 0.7 hours per working day due to lower productivity. For respiratory disorders, such as chronic obstructive pulmonary disease, it is 14.7 days per year and 1.4 hours per day lost (Goetzel et al., 2004).

Alcohol users are shown to have reduced work performance and increased absences (Jones, Casswell & Zhang 1995); smokers spend 8-30 extra minutes per workday on breaks in comparison to non-



smoking colleagues (Javitz et al., 2006). For example, Suriname loses around 0.1 percent of GDP due to unsanctioned smoking breaks only, while Armenia loses 0.22 percent of GDP to the same cause (UNDP, May 2021; UNDP, November 2021). Smokers usually also tend to earn less than non-smokers which exacerbates inequalities (Vulovic, 2018). Countries experience productivity losses also due to obesity and over-weight, which is often linked to consumption of SSBs (Harvard School of Public Health, 2023). Overweight and obese people are more often absent from work, have lower productivity and higher probability of accidents (Goettler, Grosse & Sonntag, 2017). Obese employees can cost employers more than double employees with a healthy weight due to increases in workdays lost from illness, payments related to short-term disability, workers' compensation and healthcare spending (Van Nuys et al. 2014).

Moreover, companies end up experiencing additional costs and administrative burden when they need to replace employees that are not present due to a disease (Bushey & Glynn, 2012).

Finally, between 2015 and 2050, the share of the population aged 60 years or over will rise globally from 12 percent to 22 percent (World Health Organization, October 2022). Global population ageing is putting more strain on healthcare systems as older people have a higher likelihood of suffering from NCDs (United Nations, April 2012). A greying labour force, on the other hand, may represent more accumulated human capital and knowledge which represent a higher total productivity factor in the economy (IMF, 2017). Whether the impact of “longer-living” societies will be positive or negative will be influenced by many factors and policy settings, such as the structure of pensions, labour market policies, the quality of preventive and primary healthcare, and social policies, among others. Health taxes may help to sway the final effect by preventing unnecessary illnesses, contributing to better quality of life even in advanced ages, and therefore enabling economic participation (IMF, 2017). Increasing labour force participation of older people, for which health is a key condition, may be one of the mechanisms to offset the impacts of ageing (Hallaert, 2023).

#### **d) Health taxes can reduce inequalities that may hinder economic growth**

Poverty and NCDs are closely interlinked. People in low-income groups are more threatened by NCDs relative to other groups (World Health Organization, September 2023). NCDs rob families of income when people fall sick or die and steal limited budgets from households when families incur healthcare spending as a result of NCDs. People in developing countries spend around half a trillion US\$ annually on healthcare in the form of out-of-pocket expenditures (payments made directly by the households to the care provider) (World Bank, June 2019). Out-of-pocket health expenditures drag annually around 100 million people around the world into extreme poverty (NCD Alliance, 2023). The growing burden of NCDs thus hampers efforts to reduce poverty in low-income countries (World Health Organization, September 2023). Household spending on health-harming products and on health care costs linked to consumption of these crowd out spending on education and other health care, as well as on clothing and housing (Do & Bautista, 2015). In low- and middle-income countries, daily tobacco consumption decreased household spendings on education and healthcare by 8 and 5.5 percent respectively (Do & Bautista, 2015). In some cases, household spending on health-harming products even exceeds spending on education or clothing (Social Policy and Development Center, 2021; Eurostat, 2021).

Health taxes, as consumption taxes, are often viewed as regressive, i.e. burdening low-income groups more than groups of higher income. However, low-income groups are shown to have a higher price elasticity for harmful products, which means that they reduce their consumption more in response to price changes. Reduced consumption consequently reduces the NCDs burden and linked healthcare costs in poorer households, extends the capacity to engage in income-generating activities, and allows households to redirect their budgets towards other consumption, such as food, education, housing, and clothing (Marquez, 2018). This means that in the mid-to long-term, people with lower incomes benefit more from changes to this type of tax and the final impact is positive (the households experience net benefit from health taxes) (World Bank, 2020a; Marquez, 2018). In addition, for low-income households, work is frequently the only source of revenue and livelihood. If such households lose the income from labour due to an NCD resulting from health-harming products consumption, they may not

be able to tap into savings or sell property and may be very quickly exposed to extreme financial struggles or poverty. Alternatively, shares of the released budgets could go towards household savings, which would create a buffer for more difficult times and prevent falling into poverty and potentially could lower interest rates.

#### **e) Health taxes impact only specific segments of the economy**

Health taxes have an explicitly distortive effect on the economy by changing consumer behaviour. Tax distortions happen when subjects in the economy change their decisions in response to changes in relative price of goods or services (or factors of production) resulting from taxation. While tax policies usually aim at creating a minimum of distortions, in the case of health taxes the distortion is by design. As health taxes target only selected goods and are aimed at a narrow yet ideally well-specified tax base targeting products with negative externalities, they impact only segments linked directly or indirectly to the taxed products and affect only the part of the society that chooses to consume the taxed products (Tanzi & Zee, 2001). Thus, the impact on the economy will be narrower than that of taxes with a wider tax base (Blecher et al., 2023; Tax Foundation, 2023). If well designed, health taxes can open space for innovation and reformulation in taxed products. This can further mitigate the impact of the taxation on industries (Pell et al., 2021). Moreover, concerned industries tend to accommodate or find ways how to compensate for the potential impacts of taxes, be it in the form of new products, product or product size modification or changes in price policies and potential negative economic impacts on concerned industries are often compensated by other sectors (see chapter 8) (Wierzejska, 2022; Pell et al., 2021).

#### **f) Preventing other expenditures**

Well-designed health taxes can also help to address issues related to health-harming products beyond immediate healthcare needs and prevent expenditures that would arise from the necessity to tackle its consequences. For example, tobacco taxes with the right tax structure can be focused on discouraging young people from smoking in countries where early smoking initiation is a particular problem. Alcohol taxes can reduce violence, criminality, number of casualties and injuries in road traffic accidents linked to drinking and driving, and the incidence of communicable diseases, including sexually transmitted diseases, which can further free public resources (Wagenaar, Tobler & Komro, 2010; Saar, 2015). Tax on sugar-sweetened beverages can support efforts to curb obesity in adults, but also in children, which can be relevant for many countries as child obesity increases globally (World Health Organization, March 2022; World Health Organization, June 2021). Health taxes have the capacity to prevent unintentional poisoning, be it through direct ingestion of harmful substances or during production processes.

In addition, health taxes have the capacity to reduce environmental damages related to the production and consumption of tobacco, alcohol and SSBs (and potentially other products), such as water, soil, and air pollution, by decreasing demand for these products and expenditures needed to mitigate these damages.

These positive effects could be further amplified by investing some or all of the additional revenue from health taxes into policies supporting sustainable development and/or consumption of health-harming reduction, such as the WHO FCTC policy action measures, measures limiting alcohol advertisement, media awareness-raising campaigns or cessation support.

### **5. Health Taxes as an underused tool**

Despite their advantages, health taxes remain underused. The vast majority of countries have tobacco tax rates below the levels recommended by the WHO (75 percent share of total tax in the retail price and 70 percent of excise tax in the retail price of tobacco products). In 2022, 41 countries had tax policies at or above the best-practice level, of which 25 were high-income countries (42 percent of HIC), 15 were middle-income countries (14 percent of MIC) and only one low-income country – Madagascar – had taxes at this level (World Health Organization, 2023). Cigarette prices and cigarette

taxes as a share of the retail price are lower in low- and middle-income countries (with an average of 56.5 percent and 59.1 percent respectively) and higher in high-income countries (66.9 percent) (World Health Organization, 2023).

Globally, 108 countries have excise taxes on SSBs (WHO, n.d.). However, the excise tax levels remain low, with an average of 6.6 percent of retail price. Alcoholic beverages are subject to excise tax in more countries. In total at least 148 countries applied excise tax in 2022 at national level on any type of alcohol with: 121 imposing excise taxes ranging from 1.7 percent of retail price to 73 percent on spirits, and 126 on beer ranging from 0.06 percent of retail price to 60 percent (WHO, 2023c). While there are no established targets in terms of recommended shares of tax of the final retail price of SSBs and alcoholic beverages, there is space for increases that would generate both additional tax revenues and health benefits. Imposing an alcohol tax that increases the share of tax in the retail price on alcoholic beverages to 25 percent could avert 40,033 deaths only in the WHO European Region, where taxes currently average at 5.7 percent, 14.0 percent, and 31.3 percent of the retail prices of wine, beer, and spirits, respectively (Movendi International, 2022).

Besides the described impacts, health taxes have a unique position in fiscal policies and national budgets due to the following attributes that set them apart from other taxes.

#### **a) Health taxes have a corrective role**

Health taxes correct market failures. Without taxes, in the majority of markets, prices of products with adverse public health effects are similar to other goods determined by supply and demand. In theory, it is assumed that consumers can collect all relevant information to make a rational decision whether to purchase a product or not. However, this is often not true, especially for products such as tobacco, alcohol, or unhealthy food, including SSBs, where consumers are frequently unable to correctly estimate the true cost of their behavior and the related risks. This can be due to a lack of information, preference of current pleasure over the future ones, or due to minimizing personal relevance of risks. As a result, internalities (cost or benefit happening to the consumer they do not consider) and externalities (cost or benefit happening to others as a result of a consumer's behaviour that are not included in the price of the goods) occur.

A consumer in their decision to consume a harmful product, usually evaluates only the costs and benefits incurred by them, without taking into consideration the impacts on the whole of society, such as costs of second-hand smoking incurred by another person. Moreover, people tend to value present utility more than utility occurring in the future. Benefits from consumption of health-harming products are certain and happening today and may seem to have a greater value than benefits of not consuming the health-harming product (i.e., the benefit of averting adverse consequences) that may happen in the future (often far in the future) and are uncertain. Evidence suggests that people struggling with addictions have stronger preferences for current over future benefits in comparison to the general public. In other words, they tend to be more impatient and more impulsive (Monterosso, J., & Ainslie, 2007; Ida, 2014). In addition, people often tend to initiate the harmful behaviour early in life, as adolescents or young adults, when the rational part of the brain is not yet fully developed (University of Rochester, 2023). Even if young people receive adequate information about the risks, they may not be able to make a rational decision (Weinstein, Marcus & Moser, 2005; Jha, de Beyer, & Heller, 1999).

As a result, certain costs of harmful consumption remain outside of the market price, making the market price lower than the true costs. For instance, in North Macedonia in 2019, the retail price of a cigarette pack was 91 Macedonian denars, while the real cost reflecting healthcare cost and productivity losses was 154 denar (UNDP & WHO; 2024). Health taxes attempt to re-introduce the costs of externalities and internalities into the price and therefore into the consumption decisions.

## **b) Health taxes are generally easier to administer and collect than other taxes**

Well-designed health taxes that focus on narrow groups of products with inelastic demand and with negative externalities would generate revenue with relatively low administrative costs, especially in comparison for example with a personal income tax with differential tax rates which also targets large number of tax payers, corporate income tax often containing numerous exemptions and requires audits and advanced capacity for potentially complex tax planning structures or a wealth tax for which it might be difficult to establish the tax base (Tanzi & Zee, 2001). Increasing and implementing health taxes is relatively simple and can generate fast revenues (Blecher et al., 2023; IMF, 2018). The administrative requirements and costs will vary based on the tax design. For example, a specific tax on SSBs based on sugar content requires the capacity to measure the sugar content in the products, even if only on an ad hoc basis. Similarly, specific taxes on alcohol based on alcohol content would require costs linked to control measurement of the alcohol content in the beverages. Ad valorem tax structures, i.e., structures based on price, on the other hand, may require capacity to ensure that prices indicated by the taxable person are not underestimated. Please, refer to chapter 4 on tax design for more details.

## **c) Health taxes are usually more accepted by the public**

Globally, around 1.3 billion people smoke, but the burden is carried by all (World Health Organization, 2023a). Tobacco taxes are often acceptable both by non-smokers and smokers (UNDP, June 2023). Indeed, health taxes enjoy wide public support and are more accepted than other taxes (Carroll et al., 2021; Campaign for Tobacco Free Kids, 2023; Dugan, Boonn, 2023; Dugan A., 2022). To boost political and public support, the revenue raising potential can complement the public health argument even for products with more elastic demand, such as SSBs, where the additional revenue is often not be the primary purpose of the tax (World Bank, 2020). Interestingly, health taxes can, in some cases, also be more acceptable for the public than other policy measures aiming at reducing harmful consumption, such as free cessation support (Analytica Skopje, 2019). Strong engagement of all stakeholders and presenting compensatory measures for those potentially impacted by the implemented or increased taxation enhances the changes of gaining support (IMF, 2018) (see chapter 10 for more details about public acceptability).

Communicating in a transparent way the revenues expected from the tax increase and the actual revenues received as well as showing how the additional revenue is used may help to gain support from the public (see chapter 10). There are multiple ways to use the health tax revenue, ranging from no specific allocation simply for improving fiscal space, as part of a broader fiscal reform, to fixed earmarking. Earmarking health taxes for health programs, i.e., allocating the revenue to given programmes, increases public and political support for increased taxes (Wright et al., 2017). Health tax revenues can be used to mitigate potential negative impacts of health taxes or to support other health-focused policy measures, such as tax incentives for healthier nutrition. However, arguments against earmarking point out that earmarking may reduce efficiency in fund use. When considering the use of health tax revenues, conservative budgeting should be used ensure smooth financing of identified programs (see chapters 6 and 8) for more details on revenue use. Monitoring the use of health tax revenue is key to ensure accountability in the allocation of resources, to measure effectiveness of health taxes in the national budget and to demonstrate the good use of the resources raised from taxes. Involvement of key stakeholders, such as Ministry of Finance, Ministry of Health, cessation services, research centers and academia, health associations, CSOs, specialized funds on health promotion, as well as media, can play a key role in implementation and enforcement of health taxes and the effective revenue use (Zuleta et al., 2023; Eykelenboom et al., 2021) (see chapter 7). Cooperation of international, regional, national, and local tax authorities is important to ensure the efficiency of health taxes and use of the revenue (World Bank, January 2019). Regional cooperation plays a key role in prevention of cross-border shopping well as in fight against illicit trade which might undermine both the health impact of health taxes and the revenue generation (World Health Organization, 2013).

## 6. Conclusion

In conclusion, health taxes impact the economy and public finance in various ways. They represent an important fiscal tool that can both generate revenue and promote public health. Countries can leverage health taxes to increase tax revenues necessary for sustainable growth and development. Furthermore, health taxes can support economic stability by providing a relatively more predictable revenue stream, less susceptible to economic cycles. They also have the potential to positively influence sovereign credit ratings, thereby lowering borrowing costs and facilitating sustainable financing.

Moreover, health taxes can contribute to the reduction of healthcare costs and the economic burden associated with treating NCDs. By decreasing the consumption of health-harming products, health taxes can help to prevent diseases, reducing public healthcare spending and the associated strain on national budgets. By reducing the prevalence of NCDs, health taxes can contribute to a healthier workforce, enhancing productivity and economic output. Investing in health through health taxes can thus improve human capital, crucial for sustainable economic growth and development. A healthier population means a more robust and capable labor force, which in turn can drive progress toward national and global development goals.

Overall, health taxes represent an underutilized opportunity for countries to strengthen their fiscal positions while advancing public health and sustainable development goals. Their targeted, corrective nature and ease of implementation coupled with the public's relative support make health taxes a compelling part of sustainable fiscal policies. As nations navigate the complexities of growing public debt and sustainable financing, health taxes stand out as a viable and cost-effective fiscal measure.

## References

- Allen A.M., Hof A.R. Paying the price for the meat we eat. *Environmental Science and Policy*. 2019;97(April):90–94. doi: 10.1016/j.envsci.2019.04.010
- Analytica. (2019). Survey on tobacco consumption in SEE countries. <https://tobacconomics.org/files/research/645/237-fact-sheet-nmk-stc-see-2019-v4-1.pdf>
- Araneta, V.A. (2013). “The opportunities and challenges of an investment-grade status”, *Businessmirror*, 17 April 2013. Available at <http://www.pdic.gov.ph/index.php?nid1=8&nid2=1&nid=100297>.
- Argimon, I., Gonzalez-Paramo, J. M., & Roldan, J. M. (1997). Evidence of public spending crowding-out from a panel of OECD countries. *Applied Economics*, 29(8), 1001-1010. <https://doi.org/10.1080/000368497326390>
- Avidon Health. (2021). ORGANIZATIONAL COSTS OF UNHEALTHY HABITS. <https://avidonhealth.com/reports/organizational-costs-of-unhealthy-habits/>
- Barendregt JJ, Bonneux L, van der Maas PJ. The health care costs of smoking. *N Engl J Med*. 1997 Oct 9;337(15):1052-7. doi: 10.1056/NEJM199710093371506. PMID: 9321534.
- Barker AR, Mazzucca S, An R. (2022). The Impact of Sugar-Sweetened Beverage Taxes by Household Income: A Multi-City Comparison of Nielsen Purchasing Data. *Nutrients*. 2022 Feb 22;14(5):922. doi: 10.3390/nu14050922. PMID: 35267897; PMCID: PMC8912695.
- Barnay, T., & Debrand, T. (2006). Effects of health on the labour force participation of older persons in Europe. *Issues in health economics*. Vol. 109

[https://www.researchgate.net/publication/260750368\\_Effects\\_of\\_health\\_on\\_the\\_labour\\_force\\_participation\\_of\\_older\\_persons\\_in\\_Europe](https://www.researchgate.net/publication/260750368_Effects_of_health_on_the_labour_force_participation_of_older_persons_in_Europe)

- Bengtsson T and Nilsson A. Smoking and early retirement due to chronic disability. *Economics and Human Biology*, 2018; 29:31-41. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/29413586>
- Berman, M., Crane, R., Seiber, E., et al. (2014). Estimating the cost of a smoking employee. *Tobacco Control*, 23, 428-433. <https://tobaccocontrol.bmj.com/content/23/5/428>
- Bittschi, B., et al. (2019). Price elasticities and implied tax revenue for alcoholic beverages evidence from Poland, France and Spain. [https://www.wifo.ac.at/jart/prj3/wifo/main.jart?content-id=1454619331110&publikation\\_id=61732](https://www.wifo.ac.at/jart/prj3/wifo/main.jart?content-id=1454619331110&publikation_id=61732)
- Blecher, E., Ozer, C., Bloom, D., (2023). KN4. Unpacking the Empirics Behind the Health Tax Revenue. GTP Health Taxes Knowledge Note Series. <https://thedocs.worldbank.org/en/doc/f1f068e38935e2f5d92b7edf365d5089-0350032023/original/KN-4-Unpacking-the-empirics-behind-health-tax-revenues.pdf>
- Bushey, H., & Glynn, J.S. (2012). There Are Significant Business Costs to Replacing Employees. <https://www.americanprogress.org/article/there-are-significant-business-costs-to-replacing-employees/>
- Boonn A. (2023). Raising tobacco taxes: a win-win-win, <https://assets.tobaccofreekids.org/factsheets/0385.pdf>
- Caner, M., Grennes, T., & Koehler-Geib, F. (2010). Finding the tipping point -- When sovereign debt turns bad. World Bank Policy Research Working Paper. <https://doi.org/10.1596/1813-9450-5391>
- Cancer Council. (2023). PREVENTION: TAX AND PRICING. Countries that have taxes on sugar-sweetened beverages (SSBs). <https://www.obesityevidencehub.org.au/collections/prevention/countries-that-have-implemented-taxes-on-sugar-sweetened-beverages-ssbs>
- Campaign for Tobacco Free Kids. (2023). RAISING TOBACCO TAXES: A WIN-WIN-WIN. <https://assets.tobaccofreekids.org/factsheets/0385.pdf>
- Carroll, T., Gupta, A. K., Hai, P. T., Thu Huong, N. T., Phi, D. T., & Curell, C. (2021). Measuring community support for tobacco tax measures: Results from a community survey on support for increased tobacco taxes in Vietnam. *Tobacco Induced Diseases*, 19(1), A60. <https://doi.org/10.18332/tid/140910>
- Cawley, J., Thow, A. M., Wen, K., & Frisvold, D. (2019). The economics of taxes on sugar-sweetened beverages: A review of the effects on prices, sales, cross-border shopping, and consumption. *Annual Review of Nutrition*, 39, 8.1–8.22.
- Claessen H, Arndt V, Drath C, and Brenner H. Smoking habits and occupational disability: A cohort study of 14,483 construction workers. *Occupational and Environmental Medicine*, 2010; 67(2):84-90. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/19773274>

- Do, Y.K., & Bautista, M.A. (2015). Tobacco use and household expenditures on food, education, and healthcare in low- and middle-income countries: a multilevel analysis. *BMC Public Health*, 15, 1098. <https://doi.org/10.1186/s12889-015-2423-9>
- Dugan, A. (2022). Global Study: Harm From Noncommunicable Diseases Underrated. <https://news.gallup.com/opinion/gallup/401279/global-study-harm-from-noncommunicable-diseases-underrated.aspx>
- Economou, F., et al. (2022). Estimating excise tax revenue elasticity and buoyancy for tobacco products and alcoholic beverages: Evidence from Greece. *Applied Economics*, 54(39), 4557–4576. <https://doi.org/10.1080/00036846.2022.2032581>
- Ebrill, L., Keen, M., Bodin, J.-P., & Summers, V. (2002). The allure of the value-added tax. *Finance & Development*, 39(2). <https://www.imf.org/external/pubs/ft/fandd/2002/06/ebrill.htm>
- Eykelenboom, M., Djojoseparto, S. K., van Stralen, M. M., Olthof, M. R., Renders, C. M., Poelman, M. P., Kamphuis, C. B., & Steenhuis, I. H. (2021). Stakeholder views on taxation of sugar-sweetened beverages and its adoption in the Netherlands. *Health Promotion International*, 37(2). <https://doi.org/10.1093/heapro/daab114>
- Eurasian Harm Reduction Network. (2018). INTRODUCTION TO PUBLIC BUDGETS. <https://eecapplatform.org/wp-content/uploads/2018/09/6.-Module-Introduction-to-budgets.pdf>
- European Commission (n.d.). Economy and Finance. How the EU monitors national economic policies. [https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/how-eu-monitors-national-economic-policies\\_en](https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/how-eu-monitors-national-economic-policies_en)
- Eurostat. (2021). Household expenditure by category, European Union, 2021 (as % of total expenditure). [https://ec.europa.eu/eurostat/cache/infographs/hhexpcofog/hhexpcofog\\_2021/?lang=en](https://ec.europa.eu/eurostat/cache/infographs/hhexpcofog/hhexpcofog_2021/?lang=en)
- Financial Times. (2023). US interest rates add to ‘silent debt crisis’ in developing countries. <https://www.ft.com/content/b8a9fd5d-868c-41c8-b03c-e9c0cc01aecd>
- Fitch Ratings (2013). “Fitch Upgrades Philippines to Investment Grade; Outlook Stable”, 27 March 2013. Available at <https://www.fitchratings.com/research/sovereigns/fitch-upgrades-philippines-to-investment-grade-outlook-stable-27-03-2013>.
- Francisco, R. and Lema, K. (2013). “S&P raises Philippines to investment grade, second after Fitch”, Reuters, 2 May 2013. Available at <https://www.reuters.com/article/philippines-economy-upgrade-idINDEE9410D120130502>.
- Función Pública (2023). Ley 2277 De 2022 (Diciembre 13) “Por Medio De La Cual Se Adopta Una Reforma Tributaria Para La Igualdad Y La Justicia Social Y Se Dictan Otras Disposiciones“, Título V. Retrieved from: <https://www.funcionpublica.gov.co/eva/gestornormativo/norma.php?i=199883>.
- Gaspar, V. (2019). Fiscal policy and development: Human, social, and physical investment for SDGs.
- Goettler, A., Grosse, A., & Sonntag, D. (2017). Productivity loss due to overweight and obesity: a systematic review of indirect costs. *BMJ open*, 7(10), e014632. Retrieved from: <https://bmjopen.bmj.com/content/7/10/e014632>.

- Goiana-da-Silva, F., A. M. Nunes, M. Miraldo, A. Bento, J. Breda, and F. F. Araújo. 2018a. "Using Pricing Policies to Promote Public Health: The Sugar Sweetened Beverages Taxation Experience in Portugal." *Acta Med Port* 31 (4): 191–195.
- Goodchild, Mark, and Rong Zheng. 2018. "Early Assessment of China's 2015 Tobacco Tax Increase." *Bulletin of the World Health Organization* 96 (7): 506–12.  
<https://doi.org/10.2471/BLT.17.205989>.
- Goodchild M, Nargis N, Tursan d'Espaignet E. Global economic cost of smoking-attributable diseases. *Tob Control*. 2018 Jan;27(1):58-64. doi: 10.1136/tobaccocontrol-2016-053305. Epub 2017 Jan 30. Erratum in: *Tob Control*. 2018 Jul;27(4):478. PMID: 28138063; PMCID: PMC5801657.
- Goodchild, M. (2024). E-mail to Barbora Kohoutová (UNDP), 30<sup>th</sup> January 2024
- Gordois, A. L., Toth, P. P., Quek, R. G., Proudfoot, E. M., Paoli, C. J., & Gandra, S. R. (2016). Productivity losses associated with cardiovascular disease: a systematic review. *Expert review of pharmacoeconomics & outcomes research*, 16(6), 759–769.  
<https://doi.org/10.1080/14737167.2016.1259571>
- Global Burden of Disease. (2023). <https://vizhub.healthdata.org/gbd-results/>
- Gram, I. T., Wiik, A. B., Lund, E., Licaj, I., & Braaten, T. (2021). Never-smokers and the fraction of breast cancer attributable to second-hand smoke from parents during childhood: The Norwegian Women and Cancer Study 1991–2018. *International Journal of Epidemiology*, 50(6). <https://doi.org/10.1093/ije/dyab153>
- Guardian. (2012). Smoking breaks at work cost British businesses £8.4bn a year, study finds.  
<https://www.theguardian.com/society/2014/mar/03/smoking-breaks-cost-businesses-british-heart-foundation>
- Hallaert, J.J. (2023). The Fiscal Cost of Aging in Belgium – Pensions and Healthcare. Volume 2023: Issue 065, *International Monetary Fund*.  
<https://www.elibrary.imf.org/view/journals/018/2023/065/article-A001-en.xml>
- Hayashida K, Imanaka Y, Murakami G, Takahashi Y, Nagai M, et al. Difference in lifetime medical expenditures between male smokers and non-smokers. *Health Policy*, 2010; 94(1):84-9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/19775772>
- Harvard School of Public Health. (2023). Sugary Drinks.  
<https://www.hsph.harvard.edu/nutritionsource/healthy-drinks/sugary-drinks/>
- Hervé, J., Mani, S., Behrman, J. R., Nandi, A., Lamkang, A. S., & Laxminarayan, R. (2022). Gender gaps in cognitive and noncognitive skills among adolescents in India. *Journal of Economic Behavior & Organization*, 193, 66-97.
- Hodgson TA. Cigarette smoking and lifetime medical expenditures. *Milbank Quarterly*, 1992; 70(1):81-125. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/1588892>
- Hitchcock, D. G., Corson, S. S., & Spain, C. H. (2019, May 16). U.S. states take advantage of a prolonged economic expansion. *S&P Global*.



<https://www.spglobal.com/ratings/en/research/articles/190516-u-s-states-take-advantage-of-a-prolonged-economic-expansion-10950197>

Hopkins Medicine (n.d.). Former Smokers: What's Your Risk for Lung Cancer?

<https://www.hopkinsmedicine.org/health/conditions-and-diseases/lung-cancer/former-smoker-whats-your-risk-for-lung-cancer>

Huang, S., Wei, H., Yao, T. *et al.* The impact of smoking on annual healthcare cost: an econometric model analysis in China, 2015. *BMC Health Serv Res* **21**, 187 (2021).

<https://doi.org/10.1186/s12913-021-06199-5>

Ida T. (2014). A quasi-hyperbolic discounting approach to smoking behavior. *Health economics review*, 4, 5. <https://doi.org/10.1186/s13561-014-0005-7>

International Labor Organization. (n.d.). ILOSTAT. Statistics on Labor Productivity.

<https://ilostat.ilo.org/topics/labour-productivity/>

IMF. (2000). The Role of Human Capital in Economic Growth. The Case of Spain.

<https://www.imf.org/external/pubs/ft/wp/2000/wp0008.pdf>

IMF. (2014). Tax Buoyancy in OECD Countries. IMF Working Paper WP/14/110.

<https://www.imf.org/external/pubs/ft/wp/2014/wp14110.pdf>

IMF. (2017). Cost of Aging. <https://www.imf.org/external/pubs/ft/fandd/2017/03/lee.htm>

IMF. (2018). Raising Revenue. <https://www.imf.org/en/Publications/fandd/issues/2018/03/akitoby>

IMF. (2022). General Government Debt, Percent of GDP.

[https://www.imf.org/external/datamapper/GG\\_DEBT\\_GDP@GDD/SWE](https://www.imf.org/external/datamapper/GG_DEBT_GDP@GDD/SWE)

IMF. (February 2022). Gendered taxes: The interaction of tax policy with gender equality.

<https://www.imf.org/en/Publications/WP/Issues/2022/02/04/Gendered-Taxes-The-Interaction-of-Tax-Policy-with-Gender-Equality-512231>

IMF. (2023a). List of LIC DSAs for PRGT-Eligible Countries as of August 31, 2023.

<https://www.imf.org/external/Pubs/ft/dsa/DSAlist.pdf>

INFF (n.d.). Available at: <https://inff.org>

INFF (2019a). Development Finance Assessment Guidebook. [https://inff.org/assets/resource/rbap-dg-2019-development-finance-assessment-guidebook-\(1\).pdf](https://inff.org/assets/resource/rbap-dg-2019-development-finance-assessment-guidebook-(1).pdf)

INFF (2019b). Development Finance Assessment in support of the achievement of the Strategic Development Plan and Sustainable Development Goals in Timor-Leste.

<https://inff.org/resource/development-finance-assessment-in-support-of-the-achievement-of-the-strategic-development-plan-and-sustainable-development-goals-in-timor-leste>

INFF. (July 2021). Cambodia's Development Finance Assessment.

<https://inff.org/resource/cambodias-development-finance-assessment>

INFF. (2022, May). Integrated national financing frameworks: A short and practical Introduction.

<https://inff.org/resource/integrated-national-financing-frameworks-a-short-and-practical-introduction>.

- INFF. (2023). Timor-Leste. <https://inff.org/country/timor-leste>
- Japsen, B. (2020). Poor Worker Health Costs U.S. Employers \$575 Billion A Year. <https://www.forbes.com/sites/brucejapsen/2020/12/08/poor-worker-health-costs-us-employers-575-billion-a-year/>
- Javitz HS, Zbikowski SM, Swan GE, et al. Financial burden of tobacco use: an employer's perspective. *Clin Occup Environ Med* 2006;5:9–29
- Jha, P., de Beyer, J., & Heller, P. S. (1999). Death and taxes: Economics of tobacco control. *Finance & Development*, 36(4). <https://www.imf.org/external/pubs/ft/fandd/1999/12/jha.htm>
- Jones, S., Casswell, S., & Zhang, J. F. (1995). The economic costs of alcohol-related absenteeism and reduced productivity among the working population of New Zealand. *Addiction* (Abingdon, England), 90(11), 1455–1461. <https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1360-0443.1995.901114553.x>
- Koskenvuo K, Broms U, Korhonen T, Laitinen LA, Huunan-Seppala A, et al. Smoking strongly predicts disability retirement due to COPD: The Finnish twin cohort study. *European Respiratory Journal*, 2011; 37(1):26-31. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/20516052>
- Krieger, J., Magee, K., Hennings, T., Schoof, J., & Madsen, K. A. (2021). How sugar-sweetened beverage tax revenues are being used in the United States. *Preventive medicine reports*, 23, 101388. <https://doi.org/10.1016/j.pmedr.2021.101388>
- Kurowski, C., et al. (2021). From double shock to double recovery. <https://doi.org/10.1596/35298>
- Lauer, J. A., et al. (2022). Health taxes: Policy and practice. World Health Organization. <https://doi.org/10.1142/q0365>
- Lane, C., Glassman, A. & Smitham, E. (2021). Using Health Taxes to Support Revenue: An Action Agenda for the IMF and World Bank. Center for Global Development, Washington, DC, and London. <https://www.cgdev.org/publication/using-health-taxes-support-revenue-action-agenda-imf-and-world-bank>.
- Lippiatt BC. Measuring medical cost and life expectancy impacts of changes in cigarette sales. *Preventive Medicine*, 1990; 19(5):515-32. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/2122438>
- Manning WG, Keeler EB, Newhouse JP, Sloss EM, and Wasserman J. The taxes of sin. Do smokers and drinkers pay their way? *JAMA*, 1989; 261(11):1604–9. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/2918654>
- Marcello, M.C., Ayres, M.; Frontini, P.; Madry, K., (2023). <https://www.reuters.com/world/americas/brazils-lower-house-approves-landmark-consumption-tax-reform-2023-12-16/>
- Marquez, P. V. (2018). World Bank Group global tobacco control program. World Bank Group. <http://documents.worldbank.org/curated/en/599201542204774252/World-Bank-Group-Global-Tobacco-Control-Program>

- Laia Miquel, Jürgen Rehm, Kevin D Shield, Emili Vela, Montserrat Bustins, Lidia Segura, Joan Colom, Peter Anderson, Antoni Gual, Alcohol, tobacco and health care costs: a population-wide cohort study ( $n = 606\,947$  patients) of current drinkers based on medical and administrative health records from Catalonia, *European Journal of Public Health*, Volume 28, Issue 4, August 2018, Pages 674–680, <https://doi.org/10.1093/eurpub/ckx236>
- Ministry of Finance. Thailand (2022). Email from the Excise Department on 2 May 2022 to Barbora Kohoutová (UNDP).
- Moody's (2013). "Research: Rating Action: Moody's upgrades Philippines to Baa3, revises outlook to positive", 3 October 2013. Available at [https://www.moody's.com/research/moodys-upgrades-philippines-to-baa3-revises-outlook-to-positive--pr\\_283602](https://www.moody's.com/research/moodys-upgrades-philippines-to-baa3-revises-outlook-to-positive--pr_283602).
- Moody's. (2023, October 27). [Email to Barbora Kohoutová (UNDP)].
- Monterosso, J., & Ainslie, G. (2007). The behavioral economics of will in recovery from addiction. Drug and alcohol dependence, 90 Suppl 1(Suppl 1), S100–S111. <https://doi.org/10.1016/j.drugalcdep.2006.09.004>
- Movendi International. (2021). South Africa: Clear Link Between Alcohol and Gender-Based Violence. <https://movendi.ngo/news/2021/12/07/south-africa-clear-link-between-alcohol-and-gender-based-violence/>
- Movendi International. (2022). Impact of Minimum Alcohol Tax Share in Retail Prices in WHO European Region. <https://movendi.ngo/science-digest/impact-of-minimum-alcohol-tax-share-in-retail-prices-in-who-european-region/>
- National Alliance for Tobacco Control, Timor-Leste. (2021). Higher Tobacco Taxes for a healthier Timor-Leste. <https://theunion.org/sites/default/files/2021-08/Timor-Leste%20Tax%20Policy%20Paper%20July%202021.pdf>
- Navarra, K. (2022). The Real Costs of Recruitment. <https://www.shrm.org/resourcesandtools/hr-topics/talent-acquisition/pages/the-real-costs-of-recruitment.aspx>
- NCD Alliance. (2011). Noncommunicable diseases: A priority for women's health and development. <https://ncdalliance.org/resources/noncommunicable-diseases-a-priority-for-women%E2%80%99s-health-and-development>
- NCD Alliance. (2023). Financing NCDs. <https://ncdalliance.org/why-ncds/financing-ncd>
- Neovius K, Neovius M, and Rasmussen F. The combined effects of overweight and smoking in late adolescence on subsequent disability pension: A nationwide cohort study. *International Journal of Obesity*, 2010; 34(1):75-82. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/19752877>
- Ngo, A., Fong, G. T., Craig, L. V., Shang, C. (2019). Analysis of gender differences in the impact of taxation and taxation structure on cigarette consumption in 17 ITC countries. *International Journal of Environmental Research and Public Health*, 16(7), 1275. <https://doi.org/10.3390/ijerph16071275>

- OECD. (2015). Recommendation of the council on budgetary governance. <https://www.oecd.org/gov/budgeting/Recommendation-of-the-Council-on-Budgetary-Governance.pdf>
- OECD. (2015 July). Third International Conference on Financing for Development: OECD's contribution. <https://www.oecd.org/dac/financing-sustainable-development/ffdandtheoecd.htm>
- OECD. (2018). PISA 2018 Results (Volume II). Where All Students Can Succeed. [https://www.oecd-ilibrary.org/education/pisa-2018-results-volume-ii\\_f56f8c26-en](https://www.oecd-ilibrary.org/education/pisa-2018-results-volume-ii_f56f8c26-en)
- OECD. (2022). Tax Policy Reforms 2022: OECD and Selected Partner Economies. Tax Revenue Trends. <https://www.oecd-ilibrary.org/sites/d3e829b2-en/index.html?itemId=/content/component/d3e829b2-en>
- Okolo, L. M., Ridley, J. H., & Buswick, G. E. (2020, November 12). Approval of nontraditional revenues dominates recent ballot measures for U.S. state and local governments. S&P Global. <https://www.spglobal.com/ratings/en/research/articles/201112-approval-of-nontraditional-revenues-dominates-recent-ballot-measures-for-u-s-state-and-local-governments-11735504>
- Orinario, C. (2013). "Japan grants PH investment grade", Rappler, 8 May 2013. Available at <https://www.rappler.com/business/economy/japan-ph-investment-grade>.
- Pan American Health Organization. (2022). Alcohol And Violence Against Women. [https://iris.paho.org/bitstream/handle/10665.2/56009/PAHONMHMH220009\\_eng.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/56009/PAHONMHMH220009_eng.pdf?sequence=1&isAllowed=y)
- Pan American Health Organization. (2023). Report on Tobacco Control for the Region of the Americas 2022 Country Profiles. [https://iris.paho.org/bitstream/handle/10665.2/57234/PAHONMHRF230003\\_eng.pdf?sequence=4&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/57234/PAHONMHRF230003_eng.pdf?sequence=4&isAllowed=y)
- Petit P, Mansour M, Wingender P (2021) How to Apply Excise Taxes to Fight Obesity. How to Note, Fiscal Affairs Department. Washington DC: International Monetary Fund
- Pell, D., et al. (2021). Changes in soft drinks purchased by British households associated with the UK soft drinks industry levy: Controlled interrupted time series analysis. *BMJ*, 372, n254. <https://doi.org/10.1136/bmj.n254>
- Pew Charitable Trust. (2016). Household Expenditures and Income. <https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2016/03/household-expenditures-and-income>
- Philippines Department of Finance (2019). "S&P upgrades Philippine credit rating to 'BBB+ stable,' a notch away from 'A' territory rating", 30 April 2019. Available at <https://www.dof.gov.ph/sp-upgrades-philippine-credit-rating-to-bbb-stable-a-notch-away-from-a-territory-rating/>.
- Rasmussen SR, Prescott E, Sorensen TI, and Sogaard J. The total lifetime costs of smoking. *European Journal of Public Health*, 2004; 14(1):95-100. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/15080400>

- S&P (2023). Philippines Long-Term Rating Raised To 'BBB+' On Strong Growth Trajectory; Outlook Stable. <https://www.spglobal.com/en/research-insights/articles/philippines-long-term-rating-raised-to-bbb-on-strong-growth-trajectory-outlook-stable>
- S&P (2023). Brazil Long-Term Ratings Upgraded To 'BB' From 'BB-' Following Tax Reform Approval; Outlook Stable. <https://disclosure.spglobal.com/ratings/en/regulatory/article/-/view/type/HTML/id/3104158>
- Saar I. (2015). Do alcohol excise taxes affect traffic accidents? Evidence from Estonia. *Traffic injury prevention*, 16, 213–218. <https://doi.org/10.1080/15389588.2014.933817>
- Social Policy and Development Center. (2021). Household Tobacco Spending and Consumption: Implications for Tax Policy. <https://tobacconomics.org/files/research/680/spdc-pb-crowding-out-final-apr-7-1.pdf>
- Schick, A. (2011). Repairing the budget contract between citizens and the state. *OECD Journal on Budgeting*, 11(3). <https://doi.org/10.1787/budget-11-5kg3pdgctc8v>
- Stacey, N., C. Mudara, S. W. Ng, C. van Walbeek, K. Hofman, I. Edoka. 2019. Sugar-based beverage taxes and beverage prices: Evidence from South Africa's Health Promotion Levy. *Social Science & Medicine* 238: 112465.
- Summan A, Stacey N, Birckmayer J, et al. The potential global gains in health and revenue from increased taxation of tobacco, alcohol and sugar-sweetened beverages: a modelling analysis. *BMJ Global Health* 2020;5:e002143. doi:10.1136/bmjgh-2019-002143
- Summan, A., and Ramanan L. (2019). *Modeling the Impact of Tobacco, Alcohol, and Sugary Beverage Tax Increases on Health and Revenue*. Background Paper for the Task Force on Fiscal Policy and Health. New York: Bloomberg Philanthropies. Available online: <https://www.bbhub.io/dotorg/sites/2/2019/04/Modeling-the-Impact-of-Tobacco-Alcohol-and-Sugary-Beverage-Tax-Increases-on-Health-and-Revenue.pdf> (accessed on 8 November 2019).
- Tanzi, V., & Zee, H. (2001). Tax policy for developing countries. *Economic Issues* No. 27. International Monetary Fund. <https://www.imf.org/external/pubs/ft/issues/issues27/>
- Tax Foundation. (2023). Case Study: Sales Taxes vs. Excise Taxes. <https://taxfoundation.org/taxedu/educational-resources/case-studies-sales-taxes-vs-excise-taxes/>
- Tiihonen J, Ronkainen K, Kangasharju A, and Kauhanen J. The net effect of smoking on healthcare and welfare costs. A cohort study. *BMJ Open*, 2012; 2(6):e001678. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23233699>
- Timsina, N. (2007). Tax elasticity and buoyancy in Nepal: A revisit. *NRB Economic Review*, 19(1), 9–21. <https://doi.org/10.3126/nrber.v19i1.52985>
- The Task Force on Fiscal Policy and Health. 2019. *Health Taxes to Save Lives: Employing Effective Excise Taxes on Tobacco, Alcohol, and Sugary Beverages*. New York: Bloomberg

- Philanthropies. Available online: <https://www.bbhub.io/dotorg/sites/2/2019/04/Health-Taxes-to-Save-Lives-Report.pdf> (accessed on 9 October 2019).
- UN Tobacco Control. (2009). LEY NO. 69 DE 06-11-2009. <https://untobaccocontrol.org/impldb/wp-content/uploads/reports/Ley%2069%20nov%202009%20-EQUIPARACION.pdf>
- UNCTAD. (2023). THE COSTS OF ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS. <https://unctad.org/sdg-costing>
- United Nations. (2012, April). Population Ageing and the Non-communicable Diseases. [https://www.un.org/esa/socdev/documents/ageing/Data/popfacts\\_noncommunicablediseases.pdf](https://www.un.org/esa/socdev/documents/ageing/Data/popfacts_noncommunicablediseases.pdf)
- United Nations. (2015). Addis Ababa Action Agenda. <https://sustainabledevelopment.un.org/index.php?menu=35&nr=2051&page=view&type=400>
- United Nations (2023). Developing countries face \$4 trillion investment gap in SDGs. <https://news.un.org/en/story/2023/07/1138352>
- United Nations. (2023b). The Sustainable Development Goals Report 2023. <https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf>
- United Nations Department of Economic and Social Affairs. (n.d.). Goal 5 | Progress and info. [https://sdgs.un.org/goals/goal5#progress\\_and\\_info](https://sdgs.un.org/goals/goal5#progress_and_info)
- United Nations Department of Economic and Social Affairs. (2023). <https://www.un.org/development/desa/dpad/least-developed-country-category-timor-leste.html>
- INFF (2019). Development Finance Assessment in support of the achievement of the Strategic Development Plan and Sustainable Development Goals in Timor-Leste. Available at: <https://inff.org/resource/development-finance-assessment-in-support-of-the-achievement-of-the-strategic-development-plan-and-sustainable-development-goals-in-timor-leste>
- United Nations Development Programme (May 2021). The Case for Investing in WHO FCTC Implementation in Suriname
- United Nations Development Programme (November 2021). The Case for Investing in WHO FCTC Implementation in Armenia
- United Nations Development Programme (2022). Pro-Poor Taxes For Sustainable Development Financing. Tobacco Taxation To Accelerate The SDGs, Equity And Sustainability In Asia And The Pacific
- United Nations Development Programme. (June 2023). How raising tobacco taxes can save lives and cut poverty across the Asia-Pacific. <https://www.undp.org/asia-pacific/blog/how-raising-tobacco-taxes-can-save-lives-and-cut-poverty-across-asia-pacific-0>
- United Nations Development Programme, NCD Investment Case Data, 2024
- United Nations Global Crisis Response Group. (2023). The world of debt. <https://unctad.org/publication/world-of-debt>

- University of Rochester. (2023). Understanding the Teen Brain.  
<https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=1&ContentID=3051>
- Utley, D.S. (2023). Views Up in smoke: How employee tobacco use impacts your business costs.  
<https://www.benefitnews.com/opinion/how-employee-tobacco-use-impacts-your-business-costs>
- Van der Burg, L. R. A., Boonen, A., Van Amelsvoort, L. G. P. M., Jansen, N. W. H., Landewé, R. B. M., & Kant, I. (2014). Effects of cardiovascular comorbidities on work participation in rheumatic diseases: A prospective cohort study among working individuals. *Arthritis Care & Research*, 66, 157-163. <https://doi.org/10.1002/acr.22095>
- Van Nuys, K., Globe, D., Ng-Mak, D., Cheung, H., Sullivan, J., & Goldman, D. (2014). The association between employee obesity and employer costs: evidence from a panel of U.S. employers. *American journal of health promotion : AJHP*, 28(5), 277–285.  
<https://doi.org/10.4278/ajhp.120905-QUAN-428>
- Vulovic, V. (2018). Tobacco Control Policies and Employment. A Tobacconomics Policy Brief. Chicago, IL: Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago. *www.tobacconomics.org*
- Vulovic, V., & Chaloupka, F. J. (2022). Taxation of tobacco, alcohol, and sugar-sweetened beverages for achieving the Sustainable Development Goals. <https://doi.org/10.3390/books978-3-03897-865-7-3>
- Wagenaar, A. C., Tobler, A. L., & Komro, K. A. (2010). Effects of alcohol tax and price policies on morbidity and mortality: a systematic review. *American journal of public health*, 100(11), 2270–2278. <https://doi.org/10.2105/AJPH.2009.186007>
- Wall Street Journal. (2023). The \$2 Trillion Interest Bill That’s Hitting Governments.  
<https://www.wsj.com/economy/global/the-2-trillion-interest-bill-thats-hitting-governments-90142a5a?mod=djem10point>
- Ward, Z. J., Bleich, S. N., Long, M. W., & Gortmaker, S. L. (2021). Association of Body Mass index with health care expenditures in the United States by age and sex. *PLOS ONE*, 16(3).  
<https://doi.org/10.1371/journal.pone.0247307>
- Weinstein, N. D., Marcus, S. E., & Moser, R. P. (2005). Smokers’ unrealistic optimism about their risk. *Tobacco Control*, 14, 55-59. <https://doi.org/10.1136/tc.2004.008375>
- Wierzejska R. E. (2022). The Impact of the Sweetened Beverages Tax on Their Reformulation in Poland-The Analysis of the Composition of Commercially Available Beverages before and after the Introduction of the Tax (2020 vs. 2021). *International journal of environmental research and public health*, 19(21), 14464. <https://doi.org/10.3390/ijerph192114464>
- World Bank. (2018). The Human Capital Project.  
<https://openknowledge.worldbank.org/server/api/core/bitstreams/9b478ffa-2027-5290-bb62-816f6d385027/content>



- World Bank. (2019). World development report 2019: The changing nature of work. <https://documents1.worldbank.org/curated/en/816281518818814423/pdf/2019-WDR-Report.pdf>
- World Bank. (2019, January). Confronting Illicit Tobacco Trade: a Global Review of Country Experiences. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/677451548260528135/confronting-illicit-tobacco-trade-a-global-review-of-country-experiences>
- World Bank. (March 2019). The Human Capital Project: Frequently Asked Questions. <https://www.worldbank.org/en/publication/human-capital/brief/the-human-capital-project-frequently-asked-questions#HCP2>
- World Bank. (May 2019). Overview of Tobacco Control Legislation, Use, and Taxation. A Country Brief – Vietnam. <https://documents1.worldbank.org/curated/en/818741559223994957/pdf/Vietnam-Overview-of-Tobacco-Use-Tobacco-Control-Legislation-and-Taxation.pdf>
- World Bank. (June 2019). High-Performance Health-Financing for Universal Health Coverage: Driving Sustainable, Inclusive Growth in the 21st Century. <https://www.worldbank.org/en/topic/universalhealthcoverage/publication/high-performance-health-financing-for-universal-health-coverage-driving-sustainable-inclusive-growth-in-the-21st-century>
- World Bank. (2020). The Human Capital Index 2020 Update. <https://openknowledge.worldbank.org/entities/publication/93f8fbc6-4513-58e7-82ec-af4636380319>
- World Bank - Data (2020). Human Capital Index. <https://databank.worldbank.org/source/human-capital-index#>
- World Bank. (2020a). Sugar-sweetened beverages and prepackaged foods: the impact of taxation on price, consumption, and revenues and its contribution to achieving the sustainable development goals in Central America, Panama, and the Dominican Republic. <https://thedocs.worldbank.org/en/doc/611961599658512658-0090022020/original/TF0A4082FullreportSugarSweetDrinksEnglishFinal20201.pdf>
- World Bank. (June 2020). Business, Employment and Productivity Impacts of SSB Taxes. <https://openknowledge.worldbank.org/server/api/core/bitstreams/2802a1fe-2b71-5e42-bf53-234cc7290dd7/content>
- World Bank (September 2020). Taxes on sugar-sweetened beverages: International evidence and experience. <https://thedocs.worldbank.org/en/doc/d9612c480991c5408edca33d54e2028a-0390062021/original/World-Bank-2020-SSB-Taxes-Evidence-and-Experiences.pdf>
- World Bank. (September 2021). From Double Shock to Double Recovery. Implications and Options for Health Financing in the Time of COVID-19. Technical updates: Widening rifts.
- World Bank. (February 2023). Why Health Taxes Matter: A Mechanism to Improve Health and Revenue Outcomes. <https://documents.worldbank.org/en/publication/documents->



[reports/documentdetail/099446002132366565/idu036b3c4370c15f047e2087a3029ed3a36321f](https://reports/documentdetail/099446002132366565/idu036b3c4370c15f047e2087a3029ed3a36321f)

World Bank. (March 2023). Health Taxes. <https://www.worldbank.org/en/topic/nutrition/brief/health-taxes>

World Bank. (2023). Tax revenue (% of GDP). <https://data.worldbank.org/indicator/GC.TAX.TOTL.GD.ZS>

World Bank. (2023a). Prevalence of current tobacco use (% of adults). <https://data.worldbank.org/indicator/SH.PRV.SMOK>

World Bank. (2023b). – Data. Current health expenditure (% of GDP). <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=XD>

World Bank. (2023). – Data. Tax revenue (LC). <https://data.worldbank.org/indicator/GC.TAX.TOTL.CN?locations=TH>

World Bank. (2023c) - Taxes & Government Revenue. <https://www.worldbank.org/en/topic/taxes-and-government-revenue#1>

World Health Organization. (2013). Protocol to eliminate illicit trade in tobacco products. [https://iris.who.int/bitstream/handle/10665/80873/9789241505246\\_eng.pdf?sequence=1](https://iris.who.int/bitstream/handle/10665/80873/9789241505246_eng.pdf?sequence=1)

World Health Organization. (2017). Tobacco control for sustainable development. WHO Regional Office for South-East Asia. <https://apps.who.int/iris/handle/10665/255509>

World Health Organization. (December 2020). Global Health Observatory data repository. Life expectancy and Healthy life expectancy. <https://apps.who.int/gho/data/view.main.SDG2016LEXREGv?lang=en>

World Health Organization. (2020). Global spending on health. Weathering the storm. Global report. <https://www.who.int/publications/i/item/9789240017788>

World Health Organization. (June 2021). Obesity and overweight. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>

World Health Organization. (December 2022). Updated Appendix 3 of the WHO Global NCD Action Plan 2013-2030. [https://cdn.who.int/media/docs/default-source/ncds/mnd/2022-app3-technical-annex-v26jan2023.pdf?sfvrsn=62581aa3\\_5](https://cdn.who.int/media/docs/default-source/ncds/mnd/2022-app3-technical-annex-v26jan2023.pdf?sfvrsn=62581aa3_5)

World Health Organization. (March 2022). Taxes on sweetened drinks: WHO explains how to make them an effective health measure. <https://www.who.int/europe/news/item/21-03-2022-taxes-on-sweetened-drinks-who-explains-how-to-make-them-an-effective-health-measure>

World Health Organization (October 2022). Ageing and health. <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>

World Health Organization. (December 2022). Updated Appendix 3 of the WHO Global NCD Action Plan 2013-2030. [https://cdn.who.int/media/docs/default-source/ncds/mnd/2022-app3-technical-annex-v26jan2023.pdf?sfvrsn=62581aa3\\_5](https://cdn.who.int/media/docs/default-source/ncds/mnd/2022-app3-technical-annex-v26jan2023.pdf?sfvrsn=62581aa3_5)

- World Health Organization. (2023). WHO report on the global tobacco epidemic, 2023. Protect people from tobacco smoke. <https://iris.who.int/bitstream/handle/10665/372043/9789240077164-eng.pdf?sequence=1>
- World Health Organization. (2023a). Tobacco. <https://www.who.int/news-room/fact-sheets/detail/tobacco>
- World Health Organization. (2023b). Global report on the use of sugar-sweetened beverage taxes, 2023. <https://iris.who.int/bitstream/handle/10665/374530/9789240084995-eng.pdf?sequence=1>
- World Health Organization. (2023c). Global report on the use of alcohol taxes 2023. <https://iris.who.int/bitstream/handle/10665/374614/9789240086104-eng.pdf?sequence=1>
- World Health Organization. (January 2023). WHO Director-General's remarks at the 152nd session of the Executive Board. <https://www.who.int/director-general/speeches/detail/who-director-general-s-remarks-at-the-152nd-session-of-the-executive-board>
- World Health Organization. (May 31, 2023). World No Tobacco Day: “Timor-Leste’s efforts towards a tobacco-free nation are commendable”. <https://www.who.int/timorleste/news/detail/31-05-2023-world-no-tobacco-day-timor-leste-s-efforts-towards-a-tobacco-free-nation-are-commendable>
- World Health Organization. (May 2023). More ways, to save more lives, for less money: World Health Assembly adopts more Best Buys to tackle noncommunicable diseases. <https://www.who.int/news/item/26-05-2023-more-ways--to-save-more-lives--for-less-money---world-health-assembly-adopts-more-best-buys--to-tackle-noncommunicable-diseases>
- World Health Organization (September 2023). Noncommunicable diseases. <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>
- World Health Organization (n.d.). Global prices and taxes on sugar-sweetened and other non-alcoholic beverages. <https://www.who.int/data/gho/data/themes/topics/taxes-on-nonalcoholic-beverages>
- World Wildlife Fund. (2023). THE EFFECTS OF DEFORESTATION. <https://www.wwf.org.uk/learn/effects-of/deforestation>
- Wright, A., Smith, K. E., & Hellowell, M. (2017). Policy lessons from health taxes: a systematic review of empirical studies. BMC Public Health, 17(583). <https://doi.org/10.1186/s12889-017-4497-z>
- Yartey, C. A., & Turner-Jones, T. (2014). Caribbean renewal. International Monetary Fund eBooks. <https://doi.org/10.5089/9781484369142.071>
- Zuleta, M., Perez-Leon, S., Mialon, M., et al. (2023). Political and socioeconomic factors that shaped health taxes implementation in Peru. BMJ Global Health, 8(Suppl 8), e012024. <https://doi.org/10.1136/bmjgh-2023-012024>

## Chapter 8: Addressing Potential Secondary Effects of Health Taxes

### 1. Introduction

The primary, intended effects of health taxes, as discussed in previous chapters, are mainly to reduce consumption of harmful goods through price increases as well as to generate tax revenue for the government. Besides those primary effects, health taxes can have a range of potential secondary and spill-over effects. These are often used for influencing governments to block or delay the introduction or increase of health taxes. Frequently used arguments are that health taxes lead to the loss of employment, hinder GDP growth, contribute to higher inflation, the outsourcing of production to other jurisdictions not affected by the tax, increase illicit trade; that health taxes are regressive and harm consumers, are unconstitutional, discriminatory, and illegal (World Bank, 2020a). The threat of, or actual, lawsuits are frequent (World Bank, 2020b). However, the nature and size of those potential secondary effects vary greatly across countries and are influenced by many factors, such as the socioeconomic and political context, market size and characteristics on the side of supply and demand, presence and scale of farming linked to taxed products, existing relevant policies, social and labour market policies, and international harmonisation, and on mitigation measures employed. The aim of this chapter is to analyze potential secondary impacts on the economy and relevant sectors, evidence of their scope and factors, and potential mitigation strategies. Finally, the chapter also shows potential positive secondary effects that frequently remain overlooked.

The impacts of health taxes are to large degree influenced by the capacity and willingness of the industry to pass the tax increase on to final consumers, which is called the pass-through rate. Pass-through rates are determined in part by supply and demand elasticities, where the former is influenced by the competitiveness of the market and the latter by factors such as consumer preferences, income levels, advertising, substitute availability, or potential cross-border shopping opportunities (Cawley et al., 2019). In competitive environments or regions countries and regions bordering or close to significantly lower- or non-taxing jurisdictions, companies may not fully pass the tax on to consumers in the final price (under-shifting). On the contrary, in monopolistic or oligopolistic<sup>11</sup> markets, the tax may be passed on to the consumer fully or sometimes even to an amount greater than the tax (over-shifting) (IARC, 2011; Cawley et al., 2019). The pass-through rates vary significantly by country, industry, and product, but there is strong evidence that excise taxes increase prices in the long run and have the capacity to decrease demand of harmful products (World Bank, 2020).

Pass-through rates and the response of the market to tax-induced price increase are, as mentioned above, influenced by the price elasticity of demand. Price elasticity of demand is a measure that quantifies how demand for a product responds to changes in its price. Demand price elasticity of tobacco was estimated to range between -0.4 and -0.8 in developing countries, and -0.4 in developed ones, where -0.4 means a 10% increase in price leads to a 4% decrease in consumption (IARC, 2011). When it comes to alcohol, a multi-country (across country income-levels) meta-analysis shows that demand elasticities for beer to be around -0.3, -0.45 for wine, -0.55 for spirits, and -0.5 for alcoholic beverages overall (Nelson, 2013). Demand elasticities for SSBs tend to be slightly higher (in part due to easier substitution). A meta-analysis of 62 studies estimated a price elasticity of demand of -1.59 (Andreyeva et. Al, 2022). Price elasticities also vary across socio-economic groups within a population, as well as gender. Price elasticity is shaped by the availability of close substitutes, habits and cultural environment, traditions, information availability, and presence of other policy measures aimed at harmful products. For example, in some countries, loose tobacco is a substitute for manufactured cigarettes, which would make the elasticity of manufactured cigarettes higher, while this is not the case in other countries. The response of the market will be additionally influenced by the current and planned tax structure, product diversity and heterogeneity in product prices. A tiered structure (a structure with multiple tax rates for the same type of product) may also create more space for consumers to switch to cheaper products and has been shown to be linked to higher consumption of harmful products, i.e., less effective in reducing demand

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<sup>11</sup> A market dominated by a low number of dominant players.

(Ngo et al., 2019). Ad valorem taxes are more vulnerable to policy changes by the industry, such as price or product size reductions. Ad valorem rates also tend to amplify differences in the prices of economic and premium brands, which may motivate consumers to purchase cheaper products while maintaining the same level of consumption in response to a tax hike. Specific excise taxes are more predictable in the short-term and lead to higher reductions in demand; however, specific taxes need to be adjusted for inflation and/or income-growth to prevent tax erosion and increasing affordability, ideally through automatic, law-embedded indexation.

The relationship between price and income growth defining affordability of the harmful products needs to be considered. Income elasticity is mostly positive for the mentioned products, meaning that rising incomes tend to lead to increased demand, except for loose tobacco which can be in some countries considered an inferior good (i.e., its consumption decreases with increasing income) (Cornelsen & Normand, 2014). This in turn means that in economies with growing incomes, prices would have to rise faster than incomes to have the desired effect of reducing demand (IARC, 2011). Growing affordability, i.e. income growing faster than concerned product prices, opens space for tax increases.

Furthermore, there is a lack of conclusive evidence about the total, net effect of excise taxes on the economy as a whole. Nevertheless, experience suggests that the potential negative secondary impacts on some sectors tend to be compensated through other channels in the economy, while industries and consumers would adapt to these changes. For governments, it is especially important to evaluate the potential impacts that new or increased health taxes may have on concerned parts of the economy and population, and, if needed, how to mitigate them. At the end of the chapter, a checklist is provided as guidance on how to assess the secondary impacts of health taxes.

## **2. Adaptation and reformulation**

Both consumers and concerned industries have the tendency to accommodate new conditions. The tobacco industry, for example, continues to generate high profits, even though the majority of countries have a tobacco tax in place (BAT, 2023; Phillip Morris International, 2023; WHO, 2023a). Tobacco companies use price policies or product changes to adapt to new tax structures and to maximize their profits. In 2016, for example, in response to a tax hike the previous year, Thailand's state-owned Tobacco Monopoly introduced a new considerably cheaper brand "Line 7.1" with slightly smaller cigarettes than standard brands which allowed it to fit into a lower cigarette tax tier (Al Jazeera, 2016). Similarly, in response to the global decline of cigarette consumption, the tobacco industry developed e-cigarettes and other heated products (World Health Organization, 2021a; University of Bath, 2023).

Half of the world's population is now covered with a national sweet beverages tax, and yet, the industry continues to thrive (World Bank, n.d.; Coca-Cola Company, 2023; Pepsico, 2023). This can be explained by the fact that consumers tend to shift to different products within the same industry, while the industry itself pursues the reformulation of products (e.g. by lowering the sugar content of beverages) in response to SSBs taxes. Evidence shows that consumers change their consumption patterns in a way that income is re-allocated to the consumption of other goods, even within the same entities, or within the same sector, although the extent of this may vary from country to country (Andreyeva et al., 2022; Breeze et al., 2018; Royo-Bordonada, 2022). In Mexico, for instance, an SSBs tax introduction led to a 6.3 percent decrease in the consumption of taxed SSBs, but to a 16.2 increase in purchases of water (Colchero et al., 2017). Similar results were found in Barbados and in Philadelphia in the U.S. (Alvaro et al., 2019; Barker et al., 2022). Tax design can also play a significant role. When Chile increased the tax on high-sugar beverages and decreased the tax on low-sugar beverages, consumers responded by decreasing purchases of the first category and increasing purchases of the latter (Caro et al., 2018).

In South Africa, the introduction of a SSBs specific tax per gram of sugar led to a 51 percent decrease in sugar consumption from the taxed beverages (Stacey et al., 2021). Around 70 percent of the sugar reduction was attributable to the change in consumer behavior, while the remaining 30 percent was

attributed to the reformulation of products when producers reduced the sugar content (Essmann et al., 2021). In the UK, after a SSBs tax implementation, the total sugar consumed from soft drinks declined by 2.7 percent, while overall volumes of soft drink purchases increased by 2.6 percent, due to product reformulation to a large extent (Rogers et al., 2023).

The alcoholic beverages industry is no exception to accommodating to tax changes and changes in consumer preferences. In response to consumer demand, a larger variety of low- or non-alcoholic alternatives (so-called NoLos) are now on the market, including low- or non-alcoholic wines and spirits. The market of low- and non-alcoholic beverages has been growing 5 percent annually between 2018 and 2022 and is expected to grow by 7 percent annually between 2022-2026 (IWRS 2021).<sup>12</sup>

In some settings, taxes on harmful products are currently so low that they allow the industry to increase its margins. For instance, in Timor-Leste, between 2012 and 2018, the share of tax in the retail price of cigarettes fell from 33.51 percent to 21.79 percent due to the lack of adjustments of the specific rate to inflation. Despite that, the retail prices continued increasing and did so beyond inflation. In 2017 and 2018, when the inflation was 0.52 and 2.29 percent respectively, the price increased by 33 percent (International Union Against Tuberculosis and Lung Disease, 2021). This suggests that there is space in the market for price increases and therefore for potential tax hikes without hurting the economy or affecting employment in the concerned industries.

The tendency to accommodate of both the industries and consumers implies that potential spill-over effects on employment, as well as governmental total revenues (i.e., knock-off effects on revenues from other taxes such as income tax or VAT) may not be negative.

In the very long term, with the view of the primary goal of the health taxes of reducing consumption, the tax base of health taxes on tobacco, alcohol and SSBs may shrink. However, so far, health taxes continue contributing considerably to national budgets. Even in countries with the lowest smoking rates, such as Panama, tobacco tax revenues bring substantial funding to oncology programmes and other policies (World Health Organization, 2021b). Even if the revenue from health taxes may be not as significant as from other taxes, empirical evidence shows that there is often still a considerable revenue increase as indicated in chapter 3.

A thorough analysis of the market can help to assess the potential impacts of a tax change. This can be based on current data, experience from past reforms or from similar settings in other countries or regions. The analysis could be done in cooperation with independent actors, such as universities. Understanding the attitudes and preferences of consumers can help to estimate potential changes in demand for products in other price categories or substitutes. The analysis should also include evaluation of the availability of healthier options and the possibility to influence consumers' behaviour through other policy measures, for example subsidies on healthier alternatives. Improving access to safe drinking water for example can offer a cheap healthy alternative to sweet beverages as well as support positive impacts of health taxes on the environment through reducing plastic pollution.

Ensuring that the tax design does not create space for price manipulations and other strategies taken by the industry to avoid the tax that could undermine the health goal as well as ensuring that all relevant products are taxed contributes to more predictable tax revenues and amplifies the effect of health taxes on consumption. While this may lead to a bigger impact on the industry, it would strengthen the effects on demand reduction, health and therefore on equality and equity. In many countries, for example, milk-based sweet beverages are not covered by the tax which not only reduces the tax base, but also leaves an important source of sugar consumption untaxed. Incomplete definitions of the taxed products, especially for tiered structures or differential rates, tend to create loopholes in the system allowing

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<sup>12</sup> WHO has raised concerns about about the impact of NoLos and missing evidence about their effects on alcohol consumption and other potential risks, for example misleading minors, pregnant women, abstainers or those seeking to stop drinking about their actual ethanol content (WHO, 2023).

industry to profit from the gaps. The effect of health taxes could be supported by other policies, for example campaigns providing information on the consumption health-harming products and on healthier options that could help redirect consumers towards healthier products. This may be stimulated by retailers through good positioning in the stores, where giving more space to healthier products encourages selection of healthy options and enjoys public support (Gómez-Donoso et al., 2021). Consumer preferences contribute to shaping industry product offers and may provide an additional nudge to the industry to reformulate existing products or to introduce new ones. While for tobacco, early announcement of the tax hike may lead to pre-stocking, this is less likely in the case of SSBs and alcoholic beverages due to their higher volumes (Commission of the European Communities, 2008). An early announcement of the tax can on contrary give time for the industry to reformulate their products toward healthier options, especially if the tax design motivates industries to do so and if the business environment is supportive of innovation, research, and development.

### 3. Impact on employment

One of the most frequent fears and counterarguments against health taxes is the loss of jobs in concerned sectors, namely manufacturing, distribution, retail, and hospitality. If the concerned sectors pass on the full health tax, they fear a drop in demand and revenue due to the higher prices. If, on the other hand, they fully or partly absorb the tax, their profit margins would be reduced, which could eventually force them to close their business. This could especially be the case in the hospitality sector that is already characterized by low margins and was particularly hit in many countries by the COVID-19 pandemic (OECD 2023; The American Consumer Institute Center for Citizen Research, 2023). Such fears, though, are often fanned by the industry itself, including through the financing of studies supporting their claims, in an effort to discourage governments from the tax increases (Chaloupka & Powell, 2019). It has been shown that such studies often overestimate the potential impact of consumption reduction policies by relying on employment data from the industry and by looking only on impacts on the industry itself (gross employment effect), but not on the economy as a whole (net employment effect) (National Cancer Institute, 2017; Warner, 1995; Price Waterhouse, 1990; Price Waterhouse, 1992; Tobacco Merchants Association, 1996; Wharton Applied Research Center, 1980).

The impact of health taxes on employment in the taxed sectors depends on several factors mentioned above. While there might be some job reductions in the taxed industries, contrary to the industries' arguments, evidence suggests that health taxes can have a positive or neutral effect on overall employment and productivity, especially if the tax revenues are used to finance public spending or reduce other distortionary taxes. This means that potential job losses in the taxed sectors are often offset by a gain in employment in other sectors of the economy (Marquez & Dutta, 2020; Chaloupka & Powell, 2019; Andreyeva et al., 2022).

The World Bank (2020) found that introduced SSBs taxes had no negative impact on employment in the beverage industry (or even the retail industry), and in some cases even led to net employment gains. Increase of SSBs tax in Peru by 8 percentage points (from 17 percent to 25 percent) in 2018<sup>13</sup> did not lead to job or wage losses in the concerned industries, including the manufacturing sector (Díaz et al., 2023). Similarly, the introduction of an SSBs tax in Mexico (1 peso/liter) (and an 8 percent tax on non-essential energy-dense food) in 2014 led to no decrease in employment associated with the tax in the production and retail sectors, and there was no increase in unemployment on the national level (Guerrero-López, Molina, & Colchero, 2017).

An OECD report highlights the (although limited) evidence that net employment effects of alcohol taxes are positive. The tax-induced declines in employment in the alcohol industry often lead to increases in other industries (e.g. vineyards being transformed into agricultural land), stimulated by re-investment

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<sup>13</sup> The measure was followed by obligatory front-of-package warning labels on processed and ultra-processed foods and beverages high in sugar, saturated fats, and sodium or containing trans fats in 2019.

of the excess tax revenue of the government (e.g. through increases in public services), redirection of spending by consumers as well as lower health-related unemployment (OECD, 2023).

Moreover, the tobacco industry itself has been one of the main causes of decline in employment in tobacco manufacturing. This is due to technological progress, automatization, and privatization of public tobacco companies which tends to increase effectiveness in the production. The vast majority (80 percent) of global employment in tobacco manufacturing is concentrated in only 3 countries: India, Indonesia, and China. And even there the share of employment in tobacco manufacturing as total employment has been small with 0.1 percent in India, 0.5 percent in Indonesia, and 0.04 percent in China and declining. In the majority of countries, the contribution of tobacco manufacturing to GDP remains way below 0.5 percent, which is very low given that total manufacturing on average contributes to around 17 percent of GDP (Vulovic, 2018). In Pakistan for example, which is the ninth largest tobacco growing country, it was estimated that tobacco farming and cigarette manufacturing made up 0.33 percent of the country's GDP (no separate data by tobacco rowing and manufacturing are available) and cigarettes industry created only 0.2 percent of all industrial jobs in 2020 (Sabir et al., 2021).

Additionally, in assessing the impact of health taxes, consideration should be given not only to the number of jobs potentially lost, but also to the quality of these jobs and potential alternatives. Some of the jobs created by the industries may lack desired quality. For example, in the UK, the alcohol industry created around 2.5 percent of the jobs in the country, with 80 percent in retail, especially on-trade (restaurants, pub and bars, and similar). However, only 35 percent of these jobs were full-time. And while jobs in alcohol production were well paid, indirect jobs in retail were among the lowest paid in the economy (Institute of Alcohol Studies, 2020). Tobacco production workers can suffer from some health conditions, mainly from exposure to chemicals, nicotine and dust (Greenhalgh, 2022). Moreover, it has been documented that alcoholic beverages and cigarettes production involve child labour (U.S. Department of Labor, 2022).

To minimize net job losses resulting potentially from health tax, health taxes may be implemented as part of a comprehensive package of interventions aimed at behavior change and to ensure that additional tax revenue is used to create new jobs (World Bank Group, 2020; Wada et al., 2017).

Health taxes could require business models to be adapted and thus leading to increased costs and further price increases. For example, a nightclub that relies on alcohol sales might need to shift towards hosting concerts or other events, or to switch to more family-friendly model, which would require measures such as re-training staff and re-organizing supply chains (IARC, 2011). Providing support in re-training and entrepreneurship in the potentially affected sectors, or to strengthen social policies securing safe and flexible social network that motivates people in job search could facilitate adaptation of the touched sectors. Compensatory measures, such as cash transfers, tax reliefs or education grants can be some of the tools to support factory workers to switch to other sectors and throughout the transition process (Vulovic, 2018; Araujo et al., 2018). Flexible and simple social and legal systems encouraging employment and entrepreneurship, including establishment of one-stop-shop for business registration, could alleviate any potential losses caused by the tax hike. Furthermore, incentivising the reformulation of products and the redirection of consumer spending towards healthy alternatives, for example through reduced VAT rates, could also lessen any negative impacts. Clear and enforceable legal frameworks may significantly facilitate health tax implementation and mitigate negative impacts. Is it also good practice to announce increases in health taxes well in advance so that owners have time to prepare and adjust their business models or supply chains, e.g. through reformulation (World Bank, 2023; OECD, 2021). Guidance in shifting business strategies towards a focus on healthier products should be provided, and directed especially at smaller establishments and those in regions where there is little leeway in pricing.

Finally, when forecasting potential additional revenues from excise taxes, the government should use conservative estimates to prevent potential gaps in budgets and to prevent opposition from health tax

opponents if the promised tax revenues are not materializing. On the other hand, it is essential to evaluate the impact on other taxes, such as on VAT revenues.

#### 4. Impact on farmers

Health taxes aim at lowering the consumption of the taxed goods, which can ultimately lead to a decrease in demand for raw materials used in production of these goods. This in turn can cause the loss of jobs or income for farmers of tobacco for tobacco products, sugar beet and sugarcane for SSBs and rum, barley for beer or whiskey, grapes for wine, potatoes for vodka and other, such as corn, rice, rye, and wheat for other spirits. While some of the crops can be used for nutrition too, some (like tobacco) cannot, and in case of tax-induced decrease in demand for tobacco, alcohol and SSBs farmers may need to switch to other crops or income-generating activities. Considering the impact of health taxes on farmers is therefore an integral part of the decision-making process.

The scope of the farming of each concerned crop, and therefore also the potential impact, varies greatly across countries and is often concentrated in a few dominating countries. Globally, 5.8 million tons of unmanufactured tobacco was produced in 2022. However, almost 40 percent of this production happened in China and 70 percent of the total production was concentrated in only 5 top producing countries (China, India, Brazil, Indonesia, and the United States of America) (FAO, 2024a). Similarly, from the 2.2 billion tonnes of sugar cane and sugar beet produced in 2022, 66 percent was concentrated in top 5 producers (Brazil, India, China, Thailand, Pakistan) (FAO, 2024a). And although sugar cane has multiple uses, such as biofuels and agriculture, 70 percent of the total production is estimated to go towards human consumption (Thow et al., 2021). When it comes to wine, the top three wine producing countries - Italy, France and Spain - accounted for 51 percent of the world production (258 mhl) in 2022 (International Organisation of Vine and Wine; 2022). In some countries, employment in linked farming can represent an important part of overall employment. For example, the Brazilian sugar cane sector employs around 750 thousand people, roughly 25 percent of the rural workforce (International Institute for Sustainable Development, 2023). Around half of the cane goes to the production of sugar (S&P, 2022).

Farming of tobacco and sugar cane has been, nevertheless, linked to serious health and environmental issues and often does not represent the best income-generating option for the workers. In contrary, it has been documented that in many contexts, cash-crops (crops cultivated for selling only and not for direct consumption, such as tobacco, sugar cane, sugar beet) may increase poverty of the farmers (Yang, 2022; Tankari, 2017; Anderman, 2014). In addition, child and forced labour and human trafficking has been connected to tobacco farming. In 2022, children have been found to be involved in tobacco and sugar cane and sugar beets farming in 17 and 18 countries respectively, in breach of the article 32 of the United Nations Convention on the Rights of the Child; forced labour has been discovered in Malawi in tobacco and in 5 countries in the production of sugarcane and sugar beet (Lencucha et al., 2022; ILO 2017; U.S. Department of Labor, 2021).<sup>14</sup>

Chemicals used in tobacco farming expose farmers to respiratory and skin diseases, including green tobacco sickness, a form of acute nicotine poisoning (Bartholomay et al., 2012; Park et al. 2018). Tobacco farmers may absorb the nicotine equivalent of 50 cigarettes per day (World Health Organization, 2023a). Equally, sugarcane farmers are exposed to thermal, chemical, biological, physiological, mechanical, and emotional risks and that they frequently suffer from mental health disorders (Ruths et al., 2023; Bazo-Alvarez et al., 2022). These risks can be even more serious for women, especially if pregnant, and children, due to their lower body weight. Exposure to the mentioned health risks may also lead to increased medical costs for the families and/or loss of work capacity.

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<sup>14</sup> Article 32 of the United Nations Convention on the Rights of the Child allows children to engage in work that is light in nature and not hazardous.



It has been shown that tobacco farmers are often misled by the relatively higher price of tobacco leaf without taking into account the high input and labor cost and thus overestimate their profits (Kidane et al., 2014; Lencucha et al., 2022; Sahadewo et al., 2021; Hussain et al., 2020). Farmers often engage in contracts to cultivate tobacco leaves without set prices, the grading of their product, knowing the costs of inputs, or the proportion of their production they will be able to sell (Lencucha et al., 2022). Prices for which farmers sell their production tend to vary considerably, mainly due to weather during the crop season, which increases insecurity (Sahadewo et al., 2021). Tobacco farmers, especially small-holder farmers, have often very limited bargaining power against larger, more effectively organized buyers resulting in lower prices and limited profit potential (Sahadewo et al., 2021). Buyers also may use coordination strategies to push prices to the bottom, when for example in a region with a small number of buyers only one operates at a time, so that farmers have no other option to sell their product. A number of studies have shown that alternative crops have higher returns than growing tobacco leaf and that tobacco farming is costlier than other crops because of higher input costs as well as more physical labor needed (Hu & Lee, 2015; Lencucha et al., 2022). This means that even farmers with higher profits often fall below World Bank's international poverty line of US\$1.90/day, and that their net income is often negative (Lencucha et al., 2022). For instance, a study in Kenya comparing the social and economic costs and benefits of tobacco to other commercial crops found that tobacco has the lowest economic return per acre (Institute for Natural Resources and Technology Studies, 2007; Hu & Lee, 2015). Additionally, the high input cost often means that farmers end up in debt (World Health Organization, 2023a).

Country case: Malawi

Malawi is the 8<sup>th</sup> largest tobacco producer in the world with over 100 thousand tonnes of unmanufactured tobacco produced in 2022 (FAO, 2024a). Tobacco accounts for 12-15 percent of its GDP (Tobacco Commission, 2021). It also represents a primary export commodity with 46 percent share on the total exports in 2021, making Malawi one of the most tobacco-dependent countries globally (OECD, 2024; CEPII, 2024). Despite the large tobacco production, Malawi remains one of the poorest countries in the world, with 71 percent of the population living on less than \$2.15 per day<sup>15</sup> (World Bank, 2023a). The majority of tobacco farmers (58 percent) continue in tobacco farming because they see it as the only viable option and because of the existence of an organized market which may lack for other crops (10 percent). Only 3.9 percent believed that tobacco farming was highly lucrative (Appau et al., 2020). In 2021, the government in the efforts to improve working conditions of tobacco farmers banned the tenancy system. Under the tenancy system, landowners allow farmers to grow tobacco on their estates in exchange for accommodation, food ratios, inputs for the production, including loans. Tenants are then paid based on the volume and quality of tobacco sold to the landowner at the end of the season after the deduction of the provided inputs (Mwafulirwa, 2023). This system can leave farmers with no or only minimum earnings at the end of the cycle which creates a circle of indebtedness and poverty of the farmers. This also increases the risk of human trafficking and the risk of child engagement in labour as farmers are motivated to increase earnings (U.S. Department of Labor, 2021). In 2022, around 7,000 adults and 3,000 children were reported to be affected by child and forced labour or human trafficking in Malawi (OHCHR, 2022). Children engaged in tobacco production often stayed out of school, whereas women were left often without contracts as these were signed only with male heads of households (OHCHR, 2022). However, despite the efforts to eliminate the tenancy system, employers resist paying their workers regular monthly wages (Mwafulirwa, 2023). The land used for tobacco farming could be used for food. Over 81 thousand hectares of land were used for tobacco farming in 2022, while 3.5 million people (17.8 percent) were undernourished and over 10 million (52.2 percent) suffering severe food insecurity (FAO, 2024a; FAO, 2024b).

Sugarcane farming supports around 100 million livelihoods, often, however, through seasonal and informal work (ILO, 2017). Sugar prices, similar to tobacco prices, fluctuate and may not always cover the inputs invested in the production, therefore leaving farmers' families in insecurity, which can be

<sup>15</sup> US\$ adjusted by the purchasing power parity (2017)

further amplified by weather uncertainty and, in low-income countries, by weaker financing services, infrastructure, or inflation (IISD, 2023; Nyberg, n.d.; ODI, 2012). Small producers may not be always included in unions and even if so, the bargaining power may remain low due to union fragmentation, automatization, legal restrictions and/ or inefficiencies in the union functioning (ILO, 2017). The sugar cane production work is characterized by low wages, long working hours without breaks (often in hot weather), and by causing severe health issues and injuries. Women in the sector are more at risk of having precarious, lower-paid work and threatened by hostile working environment including sexual harassment and assaults, including cases when they were asked for sexual favours in exchange for the job (ILO, 2017). The insecurity of reliable income may increase the motivation of families to involve children in the work, who frequently work in hazardous parts of the process such as agrochemicals application and manual harvesting. As a result, children may live in poor conditions, experience health complications, and miss out on schooling.

Health taxes may lead to job losses in linked farming. It is, however, important to consider all the factors of the potential effects, i.e., assess not only the number of people employed by the sector, but also their working and socio-economic conditions stemming from farming the concerned crop, and use available tools to accentuate potential positive aspects. Switching from tobacco or sugar cane farming to other crops (or potentially other income-generating activity) may help farmers to be better off. For example, in a study in Thailand, most tobacco farmers' quality of life was below average<sup>16</sup>, almost all of them (96 percent were indebted) and around 60 percent of them wanted to stop growing tobacco. They proposed the government should assist in the transition to other crops by creating a market for alternative products, securing a price for alternative crops, providing low-interest loans and support in retraining to change to other occupation. (Phetphum et al., 2022). Governmental policies may be indeed essential in encouraging the switch because many of the farmers have grown up under the narrative that tobacco/sugarcane farming is the only viable option (World Health Organization, 2023b). Farmers may not be aware of the potentially better conditions in farming other crops or about the disadvantages they may be currently experiencing, including health risks. It is important to tackle the 'narrative of prosperity' by providing information on the comparison of profitability of tobacco/sugarcane farming to other options (Lencucha et al., 2022). Similarly, education campaigns can help farmers better understand the health hazards of tobacco farming (Bartholomay et al., 2012; Park et al., 2018).

Providing farmers with information about alternative crops and their markets, improving value chains to support added value for higher profitability compared to raw materials, and strengthening infrastructure (e.g., better roads, wells and irrigation) could also facilitate the transition to new production (Li et al., 2019; Kumar et al., 2011; Burney & Naylor, 2011). Tobacco farmers often receive cash loans and upfront inputs from tobacco companies which may be key aspects in the decision to stay in the given crop farming as they may have limited access to other inputs and financing opportunities. Governments could offer similar support initiatives in the of alternative crops to help make a shift attractive for farmers (Lencucha et al., 2022). In Indonesia, for example, almost all farmers identified lack of access to credit or capital as one of the main barriers for moving away from tobacco (Sahadewo, 2020).

In fact, Article 17 and 18 of the WHO FCTC describes how governments can assist farmers through providing agricultural technical advice, connecting them with essential supplies and services for their farming activities, offering financial aid to boost the production of nutritious foods, and shifting focus from tobacco to alternative crops (World Health Organization, 2023a). Lastly, it is also important to root out the myths of economic benefits of tobacco production not only at the level of the farmers, but also at government and ministry levels (Lencucha et al., 2022).

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<sup>16</sup> Measured by a series of items with scale options.

## 5. Equity and equality

### a. Impact on households and low-income groups

Governments and the public may be concerned that health taxes will represent an additional economic burden for households, especially for low-income groups, and that health taxes are regressive. This claim is frequently used as one of the main arguments against health taxes. In the wider perspective however, health taxes tend to benefit low-income groups and bring them net benefits. NCDs tend to be disproportionately clustered in lower socioeconomic groups of a society, further taking a toll on patients and their families (World Health Organization, 2023b). Higher exposure to risk factors ultimately creates health inequalities, which are linked to increased poverty due to multiple factors. Primarily, low-income groups tend to spend a larger portion of their budgets on tobacco and alcohol than richer peers (Jolex & Kaluwa, 2022). They also have worse access to health care and insurance (World Health Organization, 2023b). To make things worse, low-income group members, when they lose income due to an NCD, may not be able to tap into savings or sell assets like their richer peers. On the other hand, low-income groups tend to respond more to price changes and therefore reduce their consumption more in the wake of a tax increase (WHO FCTC, 2010). In the short term, health taxes can indeed be regressive (tax burden falls more on low-income populations). Lower income consumers, nevertheless, tend to have higher price elasticity, meaning that their consumption would drop more than other groups. In the longer-term therefore, this would lead to reduced harmful consumption and prevalence of associated diseases and thus to lower medical costs and increased earnings from increased years of productive life. Short-term increases in prices are offset by long-term benefits, which are manifested in higher quitting rates that result in longer working life and reduced medical costs (World Bank, 2019).

A comparative analysis across eight countries demonstrated that, despite the first short-term price shock affecting low-income groups, when considering the change in household tobacco expenditures, the change in medical expenditures and change in years of productive life lost in longer term, the effect on net income of health taxes was positive for various socio-economic groups, but mainly low-income groups, in all the countries included in the study (World Bank, 2019). After the introduction of the SSBs tax in South Africa, low-income households reduced the consumption of taxed beverages more than their richer counterparts (Hofman et al., 2021). In the medium to long run, this means that health taxes are progressive because the health and economic benefits for low-income populations exceed the ones for high-income populations (World Health Organization, 2023d.; World Bank, 2020).

To ensure the positive effect on low-income groups, the tax design should not encourage consumers to switch to cheaper unhealthy products both within product groups as well as substituting products. For example, both manufactured cigarettes and loose tobacco should be taxed at equal levels. Similarly, taxation of alcoholic beverages should be set in such a way that does not motivate consumers to switch between beverage types. Combining the tax policy with other policy measures focused on the harmful consumption, such as awareness-raising, health warnings or front labelling, sales regulation, or free cessation provision could support the response of consumers, especially those in low-income groups for which accessing information and services may be otherwise more difficult. Making healthier alternatives available could also enhance the impact of health taxes on low-income groups. This could include making safe tap drinking water accessible as an alternative to SSBs and ensuring that healthy beverages are available, particularly at schools and other places frequented by children and youth. Affordability of healthy options can be supported by not including un-sweetened beverages under the tax and potentially by using other tax incentives to reduce their price, e.g., an exemption from VAT. The net benefit for low-income groups is achieved through reduced NCDs prevalence and linked medical costs and through better capacity to work. Encouraging and strengthening preventive healthcare could further augment this effect of health taxes as well as using the revenue for social protection or programmes supporting well-being. For example, in France, 50 percent of the tax revenue collected from sugar-sweetened beverages is earmarked to support the social security system (Le Bodo et al., 2019). In Paraguay, 40 percent of revenues from tobacco excise tax are directed to the Ministry of Health for prevention and treatment of NCDs and 18 percent to the National Development Sports Fund (World Health Organization, 2021b).

## **b. Gender impact**

One of the arguments against health taxes may be the fear that increased health taxes could burden the family budget, which can also be particularly bad for women as they often have less control over household finance and that they may not benefit from the tax as much as men. Low taxation of health-harming products, however, equals to “subsidizing” their consumption because the product price does not cover the true cost of the consumption. Tobacco, alcoholic beverages and SSBs are more often consumed by men than women. It is nevertheless the whole society that bears the burden of the harmful consumption. Low taxation of these products goes against the principle of gender-equality as women carry the burden disproportionately. Health taxes increase the price of harmful products to better reflect the true cost of the consumption and therefore eliminate some of the gender-unequal impacts.

NCDs are responsible for 76 percent of deaths among women. They kill almost 20 million women every year, making them the number one cause of death. Over 2.4 million of these deaths can be attributed to tobacco, alcohol or SSBs consumption (Global Burden of Disease, 2019). Tobacco use is one of the main preventable risk factors of premature death and disease in adult women (World Health Organization, 2010). Women smokers have higher risk of cardiovascular disease than men smokers, an increased risk of breast and cervical cancer, infertility, early menopause, and osteoporosis (Huxley & Woodward, 2011; Gaudet et al., 2013; Pierce et al., 2014; Roura et al., 2014; Bolumar et al., 1996; Caserta et al., 2013; Hayatbakhsh et al., 2012; Cornuz et al., 1999; Kanis et al., 2005). Lung, tracheal and bronchus cancer kills annually around 650,000 women globally, making it the second leading cause of death in women after breast cancer. Around 40 percent of these deaths is attributed to smoking (GBD, 2019).

While tobacco consumption rates seem to be declining, the proportion of female smokers increases in some countries (as women gain more purchasing power, social norms that prevented women from smoking change and the tobacco industry target women with increased intensity) (World Health Organization, 2010; NCD Alliance, 2010). It is estimated that in 2030, around 2.5 million women will die due to tobacco (NCD Alliance, 2011). Moreover, women are more often victims of secondhand smoke. Almost 700,000 women die annually due to secondhand smoke exposure which is with around 80 thousand more than men (53 percent of secondhand smoke deaths are women) (GBD, 2019). Women around the world frequently do not have the power to negotiate smoke-free environments, including at home (NCD Alliance, 2010). Reducing exposure of women to secondhand smoke can have significant health benefits, for example, lower risk of breast cancer (Gram et al., 2021).

Alcohol consumption per capita globally has increased in the last 20 years around the world, especially in low-income countries (World Health Organization, 2011). Women are more likely to experience physical illnesses caused by alcohol faster than men even with lower levels of alcohol consumed. This includes higher risk of liver disease, more significant brain damage and cognitive decline and heart muscle damage that can occur for women with lower levels of consumption or within a shorter period of consumption. Alcohol consumption has been linked to increased risk of mouth, throat, esophagus, liver, and colon cancers; however, for women also with increased risk of breast cancer even at low level of consumption (Erol & Karpyak, 2015; Roerecke et al., 2019; Rehm et al., 2020). Heavy alcohol use in women has been linked to issues with reproductive health (Nolen-Hoeksema, 2004). Gender-biased perception that women drink less can reduce the probability of early detection and treatment of alcohol-related issues for women (NCD Alliance, 2010). In addition, more than 86 thousand women die annually due to intimate partner violence, a risk which is increased by the perpetrator and victim’s prior alcohol consumption, both in frequency and severity (GBD, 2019; World Health Organization, 2006). Alcohol consumption in women was linked to higher risk of experiencing physical attack and sexual assaults (Nolen-Hoeksema, 2004). Reducing alcohol use through taxes could prevent many girls and women from experiencing gender-based violence and decrease femicide rates (World Health Organization, 2006; Pan American Health Organization, 2015; Durrance et al., 2011).

The number of women and girls consuming tobacco and alcohol in low- and middle-income countries grows due to the changing gender norms, aggressive industry marketing, and population growth and is likely to continue growing without corresponding action taken to prevent consumption the harmful products (Feeny et al., 2021).

SSBs are becoming more and more affordable, which may support an increase in consumption, including among women (Blecher et al., 2017). Impact of sugar and SSBs consumption may be also different for women and men. Women have twice the probability of being overweight or obese just based on their biological aspects, twice the risk of dying on obesity-related causes and experience higher risk of mental and physical health issues linked to obesity than men (Kapoor et al., 2021).

Even though women tend to consume less of the harmful products, such consumption can have intergenerational consequences and is worth to take the gender differences into account. Women with NCDs (especially if untreated) have a considerably higher risk of pregnancy complications. This may affect their health as well as the health of the child. For example, hypertension and linked conditions, such as preeclampsia and gestational hypertension, are responsible for 10 to 15 percent of maternal deaths in low-and middle-income countries (Schierhout, 2021). Offspring of mothers with uncontrolled NCDs have higher chances of experiencing poor health later in life, including hypertension, diabetes, chronic renal impairment, heart disease and other conditions (Schierhout, 2021). Smoking during pregnancy, as well as exposure to secondhand smoke, increases the probability of pregnancy complications, preterm delivery and low birth weight which rises the changes of the baby dying, having long-term health complications or disabilities (U.S. Department of Health and Human Services, 2010a; U.S. Department of Health and Human Services, 2010b). Consumption of alcohol during pregnancy has been shown to increase the chances of miscarriage, stillbirth, and a long list of lifelong disabilities in the child, such as abnormal face and body features, heart, kidney and bone health issues, low body weight, lower height than average, poor coordination, hyperactivity and problems with concentration and memory, learning and intellectual disabilities, worse school outcomes and lower IQ, and developmental delays (Center for Disease Control and Prevention, 2023). Kids of women who consumed alcohol during breastfeeding have been shown to have lower educational achievements (Gibson & Porter, 2012).

Babies of mothers who are exposed to smoke or consume alcohol during pregnancy and breastfeeding or babies living in households where tobacco and alcohol are consumed have considerably higher risk of dying from the sudden infant death syndrome (SIDS)<sup>17</sup> early in their lives (Eunice Kennedy Shriver National Institute of Child Health and Human Development, n.d.).

On top of that, the consumption of sugars, especially from SSBs and juices, and including consuming diet sodas, during pregnancy and in early breastfeeding has been shown to change the infant's brain structure, worsen the infant's neurodevelopmental outcomes at the age of two and educational results later in life (Berger et al., 2021; Berger et al., 2020; Cohen et al., 2018). Increased consumption of sugar during pregnancy contributes to maternal obesity and metabolic health complications in the child, such as obesity, insulin-resistance, or increased blood pressure. Consumption of SSBs, and beverages with artificial sweeteners, was linked to an increased risk of preterm delivery (Englund-Ögge et al., 2012). Furthermore, high sugar consumption during the breastfeeding period contributes to higher risk of obesity in the child later in life (Ferreira-Junior & Cavalcante, 2023).

In low and lower middle-income countries, in which 70 percent of all deaths caused by HIV/AIDS occur, the majority of victims are women (GBD, 2023). Tobacco and alcohol consumption worsen these numbers. Alcohol consumption heightens the chances of risky behaviour that may lead to HIV/AIDS

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<sup>17</sup> Sudden Infant Death Syndrome is an unexplained sudden death of a seemingly healthy infant, most frequently under 1 year of age. The cause of SIDS is not known and is probably linked to the development of the brain. However, certain factors have been linked to increased risk of SIDS, such as low birth weight, smoking or alcohol consumption of the mother during pregnancy, exposure of the child to secondhand smoke, or consumption of alcohol of parents when bedsharing.

infection and increases the risk of gender-based violence which then makes women vulnerable to sexually transmitted diseases, including HIV/AIDS (UNAIDS, 2023, December 15). People with HIV are more likely to use tobacco and have higher rates of alcohol disorders (American Cancer Society). On top of that, compared with the general population, individuals living with HIV are at considerably higher risk of being diagnosed with AIDS-defining cancers: 500 times higher risk of Kaposi sarcoma, 12 times of non-Hodgkin lymphoma, and 3 times higher risk of cervical cancer for women, as well as with non-AIDS-defining cancers, including lung cancer, and have worse outcomes (Hernández-Ramírez, 2017). Alcohol contributes to comorbidities in HIV positive individuals. Alcohol consumption weakens the immune system that is already damaged by the virus in HIV-positive persons which reduces the ability of the body to fight common illnesses, such as flu, and other infections, and weakens the body in the fight against severe diseases, including cancer. Alcohol consumption increases the risk of high cholesterol which is already elevated for HIV-positive persons and may speed up liver damage for HIV positive people who also have hepatitis. The brain of HIV positive individuals seems to be more affected by alcohol consumption (Alcohol Rehab Guide, 2023).

Smoking too can worsen outcomes for HIV positive individuals through multiple channels. Preventing smoking could avoid 24 percent of non-AIDS-defining cancers and 37 percent of myocardial infarctions in HIV positive persons as HIV positive smokers have 82 percent higher risk of heart attack than HIV positive non-smokers (Althoff et al., 2019). Smokers with HIV have six years shorter life expectancy than their non-smoking peers (Aidsmap, 2021). Smoking doubles the probability of death for people on HIV treatment (Aidsmap, 2021).<sup>18</sup> Reducing harmful consumption of tobacco and alcohol can improve and save lives of people with HIV, especially women.

Expenditures on health-harming products tend to steal considerable portions of family budgets; only for tobacco the percentage varies from close to 1 percent in countries such as Mexico and Hong Kong to nearly 10 percent in Zimbabwe and China (Selvanathan and Selvanathan, 2005; Wang et al., 2006; John, 2008). Family budgets spent on harmful consumption could be better used, for example on education, food, clothing, or housing, including clean fuels, which may impact women and children more than men. Especially in developing countries where household budgets are often very limited, the opportunity costs of crowded-out household expenditures are higher, especially for women and children, not to mention the related costs of healthcare linked to harmful consumption. Tobacco consumption within household has been shown to have negative impact on nutrition intake. Health-harming products consumption therefore seems to have a negative gender effect (John, 2008). While in OECD countries, on average, girls tend to attain higher levels of education and lifetime income (OECD, 2023b), in settings with lower incomes this is not true. There is a correlation between socio-economic status and gender attitudes in families and the educational gap favouring boys in these settings. Redirecting resources from tobacco, alcohol and sugary drink consumption could help to close this gap and to contribute to gender equality by supporting female human capital development (Hervé et al., 2022).

Moreover, decreasing NCD prevalence could allow women and girls to advance their educational and income-generating opportunities, as women and girls are often those taking care of a sick family member (NCD Alliance, 2011). When women remain at home caring for family members or the household, it brings opportunity costs in form of foregone earnings. If then the man, who brings the only source of income, becomes sick due to harmful consumption, the opportunity costs relatively increase further. Women experience barriers in accessing healthcare, including prevention, detection, and treatments. The barriers are socio-cultural, such as household responsibilities, higher likelihood of illiteracy and reduced access to health information, economic and geographic barriers, as well as barriers in the health system as such where specific needs of women may not be respected (NCD Alliance, 2010).

Finally, women are exposed to health-harming substances, such as fertilizers and pesticides, and harsh conditions in tobacco and sugarcane farming. About 7 in 10 tobacco farm workers are women (World

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<sup>18</sup> Cancers of the lung, liver, kidney, anus, head and neck, and skin, as well as Hodgkin's lymphoma.

Health Organization EMRO, 2017). Tobacco farming women, due to their lower body weight, are more likely to experience several serious health issues, including miscarriage for pregnant women, and are at higher risk of poisoning by agrochemicals used or nicotine (World Health Organization, 2023). Evidence also suggests that women in households involved in farming of commercial crops, such as tobacco and sugarcane, are more likely to be disempowered, very rarely own land and have limited access to financial services (Mahofa et al., 2022; Hu & Lee, 2016).

On the other hand, women tend to be more responsive to price changes and benefit from health taxes both directly (stronger decrease in consumption) and indirectly (less second-hand smoke, more available family budgets, switching to other income-generating activity, etc.) (Ngo et al., 2019; Awawda et al., 2021; Nelson, 2014). It is important to consider impacts of harmful consumption on women and potential effects of health taxes when considering the tax change, as well as other policies in place.

Assessing gender impacts of tax measures would allow to estimate potential effects of tax changes on women. Gender empowerment policies should be in place to support access of women to the labor market, financial services, education, and financial and health literacy. Programs supporting cessation should include gender aspects to be able to target and support both women and men according to their often-different needs, which can increase the chances of quitting (Minian et al., 2016). Women with nicotine addiction had a 31 percent lower success rate in quitting cigarette than men and are more likely to experience cravings for cigarettes when in stress (Alasmari et al., 2015; Lerman et al., 2014). Health taxes could play an important role in women quitting given their price sensitivity. Alcohol treatment programmes often are not adapted to gender differences and reflect mainly the needs of men (NCD Alliance, 2010). Similarly, information campaigns should provide gender specific information, as women experience different effect of harmful consumption and the differences in impacts are less known to the public. Women-specific health education and quitting programmes are rare, especially in low- and middle- income countries (World Health Organization, 2004). The additional revenue stemming from health taxes could be used to enhance access of women to healthcare or poverty reduction and prevention, which could increase public support (World Health Organization, 2016).

## **6. Other potential effects and concerns**

### **a. Illicit trade and cross-border shopping**

Governments are frequently concerned that tax increases would fuel illicit trade in the country of the given product. Illicit trade as an argument against tax increases has been commonly used by the tobacco and alcohol industry. Globally, among excisable goods, around 50 percent of seized products are cigarettes, 31 percent alcoholic beverages, 16 other tobacco products and around 3 percent cigars and e-cigarettes (World Customs Organization, 2023). However, evidence shows that in reality there is a very weak causal relationship and that the impact of taxes and prices on the share of the illicit cigarette market in a country is relatively small (Petit & Nagy, 2016). Illicit cigarette markets are more common in countries with low cigarette taxes and prices, and less common in countries with high cigarette taxes and prices (National Research Council and Institute of Medicine, 2015). Other factors, such as administration capacity, strength of the regulatory framework, including penalties, the social acceptance of illicit trade, and the availability of informal distribution networks play a more important role in determining the scope of illicit trade and smuggling of tobacco products (Chaloupka et al., 2015). The absence of significant connections between the price ratios of illegal to legal cigarettes and the decision to choose illegal cigarettes indicates that smokers are not likely to switch to illegal cigarettes when the prices of legal ones go up (Curti et al., 2015). The tobacco industry has fueled the illicit trade argument by paying studies to support their claim and to exaggerate the real scope of the illicit market size. Nevertheless, it has been documented that the tobacco industry's claims about the illicit market size had been often misrepresentations (John & Ross, 2018) and the studies provided by the industry had methodological limitations (Gallagher et al., 2019). In addition, in some cases, the tobacco industry uses the tax as an excuse to increase the prices beyond the tax hike, as happened for example in the UK, suggesting, that the illicit trade argument is false (Hiscock et al., 2019).

Moreover, when prices of legally sold cigarettes increase, prices on the illicit market tend to follow the price increase as well, which both discards the theory of illicit trade grown with tax increase and would discourage demand (Joosens & Raw, 2012; Goodchild et al., 2022; Paraje et al., 2022; Carvalho Figueiredo et al., 2021). And to the contrary, maintaining low taxes to keep the prices of legal cigarettes low to prevent people from switching to illicit market does not guarantee that the prices will really remain low. In Brazil, the tobacco industry increased prices of the legal cigarettes despite taxation below inflation to increase its margins (see below) (Iglesias, 2016). In the UK on the other hand, inflation-adjusted prices of cigarettes have continued growing since 2001 thanks to regular tax increases while the share of illicit trade in the cigarettes market has been falling considerably during the same period (TobaccoAtlas.org, 2023).

Country example: Brazil

A tobacco tax reform in Brazil coupled with a track and trace system is followed by a reduction in smoking prevalence and an increase in tax revenue. In 1999, Brazil decreased the excise tax share in the cigarettes' retail price (to 25 percent from 30 percent) in an attempt to fight illicit trade and switched from a single-rate ad valorem tax to a multi-tier specific tax. Adjustments to the specific rate in the following years were always below inflation in order to maintain low real prices of legal cigarettes and to make them competitive with the illicit, cheaper ones. Meanwhile, the tobacco industry in Brazil increased prices in an attempt to expand profit margins and tried to obstruct cooperation efforts between Brazil and Paraguay (Iglesias, 2016). In 2011, Brazil implemented a reform which introduced a system combining ad valorem and specific tax options and included minimum prices and minimum regular adjustments based on the expected inflation (Iglesias, 2016). The reform, together with the widening of smoke-free environments, advertising bans following the ratification of the WHO FCTC in 2005, and the implementation of the track and trace system in 2007, led to a decline in smoking prevalence from 15.6 percent in 2006 to 10.8 percent in 2014 and an increase in cigarette excise tax revenue by 20 percent (in real terms) from 4.2 billion reals in 2011 to 5.3 billion reals in 2014 (Szklo et al., 2022; Iglesias, 2016; World Health Organization 2017).

The tobacco industry has been shown to be directly or indirectly (by weak due diligence) part of illicit trade in multiple occasions and in many regions, including the EU, Asia, Eastern Europe, Latin America, the U.S., and the UK (Gilmore et al., 2018; Sweeting et al., 2009; European anti-fraud office, 2023; Reuter et al., 2015). Even according to industry data, around 70 percent of illicitly traded cigarettes are legally produced cigarettes by the industry itself (Philip Morris International, 2022). Illicit trade is used by tobacco companies as a strategy to penetrate a new market, as a way to get and keep people addicted through lower prices on the illicit market. The industry also uses the pretext of illicit trade to maintain relations with governments and agencies and to picture itself as part of the fight against illicit trade tobacco (Exposetobacco.org, 2021).

Country case: Canada

Between 1980s and 1991, Canada has significantly increased inflation-adjusted prices of cigarettes through tax hikes which led to successful reduction of consumption by a third. However, the tobacco industry found a way to undermine the governmental efforts. Tobacco companies exported their cigarettes to the United States bearing the "for export only" stamp (and therefore untaxed) and then engaged indigenous groups living near borders to smuggle the cigarettes back into the Canadian market for illicit trade. Around 70-80 percent of contraband smuggled into Canada in this period originated in Canada (Sweeting et al., 2009). Their strategy and lobbying the government bore fruit as the Canadian government lowered in 1993 cigarette taxes to curb the illicit market. In 2004 the scheme was discovered and in 2008 the two concerned tobacco companies agreed to pay a fine of CAD 1.15 billion (around USD 850 million) in a settlement agreement admitting their involvement. It was estimated that before the scheme was discovered, between 30 to 40 billion cigarettes was smuggled into Canada and that the lower prices caused by the tax cut led to tens of billions more cigarettes being consumed. It is assumed that 1 million cigarettes cause 1 death. Therefore, the cigarettes consumed in excess as a result



of this tobacco strategy will eventually lead to tens of thousands of deaths in the country (Jha et al., 2020; The Government of Canada, 2008; World Bank, 2019b).

Globally, the tax share in tobacco retail price continues growing and consumption falling, yet illicit trade does not increase (Paraje et al., 2023).

Tax and price differences are some of the incentives behind illicit trade with alcoholic beverages; nevertheless, again other factors, such as the legal framework determining penalties, sales regulation and similar, cross-country cooperation, profitability of illegal activities due to price differences between legal and illegal alcohol products, the ability to infiltrate legitimate markets with illicit goods, the risk of law enforcement apprehending illicit traders and other factors, including public acceptance of illicit alcohol and knowledge about potential risks, influence strongly the illicit market (OECD, 2022).

There is no evidence suggesting that taxes would lead to increase the illicit trade of SSBs (White et al., 2023). This may be given by the product character, mainly due to a low price to volume ratio which makes illicit trade less attractive (Paraje et al., 2023).

Health taxes may motivate customers to purchase products in neighbouring non-tax locations (and affect therefore retailers in the taxed region) for local taxes but the increase in cross-border shopping does not erase the tax-induced decrease in demand of the taxed SSBs) and the fades with distance between the taxing and non-taxing region (Andrejeva et al., 2022; Falbe et al., 2016; Cawley et al., 2019; Bygvrå, 2009).

Tobacco, alcohol and SSBs taxes are one of the most efficient measures to reduce the consumption of harmful products and deaths from NCDs, but they are not a stand-alone policy. Strengthening the administration, implementing tracking measures, regulating, and controlling the supply of raw materials, enhancing the regulatory framework, including harsher penalties and more thorough control processes curb illicit trade (as illicit trade in any other product) (Paraje et al., 2023). The WHO FCTC Protocol to Eliminate Illicit Trade in Tobacco Products offers a set of measures to fight tobacco illicit trade. A number of countries, even countries with common level of governance capacity, managed to curb illicit tobacco trade, such as Botswana, above-mentioned Brazil, Philippines and Sierra Leone (Paraje et al., 2023; Gallien & Occhiali, 2021).

Fighting illicit trade requires involvement and cooperation of all relevant stakeholders on various governance levels, including regional and international cooperation (World Bank, January 2019, World Health Organization, 2013). Cooperation and harmonization are also important in addressing cross-border shopping (Andrejeva et al., 2022).

Industry interference in all spheres of the decision-making and enforcing processes should be prevented, including the use of misleading studies about taxation and illicit trade. Prior to implementing any tax increase, a thorough market analysis should be conducted involving independent bodies, for example universities or civil society, which includes assessment of the scope of current levels of illicit trade and potential loopholes in the legal framework and regulations. The tax structure should correspond to the country context and market characteristics. The effectiveness of addressing illicit tobacco markets has been demonstrated through the experiences of numerous countries, highlighting the importance of adopting a comprehensive approach (Chaloupka et al., 2015). The EU has effectively implemented a regional tax harmonization plan that has minimized variations in taxes and prices across its 28 member countries (Chaloupka et al., 2015).

Supporting health taxes by other measures, such as public information campaigns about the health impacts of consumption of tobacco, alcohol and SSBs, and offering smoking and alcohol quitting services can both amplify the effect of increase prices and prevent people from switching to illicit products. Providing information about the serious health risks linked to consuming illicit alcohol can also play an important role. In addition, governments should ensure that healthier alternatives are accessible to the public, mainly clean drinking water, including by tax policies as well as by supporting reformulation and innovation (World Health Organization, n.d.).

Measures to tackle illicit trade have proven to be effective, not difficult to implement, not leading to job losses in the industry, not expensive and standardly use already existing technologies. Implementation of track and trace system led to significant increases in tax revenues shortly after the implementation and reductions in illicit trade (FCTC, 2019). In some countries, such implementation led to closures of illicit production sites and in contrary increases in registration legitimate manufacturers or importers. Finally, additional revenues from collected taxes can be partly allocated to support measures to fight illicit trade. In Panama, for example, a close cooperation of concerned actors was established. The country allocates 20 percent of tobacco excise tax revenues to the National Oncological Institute, 20 percent to the Ministry of Health for activities focused on tobacco use prevention and on treating tobacco-caused diseases, but also 10 percent to National Customs Authority to fight against illicit trade (Pan American Health Organization, 2015). It has been shown that the tobacco industry exaggerated the problem of illicit trade in the country to discourage any tobacco control legislation. The country has advanced in implementing the WHO FCTC measures and is actively engaged in shaping regional and global cooperation in tackling illicit tobacco trade. The country has one of the lowest smoking rates in the world (Pan American Health Organization, 2015).

### **b. Inflationary pressures**

Governments may be concerned that increasing taxes with the aim of increasing prices of harmful products may add inflationary pressures to the economy, especially given the fact that tobacco products, alcoholic and non-alcoholic beverages are often part of the consumer price index (CPI) basket. Health taxes could also force business owners to adjust their business models (so-called implementation costs) which could lead to higher operating costs and thus further price increases (OECD, 2023).

CPI composition is different in every country, with the weights of tobacco, alcohol and sweetened beverages varying considerably. Health taxes are applied only on a limited number of products which usually do not represent a significant share of the CPI and the pressures on inflation, therefore, are limited. For example, on average, only between 1-3 percent of all household expenditures were spent on tobacco products in the U.S, China and Russia (IARC, 2011).

In addition, the tax increase/new tax may not be fully reflected into retail prices. The so-called pass-through rate, i.e., the extent to which the tax will be passed on the consumer in the final retail price, will depend on the market structure, mainly on the character of the competition and the demand, as well as on the tax structure.

Tobacco taxes have been found to have minimal effect on general price inflation, if any at all (IARC, 2011). In addition, tax increases may have an inflationary supply-side effect (the increase in prices), but also a deflationary demand-side effects (higher prices lead to lower demand minimizing the impact on inflation) (Pitchford & Turnovsky, 1976). Moreover, central banks do not usually react to initial inflation impulses stemming from changes in indirect taxes, including excise taxes because these one-off increases have limited influence on core inflation (World Bank, 2023b).

Country experience shows impacts of health taxes are generally small and narrowly focused, without an impact on other consumer prices (World Bank, 2023b). Overall fiscal stance (i.e., expansionary, or contractionary fiscal policy) is more important for inflation than increases in one or more indirect taxes (World Bank, 2023b). In Mexico, for example, after the introduction of an excise tax on high-sugar food and drinks in 2014, inflation concerning prices of the tax products was observed in a short-term, but there was no effect after two years after the introduction of the measure (Mendoza-Velázquez & Aguirre Sedeño, 2019). A World Bank simulations study in nine countries estimated that a 10 percent increase in an excise tax would lead to an annual 0.06 – 0.36 percent increase in inflation (World Bank, 2023b).

In addition, the impact on inflation will depend on the type of the excise tax imposed. Specific taxes, applied as a fixed amount per unit, are in many cases not frequently enough adjusted for inflation, and

may therefore have deflationary effect if the tax rate does not keep up with the inflation, making the product relatively cheaper (Sparks et al., 2022). This is often called “inflation erosion” of taxes. Ad valorem taxes or automatic indexation of specific taxes would solve this issue but is applied by a minority of countries (Center for Global Development, 2022; World Bank, 2023). For tobacco excise tax for example, only around 25 percent of countries have in place a mechanism adjusting taxes automatically for inflation (and/or another price/income measure) (World Bank, 2023b).

As mentioned above, overall fiscal discipline and macroeconomic predictability is more important for inflation development than an increase/introduction of a health tax. Continuous and extensive fiscal deficits lead to inflation. Additional revenues from health taxes in contrary can reduce such deficits, the need of borrowing, and enhance fiscal predictability.

Health taxes are linked only to a limited number of products, in case of tobacco also consumed by a narrow group of consumers, with a limited weight in the CPI basket. Clear communication explaining that the tax changes impact only selected products and only households that purchase these products can help to tame any potential inflation expectations and therefore prevent any stronger impact on inflation. Tax-induced increases in prices of harmful products can be compensated by tax measures aiming at improving accessibility of healthy food through price decrease, for example a reduced VAT tax rate on water, fruit, and vegetable (World Bank, 2023b).

Moreover, supporting the decrease in consumption of harmful products by other policy measures, such as public campaigns informing the population about the harmful effect of tobacco, alcohol and SSBs consumption, may amplify the demand-side effect of the tax change and therefore mitigate the impact on inflation (World Health Organization, 2019).

In countries where consumption of the taxed products represents a considerable part of the CPI, these products can be excluded from the CPI to prevent a cascading effect of the CPI increase on the economy as for example wages or pensions valorization may be derived from CPI increases (IARC, 2011; World Bank, 2023b). Alternatively, especially in countries with inflation targeting regimes, CPI changes can be calculated without the one-time effects of indirect tax changes to capture underlying, core inflation.

### **c. Environmental impacts**

Health taxes may have a positive impact on environment through reduced pollution of air, soil and water, reduced water use in farming and production processes. They can help to reduce waste and contribute to cleaner environments and communities. Thanks to that governments may save needed resources for addressing pollution, environmental damage, and impact of climate change.

Both tobacco and sugar cane farming can lead to a degradation of soil quality, water and freshwater ecosystem pollution, biodiversity loss and deforestation (Lencucha et al., 2022; World Wildlife Fund, 2015; El Chami, Daccache, & El Moujabber, 2020). Tobacco farming has destructive impacts on ecosystems due to wood use and desertification, even more than livestock. Approximately 200,000 hectares of land are newly dedicated to tobacco agriculture and curing each year (World Health Organization, 2023a). Sugar cane farming has been linked to deforestation of some of the most valuable and fragile ecosystems, such as Brazil’s rain forests. Growing sugarcane will push farmers to increase the cultivated areas by almost 50 percent by 2050 (World Wildlife Fund, 2015). In addition, there is a growing land-use competition between sugarcane and food crops that is threatening world food production (El Chami, Daccache, & El Moujabber, 2020).

Reducing the consumption of harmful products, like tobacco, alcohol and sweet beverages, and the waste derived from such consumption, would contribute to slowing down deforestation and contribute to preservation of terrestrial ecosystems.

Moreover, harmful consumption exacerbates climate change. Processes in manufacturing and distribution of tobacco products generate a substantial amount of greenhouse gas emissions, estimated to be around 0.2 percent of the global total in 2014, or equal to 3 million transatlantic flights (World Health Organization, 2023d; Zafeiridou et al., 2018). Additionally, forest loss and damage cause around 10 percent of global warming, and around 5 percent of global deforestation is attributed to tobacco farming (World Health Organization 2023c). A bottle of wine (0.75 liters) creates between 0.15 to 3.51 kg CO<sub>2</sub> in its lifecycle (Pinto da Silva & Esteves da Silva, 2022). Almost 35 billion bottles of wine were produced in 2022 around the world (own calculations based on International Organisation of Vine and Wine, 2022). It is estimated that in 2021, beer, ciders, wine, spirits, and ready-to-drink alcoholic beverages were responsible for 371 million tons of greenhouse gas emissions (Rocha et al., 2023). Per liter of soft drink, around 0.17 kg of CO<sub>2</sub> is produced, with the majority coming through PET bottles production, sweeteners, and distribution (Beverage Industry Environmental Roundtable, 2012). Similarly, livestock farming for meat contributes between 12 and 18 percent to the total global greenhouse emissions (Gomez-Zavaglia et al., 2020; Allen & Hof, 2019). It is estimated that extreme weather events caused by climate change costs the global economy US\$143 billion per year in the last two decades, with the majority coming from loss of almost 70,000 human lives (Newman & Noy, 2023) and that \$196 trillion in investments is needed to bring the global carbon emissions to zero by 2050 (Gongloff, 2023).

Harmful consumption also drains and poisons water resources, and consequently the food we eat. Approximately 5.3 liters of water is needed to produce a typical single-use soda bottle (Olson-Sawyer & Madel, 2020). Almost 35 liters of water are needed to produce a teaspoon of refined sugar (World Wildlife Fund, 2015). One cigarette consumes about 3.7 litres of water from production to waste which sums up annually to up to 22 billion cubic meters of water depleted for tobacco production around the world (Zafeiridou, Hopkinson, & Voulvoulis, 2018). In addition, a significant volume of tobacco product waste, mainly cigarette butts, end up in water through rain or directly. One disposed cigarette pollutes around 1,000 liters of water, which adds up to a further 100 trillion litres of water polluted every year with cigarette waste globally (World Health Organization, 2023d). Water used for one kilogram of tobacco produced, consumed, and disposed of, could cover the annual needs of one person (Armstrong & Johnson, 2018). Addressing water scarcity and related economic burden may require substantial expenditures from governments around the world. It is estimated that for some regions, such as the Middle East and the Sahel in Africa, costs related to water scarcity can be up to 6 percent of their GDP (World Bank, 2016). Health taxes can reduce the water footprint from production of these harmful products through significant decreases in their consumption.

At least 14 million tons of plastic pollute oceans annually (IUCN, 2021). Plastic waste is frequently ingested by marine fauna or threatens it with entanglement and creates risks to food safety and quality and human health. Reducing consumption of sodas could reduce the production of single-use bottles and reduce ocean pollution. In addition, tobacco and sugarcane production requires the use of fertilizers and other chemicals. These often wash into waters and pollute them (World Wildlife Fund, 2015). Cigarette butts can take a very long time to decompose. Microplastics from around 4.5 trillion discarded cigarettes annually enter the environment, including waters (World Health Organization, 2022; Zafeiridou, Hopkinson, & Voulvoulis, 2018). Health taxes would reduce consumption of these products and create an opportunity to reduce water pollution. The reduction of plastic waste could be supported by making safe tap drinking water accessible, which would encourage people to use tap water and not to switch to bottled water or other bottled beverages as alternatives to the taxed SSBs.

Finally, by reducing harmful consumption through health taxes, people living in cities could enjoy improved living conditions, including better air quality, and less municipal and other waste. Health taxes can also help to create safe and inclusive public spaces, particularly for women and children, older persons, and persons with disabilities, through preventing alcohol-based violence and second-hand smoke exposure. This can be amplified by policies aiming at tobacco- and alcohol-free public places.

## 7. Conclusions

Implementing health taxes can besides reducing consumption of taxed harmful products and revenue generation also lead to other, secondary impacts on the economy and certain population groups. Understanding the potential secondary impacts is important for communication and for gaining public support for health tax reforms as opponents of such reforms might use those potential secondary impacts as arguments against the reform. It should be expected that the secondary impacts may be weighed against the primary goals of health taxes in public debates over health tax reforms. However, based on the existing experience, despite frequently sown fears, health taxes brought positive outcomes to the countries that implemented them. When assessing the impacts of health taxes, the whole picture needs to be taken into account and based on that possible mitigation policies designed. When considering effects on employment, it is not only the number of people that could possibly end up without jobs that plays a role, but also the quality of the jobs – profitability, security, working environment and safety, available policies that may support jobs switching and social security net ensuring that no one falls into poverty. The analysis of potential impacts should also include social equity, gender, and environmental lens. In the public discussion, linking and communicating clearly the health and economic benefits of health taxes as well as showing awareness and readiness to address any spill-over effects can be the factor that enables implementation and sustainability of the tax change.

### Appendix: checklist to assess potential secondary impacts of health taxes

The provided checklist offers an overview of potential aspects to consider; however, in most cases the analysis cannot encompass all the listed parameters due to resources limitations (financial, time, capacity, data, etc.). The prioritization of the aspects to be analysed will depend on the country context as described next to each category.

**General considerations:** General considerations provide basic information about the taxed market structure and its potential response to tax implementation or increase and should be subject of thorough analysis in the decision-making process.

Market characteristics:

- Competitive market/oligopolist/monopolistic/state-owned
- Price elasticities (by socio-economic group) and cross price elasticities
- Trading down (price differences between cheap and expensive products, price variety)

Tax system:

- Current and planned tax structure
- Pass-through rate (experience from past or similar settings)

Health aspects:

- Burden of NCDs and related healthcare costs
- Health-harming products affordability (trend over time)
- Accessibility of healthier options and tax policies on healthier options
- Other policies linked to health-harming products, such as cessation programmes, public information campaigns,

Other:

- Social and economic policies: unemployment and retraining policies, social security networks, gender policies
- International legal environment

### Considerations by sectors

**a) Agriculture:** An assessment of the potential effects on agriculture linked to the taxed product will be important for countries where farming of the raw inputs for the taxed product is present, especially if the contribution to employment, GDP or export is significant. This can be also particularly relevant in the context where farmers have limited access to other income-generating activities. In countries where farming of inputs for the taxed products plays a strong role in the economy, assessing impacts and design mitigation strategies may become a priority in the policy design, as well as in gaining public support.

- Presence of relevant farming
- Number of people employed
- Contribution to GDP
- Tax revenue
- Conditions in relevant farming
- Official employment: men vs women
- Wages (men vs women), profitability
- Potential to export produced crops, added value or only raw materials for export
- Negotiation position of farmers
- Child labour present, forced labour or human trafficking present
- Protective equipment available
- Health risks linked to relevant farming
- Availability of other farming and livelihood options (do farmers see their living as profitable or are staying in farming of the given crops just because of lack of other alternatives)
- Policies supporting change to other crops or livelihoods

**b) Industry:** Impact will vary if manufacturing industry is present in the country or if taxed products are only distributed. In both cases, there might be impact on the taxed industries, but the impacts, adaptation and mitigation strategies might differ.

- Presence of industry (manufacturing vs distribution)
- Number of people employed and type of employment
- Contribution to GDP
- Tax revenue: income tax, VAT, excise tax, customs, other
- Conditions in the industry
- Official employment
- Profitability
- Wages
- Reformulation opportunities

**c) Retail:** The impacts on retail depend on the taxed product, its current levels of consumption in different retail outlets (off-trade vs on-trade). This sectoral assessment tends to be relevant in all countries.

- Number of people employed and type of employment
- Contribution to GDP
- Tax revenue: income tax, VAT, excise tax, customs, other
- Conditions in the industry
- Official employment
- Profitability, margins
- Wages
- Availability of not taxed healthier substitutes in retail

**d) Households:** Health taxes benefit people and households, especially those from low-income groups. However, assessing impacts of health tax changes on households, both from economic and health perspective, may be an important aspect in gaining public support, particularly in settings with large income disparities and inequalities.

- Health and economic burden of harmful consumption of households and effects of the policy
- Elasticity by socioeconomic group
- Existing social policies
- Current crowding out effect of harmful consumption in family budgets and potential effects off health taxes
- Involvement of women in decision-making processes within households which can influence the final impact

**e) Gender:** Gender aspect of taxation is relevant in all countries; however, it is especially important to adopt gender lens in the decision-making in countries, where women have weak decision-making power in households and can be therefore more impacted both by secondhand smoking as well as spending used for harmful consumption rather than other expenses, such as food, education, and clothing.

- Elasticity of demand among women for harmful products
- Prevalence of harmful consumption in women and linked consequences
- Harmful consumption in pregnancy and breastfeeding, nutrition status of pregnant and breastfeeding women in households with harmful consumption present
- Secondhand smoking prevalence and places of exposure
- Capacity of women to negotiate smokefree households
- HIV/AIDS prevalence among women
- Gender-based violence (especially in pregnancy) and links to harmful consumption
- Education gender gap
- Women empowerment policies in place

**f) Illicit trade:** Impact of health taxes on illicit trade is a common fear and common argument against taxes. Assessment will be important in countries with high presence of illicit trade of the taxed products and/or weak illicit trade measures in place and enforcement.

- Presence and scope of illicit trade
- Impact of past tax changes on illicit trade
- Margins on taxed products
- Regional differences in illicit trade
- Measures in place to prevent illicit trade and potential gaps, status of the WHO FCTC Protocol on Eliminating Illicit Trade
- Cooperation between relevant actors
- Cross-border harmonization and cooperation

**g) Inflation:** This aspect is important to consider in context with higher inflation, where other economic parameters are linked to CPI and where the taxed product represents a large share in the CPI basket.

- Current and expected inflation
- Weight of harmful products in CPI
- CPI-related economic factors (e.g., wages)

**h) Environment:** Relevant in all countries; however, given the rather indirect impacts of health taxes on environments, the environmental impact assessment usually does not represent the key priority in this context. Nevertheless, the environmental benefits could serve as a good argument in the policy discussion and in gaining public support. This can be particularly relevant in countries with high plastic pollution and with high impacts of climate change.

- Air pollution by relevant production
- Water pollution + impact on other industries, such as farming
- Soil degradation and pollution
- Deforestation
- Waste
- Climate change risks
- Accessibility of safe drinking water as alternative to SSBs PET bottles

## References

- Aidsmap (2021). About HIV. Smoking and HIV. <https://www.aidsmap.com/about-hiv/smoking-and-hiv>
- Alasmari, F., Al-Rejaie, S. S., AlSharari, S. D., & Sari, Y. (2016). Targeting glutamate homeostasis for potential treatment of nicotine dependence. *Brain research bulletin*, 121, 1–8. <https://doi.org/10.1016/j.brainresbull.2015.11.010>
- Alcohol Rehab Guide. (2023) Alcohol And HIV <https://www.alcoholrehabguide.org/resources/medical-conditions/hiv/>
- Allen, A. M., & Hof, A. R. (2019). Paying the price for the meat we eat. *Environmental Science and Policy*, 97(April), 90–94. <https://doi.org/10.1016/j.envsci.2019.04.010>
- Al Jazeera (2016). How Thailand kept cigarettes cheap despite a tax hike. <https://www.aljazeera.com/news/2016/6/11/how-thailand-kept-cigarettes-cheap-despite-a-tax-hike>
- Althoff, K. N., et al. (2019). Contributions of traditional and HIV-related risk factors on non-AIDS-defining cancer, myocardial infarction, and end-stage liver and renal diseases in adults with HIV in the USA: A collaboration of cohort studies. *The Lancet HIV*, 6, e93-e104.
- Alvarado, M., Unwin, N., Sharp, S. J., Hambleton, I., Murphy, M. M., Samuels, T. A., Suhrcke, M., & Adams, J. (2019). Assessing the impact of the Barbados sugar-sweetened beverage tax on beverage sales: An observational study. *International Journal of Behavioral Nutrition and Physical Activity*, 16(1). <https://doi.org/10.1186/s12966-019-0776-7>



- American Cancer Society. HIV and cancer. <https://www.cancer.org/cancer/risk-prevention/infections/hiv-infection-aids/hiv-aids-and-cancer.html> (last accessed 4 March 2024).
- Anderman, T. L., Remans, R., Wood, S. A., DeRosa, K., & DeFries, R. S. (2014). Synergies and tradeoffs between cash crops production and food security: A case study in rural Ghana. *Food Security*, 6(4), 541–554. <https://doi.org/10.1007/s12571-014-0360-6>
- Andreyeva, T., et al. (2022). Outcomes following taxation of sugar-sweetened beverages: A systematic review and meta-analysis. *JAMA Network Open*, 5(6), Article e2215276. <https://doi.org/10.1001/jamanetworkopen.2022.15276>
- Appau, A., Drope, J., Goma, F., Magati, P., Labonte, R., Makoka, D., Zulu, R., Li, Q., & Lencucha, R. (2020). Explaining why farmers grow tobacco: Evidence from Malawi, Kenya, and Zambia. *Nicotine & Tobacco Research*, 22(12), 2238–2245. <https://doi.org/10.1093/ntr/ntz173>
- Armstrong, L. E., & Johnson, E. C. (2018). Water intake, water balance, and the elusive daily water requirement. *Nutrients*, 10(12), 1928. <https://doi.org/10.3390/nu10121928>
- Awawda, S., Chalak, A., Khader, Y., Mostafa, A., Abla, R., Nakkash, R., Jawad, M., Salloum, R. G., & Abu-Rmeileh, N. M. (2022). Gender differences in the price elasticity of demand for waterpipe and cigarette smoking in Lebanon, Jordan and Palestine: a volumetric choice experiment. *BMJ open*, 12(7), e058495. <https://doi.org/10.1136/bmjopen-2021-058495>
- Barker, A. R., Mazzucca, S., & An, R. (2022). The impact of sugar-sweetened beverage taxes by household income: A multi-city comparison of Nielsen purchasing data. *Nutrients*, 14(5), 922. <https://doi.org/10.3390/nu14050922>
- Bartholomay, P., Iser, B. P. M., de Oliveira, P. P. V., et al. (2012). Epidemiologic investigation of an occupational illness of tobacco harvesters in southern Brazil, a worldwide leader in tobacco production. *Occupational and Environmental Medicine*, 69(7), 514–518. <https://doi.org/10.1136/oemed-2011-100307>
- BAT (2023). Half-Year Report for the six months to 30 June 2023. [https://www.bat.com/group/sites/UK\\_CRHJSY.nsf/vwPagesWebLive/DOCU3LTH#](https://www.bat.com/group/sites/UK_CRHJSY.nsf/vwPagesWebLive/DOCU3LTH#)
- Bazo-Alvarez, J. C., Bazalar-Palacios, J., Bazalar, J., et al. (2022). Mental health among the sugarcane industry farmers and non-farmers in Peru: A cross-sectional study on occupational health. *BMJ Open*, 12(e064396). <https://doi.org/10.1136/bmjopen-2022-064396>
- Berger, P. K., Plows, J. F., Jones, R. B., Alderete, T. L., Rios, C., Pickering, T. A., Fields, D. A., Bode, L., Peterson, B. S., & Goran, M. I. (2020). Associations of maternal fructose and sugar-sweetened beverage and juice intake during lactation with infant neurodevelopmental outcomes at 24 months. *American Journal of Clinical Nutrition*, 112(6), 1516–1522. <https://doi.org/10.1093/ajcn/nqaa255>
- Berger, P. K., Monk, C., Bansal, R., Sawardekar, S., Goran, M. I., & Peterson, B. S. (2021). Association of prenatal sugar consumption with newborn brain tissue organization. *Nutrients*, 13(7), 2435. <https://doi.org/10.3390/nu13072435>
- Beverage Industry Environmental Roundtable. (2012). Research on the Carbon Footprint of Carbonated Soft Drinks. [https://www.bieroundtable.com/wp-content/uploads/49d7a0\\_7a5cfa72d8e74c04be5aeb81f38b136b.pdf](https://www.bieroundtable.com/wp-content/uploads/49d7a0_7a5cfa72d8e74c04be5aeb81f38b136b.pdf)

- Blecher, E., Liber, A. C., Drope, J. M., Nguyen, B., & Stoklosa, M. (2017). Global trends in the affordability of sugar-sweetened beverages, 1990–2016. *Preventing Chronic Disease*, 14, 160406. <https://doi.org/10.5888/pcd14.160406>
- Bolumar, F., Olsen, J., Boldsen, J., et al. (1996). Smoking reduces fecundity: A European multicenter study on infertility and subfecundity. *American Journal of Epidemiology*, 143(6), 578–587. <https://doi.org/10.1093/oxfordjournals.aje.a008788>
- Breeze, P., Womack, R., Pryce, R., Brennan, A., & Goyder, E. (2018). The impact of a local sugar sweetened beverage health promotion and price increase on sales in Public Leisure Centre Facilities. *PLOS ONE*, 13(5). <https://doi.org/10.1371/journal.pone.0194637>
- Burney, J. A., & Naylor, R. L. (2012). Smallholder irrigation as a poverty alleviation tool in sub-Saharan Africa. *World Development*, 40, 110–123. <https://doi.org/10.1016/j.worlddev.2011.05.007>
- Bygvrå, S. (2009). Distance and cross-border shopping for alcohol: Evidence from Danes' cross-border shopping 1986–2003. *Nordic Studies on Alcohol and Drugs*, 26(2). <https://doi.org/10.1177/145507250902600203>
- Caro, J. C., Corvalán, C., Reyes, M., Silva, A., Popkin, B., & Taillie, L. S. (2018). Chile's 2014 sugar-sweetened beverage tax and changes in prices and purchases of sugar-sweetened beverages: An observational study in an urban environment. *PLOS Medicine*, 15(7). <https://doi.org/10.1371/journal.pmed.1002597>
- Carvalho Figueiredo, V., Drope, J., Iglesias, R., et al. (2021). Consumo de cigarros ilegais em cinco cidades brasileiras. <https://actbr.org.br/post/consumo-de-cigarros-ilegais-em-cinco-cidades-brasileiras/19495/>
- Caserta, D., Bordi, G., Di Segni, N., et al. (2013). The influence of cigarette smoking on a population of infertile men and women. *Archives of Gynecology and Obstetrics*, 287, 813–818. DOI: 10.1007/s00404-012-2643-5
- Cawley, J., Thow, A. M., Wen, K., & Frisvold, D. (2019). The economics of taxes on sugar-sweetened beverages: A review of the effects on prices, sales, cross-border shopping, and consumption. *Annual Review of Nutrition*, 39, 8.1–8.22.
- Centre d'Études Prospectives et d'Informations Internationales (CEPII). 2023. Base pour l'Analyse du Commerce International (version 202301). CEPII: Paris, France
- Center for Disease Control and Prevention (2023). Alcohol use. <https://www.cdc.gov/ncbddd/fasd/alcohol-use.html>
- Center for Global Development (2022). Protecting Health Taxes in an Inflationary World. Available at: <https://www.cgdev.org/blog/protecting-health-taxes-inflationary-world> (Accessed 06.12.2023)
- Chaloupka, F. J., Edwards, S. M., Ross, H., & Diaz, M. (2015). Preventing and reducing illicit tobacco trade in the United States. National Center for Chronic Disease Prevention and Health Promotion. <https://www.cdc.gov/tobacco/stateandcommunity/pdfs/illicit-trade-report-508.pdf>
- Chaloupka, F.J. & Powell, L. (2019). Using Fiscal Policy to Promote Health: Taxing Tobacco, Alcohol, and Sugary Beverages. *Tobacconomics*.

<https://www.tobacconomics.org/files/research/509/Using-Fiscal-Policy-to-Promote-Health-Taxing-Tobacco-Alcohol-and-Sugary-Beverages.pdf>

- Chaloupka, F. J., Edwards, S. M., Ross, H., Diaz, M., Kurti, M., Xu, X., Pesko, M., Merriman, D., & DeLong, H. (2015). Preventing and reducing illicit tobacco trade in the United States. Centers for Disease Control and Prevention. Retrieved from <http://www.cdc.gov/tobacco/stateandcommunity/pdfs/illicittrade-report-121815-508tagged.pdf>
- Coca-Cola Company (2023). Coca-Cola Reports Third Quarter 2023 Results and Raises Full-Year Guidance. <https://investors.coca-colacompany.com/news-events/press-releases/detail/1094/coca-cola-reports-third-quarter-2023-results-and-raises>
- Cohen, J. F. W., Rifas-Shiman, S. L., Young, J., & Oken, E. (2018). Associations of prenatal and child sugar intake with child cognition. *American Journal of Preventive Medicine*, 54(6), 727–735. <https://doi.org/10.1016/j.amepre.2018.02.020>
- Colchero, M. A., Molina, M., & Guerrero-López, C. M. (2017). After Mexico implemented a tax, purchases of sugar-sweetened beverages decreased and water increased: Difference by place of residence, household composition, and income level. *Journal of Nutrition*, 147(8), 1552-1557. <https://doi.org/10.3945/jn.117.251892>
- Commission Of The European Communities. (2008). Recommendation for a COUNCIL DECISION abrogating Decision 2005/182/EC on the existence of an excessive deficit in Slovakia
- Cornelsen, L., & Normand, C. (2014). Is roll-your-own tobacco substitute for manufactured cigarettes: Evidence from Ireland? *Journal of Public Health*, 36(1), 65–71. <https://doi.org/10.1093/pubmed/ftd030>
- Cornuz, J., Feskanich, D., Willett, W. C., et al. (1999). Smoking, smoking cessation, and risk of hip fracture in women. *American Journal of Medicine*, 106(3), 311–314. [https://doi.org/10.1016/S0002-9343\(99\)00022-4](https://doi.org/10.1016/S0002-9343(99)00022-4)
- Curti, D., Shang, C., Ridgeway, W., Chaloupka, F. J., & Fong, G. T. (2015). The use of legal, illegal and roll-your-own cigarettes to increasing tobacco excise taxes and comprehensive tobacco control policies: Findings from the ITC Uruguay Survey. *Tobacco Control*, 24(Suppl 3), iii17-iii24. <https://doi.org/10.1136/tobaccocontrol-2014-051890>
- Davis, B., Mane, E., Gurbuzer, L.Y., Caivano, G., Piedrahita, N., Schneider, K., Azhar, N., Benali, M., Chaudhary, N., Rivera, R., Ambikapathi, R. and Winters, P. (2023). Estimating global and country-level employment in agrifood systems. FAO Statistics Working Paper Series, No. 23-34. Rome, FAO. <https://doi.org/10.4060/cc4337en>
- Díaz, J.-J., Sánchez, A., Diez-Canseco, F., Jaime Miranda, J., & Popkin, B. M. (2023). Employment and wage effects of sugar-sweetened beverage taxes and front-of-package warning label regulations on the food and beverage industry: Evidence from Peru. *Food Policy*, 115, 102412. <https://doi.org/10.1016/j.foodpol.2023.102412>
- Englund-Ögge, L., Brantsæter, A. L., Haugen, M., Sengpiel, V., Khatibi, A., Myhre, R., Myking, S., Meltzer, H. M., Kacarovsky, M., Nilsen, R. M., & Jacobsson, B. (2012). Association between intake of artificially sweetened and sugar-sweetened beverages and preterm delivery: A large prospective cohort study. *American Journal of Clinical Nutrition*, 96(3), 552-559. <https://doi.org/10.3945/ajcn.111.031567>

- Eunice Kennedy Shriver National Institute of Child Health and Human Development (n.d.). What Are the Known Risk Factors? <https://safetosleep.nichd.nih.gov/about/risk-factors>
- FAO (2024a). Crops and livestock products. <https://www.fao.org/faostat/en/#data/QCL>
- FAO (2024b). Suit of food security indicators. <https://www.fao.org/faostat/en/#data/FS>
- Falbe, J., Thompson, H. R., Becker, C. M., Rojas, N., McCulloch, C. E., & Madsen, K. A. (2016). Impact of the Berkeley Excise Tax on Sugar-Sweetened Beverage Consumption. *American journal of public health*, 106(10), 1865–1871. <https://doi.org/10.2105/AJPH.2016.303362>
- FCTC. (2019). FCTC Protocol to Eliminate Illicit Trade in Tobacco Products. Guidebook on Implementing Article 8: Tracking & Tracing. <https://www.fctc.org/wp-content/uploads/2019/11/ITP-Guidebook-.pdf>
- Feeny, E., Dain, K., Varghese, C., Atiim, G. A., Rekve, D., & Gouda, H. N. (2021). Protecting women and girls from tobacco and alcohol promotion. *BMJ*, 374. <https://doi.org/10.1136/bmj.n1516>
- Forecasting Associates, Inc., University of Pennsylvania. (1980). Retrieved from <https://www.industrydocumentslibrary.ucsf.edu/tobacco/docs/qflc0002>.
- Gallien, M., & Occhiali, G. (2021). No smoking gun: tobacco taxation and smuggling in Sierra Leone. *Tobacco Control*, Epub. <https://doi.org/10.1136/tobaccocontrol-2021-057163>
- Global Burden of Disease. (2019). GBD Results. <https://vizhub.healthdata.org/gbd-results/>
- Gilmore, A. B., Gallagher, A. W. A., & Rowell, A. (2019). Tobacco industry's elaborate attempts to control a global track and trace system and fundamentally undermine the illicit trade protocol. *Tobacco Control*, 28(2), 127–140. Retrieved from: <https://tobaccocontrol.bmj.com/content/28/2/127>.
- Goodchild, M., Paul, J., Iglesias, R., et al. (2022). Potential impact of eliminating illicit trade in cigarettes: A demand-side perspective. *Tobacco Control*, 31(1), 57–64. Retrieved from: <https://tobaccocontrol.bmj.com/content/31/1/57>.
- Gomez-Zavaglia, A., Mejuto, J. C., & Simal-Gandara, J. (2020). Mitigation of emerging implications of climate change on food production systems. *Food Research International*, 134(April), Article 109256. <https://doi.org/10.1016/j.foodres.2020.109256>
- Gram, I. T., Wiik, A. B., Lund, E., Licaj, I., & Braaten, T. (2021). Never-smokers and the fraction of breast cancer attributable to second-hand smoke from parents during childhood: The Norwegian Women and Cancer Study 1991–2018. *International Journal of Epidemiology*, 50(6). <https://doi.org/10.1093/ije/dyab153>
- Greenhalgh, EM, Freeman, B and Winstanley, M. 10.4 Ethical issues related to tobacco farming and production In Greenhalgh, EM, Scollo, MM and Winstanley, MH [editors]. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria; 2022. Available from: <https://www.tobaccoinaustralia.org.au/chapter-10-tobacco-industry/10-14-ethical-issues-related-to-farming-and-production>

- Guerrero-López, C. M., Molina, M., & Colchero, M. A. (2017). Employment changes associated with the introduction of taxes on sugar-sweetened beverages and nonessential energy-dense food in Mexico. *Preventive Medicine*, 105. <https://doi.org/10.1016/j.ypmed.2017.09.001>
- Durrance, C. P., Golden, S., Perreira, K., & Cook, P. (2011). Taxing sin and saving lives: Can alcohol taxation reduce female homicides? *Social science & medicine* (1982), 73(1), 169–176. <https://doi.org/10.1016/j.socscimed.2011.04.027>
- El Chami, D., Daccache, A., & El Moujabber, M. (2020). What are the impacts of sugarcane production on ecosystem services and human well-being? A review. *Annals of Agricultural Sciences*, 65(2), 188-199. <https://doi.org/10.1016/j.aoas.2020.10.001>
- Erol, A., & Karpyak, V. M. (2015). Sex and gender-related differences in alcohol use and its consequences: Contemporary knowledge and future research considerations. *Drug and Alcohol Dependence*, 156, 1–13. Retrieved from: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003574>.
- Essman, M., Taillie, L. S., Frank, T., Ng, S. W., Popkin, B. M., & Swart, E. C. (2021). Taxed and untaxed beverage intake by South African young adults after a national sugar-sweetened beverage tax: A before-and-after study. *PLoS Medicine*, 18(5), e1003574.
- Exposetobacco.org. (2021). Illicit tobacco trade: Who it hurts and who it helps. <https://exposetobacco.org/news/illicit-tobacco-trade/>
- Ferreira-Junior, M.D., Cavalcante, K.V.N., Mota, A.P.C.d., & Gomes, R.M. (2023). Dietary Sugars during Critical Phases of Development and Long-Term Risk of Non-Communicable Diseases. *Diabetology*, 4, 243-250. <https://doi.org/10.3390/diabetology4030021>
- Gibson L, Porter M. (2012). Drinking or Smoking While Breastfeeding and Later Academic Outcomes in Children. *Nutrients*. 2020 Mar 20;12(3):829. doi: 10.3390/nu12030829. PMID: 32244947; PMCID: PMC7146206.
- Gallagher, A.W.A. , Evans-Reeves, K.A., Hatchard, J.L., et al. (2019). Tobacco industry data on illicit tobacco trade: a systematic review of existing assessments. *Tobacco Control*, 28:334–45. doi:10.1136/tobaccocontrol-2018-054295
- Gaudet, M. M., Gapstur, S. M., Sun, J., et al. (2013). Active smoking and breast cancer risk: original cohort data and meta-analysis. *Journal of the National Cancer Institute*, 105, 515–525. <https://doi.org/10.1093/jnci/djt023>
- Gilmore, A.B., Gallagher, A.W.A., Rowell, A. (2018). Tobacco industry’s elaborate attempts to control a global track and trace system and fundamentally undermine the Illicit Trade Protocol. *Tobacco Control* .doi:10.1136/tobaccocontrol-2017-054191
- Gómez-Donoso, C., Sacks, G., Vanderlee, L., Hammond, D., White, C. M., Nieto, C., Bes-Rastrollo, M., & Cameron, A. J. (2021). Public support for healthy supermarket initiatives focused on product placement: A multi-country cross-sectional analysis of the 2018 International Food Policy Study. *International Journal of Behavioral Nutrition and Physical Activity*, 18(1), 78. <https://doi.org/10.1186/s12966-021-01149-0>
- Gongloff, M. (2023). \$200 Trillion Is Needed to Stop Global Warming. That’s a Bargain. <https://www.bloomberg.com/opinion/articles/2023-07-05/-200-trillion-is-needed-to-stop-global-warming-that-s-a-bargain>

- Hayatbakhsh, M. R., Clavarino, A., Williams, G. M., et al. (2012). Cigarette smoking and age of menopause: A large prospective study. *Maturitas*, 72, 346–352. <https://doi.org/10.1016/j.maturitas.2012.05.004>
- Hernández-Ramírez, R. U., Shiels, M. S., Dubrow, R., & Engels, E. A. (2017). Cancer risk in HIV-infected people in the USA from 1996 to 2012: A population-based, registry-linkage study. *The Lancet HIV*. Advance online publication. [https://doi.org/10.1016/S2352-3018\(17\)30125-X](https://doi.org/10.1016/S2352-3018(17)30125-X)
- Hervé, J., Mani, S., Behrman, J. R., Nandi, A., Lamkang, A. S., & Laxminarayan, R. (2022). Gender gaps in cognitive and noncognitive skills among adolescents in India. *Journal of Economic Behavior & Organization*, 193, 66-97. <https://doi.org/10.1016/j.jebo.2021.11.011>
- Hiscock, R., Branston, J. R., Partos, T. R., McNeill, A., Hitchman, S. C., & Gilmore, A. B. (2019, December). UK tobacco price increases: Driven by industry or public health? *Tobacco Control*, 28(e2), e148-e150. Retrieved from: <https://tobaccocontrol.bmj.com/content/28/e2/e148>.
- Hofman, K. J., Stacey, N., Swart, E. C., Popkin, B. M., & Ng, S. W. (2021). South Africa's Health Promotion Levy: Excise tax findings and equity potential. *Obesity Reviews*, 22(9). <https://doi.org/10.1111/obr.13301>
- Hu T. and Lee A. (2015). Tobacco control and tobacco farming in African countries. *Journal of Public Health Policy*, 36(1), 41-51.
- Hu T., H Lee, A. (2016). Women in tobacco farming: health, equality, and empowerment. A study conducted in China, Tanzania and Kenya. Center for International Tobacco Control. Public Health Institute.
- Huxley, R. R., & Woodward, M. (2011). Cigarette smoking as a risk factor for coronary heart disease in women compared with men: A systematic review and meta-analysis of prospective cohort studies. *The Lancet*, 378, 1297–1305. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(11\)60781-2/abstract](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)60781-2/abstract).
- Hussain, A. G., Rouf, A. S. S., Shimul, S. N., et al. (2020). The economic cost of tobacco farming in Bangladesh. *International Journal of Environmental Research and Public Health*, 17, 9447. <https://doi.org/10.3390/ijerph17249447>
- IARC. (2011). *Handbooks of Cancer Prevention. Tobacco Control. Vol. 14. Effectiveness of Tax and Price Policies for Tobacco Control.* <https://publications.iarc.fr/Book-And-Report-Series/Iarc-Handbooks-Of-Cancer-Prevention/Effectiveness-Of-Tax-And-Price-Policies-For-Tobacco-Control-2011>
- Iglesias, R. (2016). Increasing excise taxes in the presence of an illegal cigarette market: the 2011. Brazil tobacco tax reform. *Rev Panam Salud Publica*, 40(4): 243-9. Retrieved from: <https://iris.paho.org/handle/10665.2/31306>
- ILO. (2017). *Child labour in the primary production of sugarcane. Fundamental Principles and Rights at Work Branch (FUNDAMENTALS) - Geneva: ILO.* [https://www.ilo.org/wcmsp5/groups/public/---ed\\_norm/---ipec/documents/publication/wcms\\_ipec\\_pub\\_29635.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---ipec/documents/publication/wcms_ipec_pub_29635.pdf)
- Institute for Natural Resources and Technology Studies. (2007). *Case study on tobacco cultivation and possible alternative crops – Kenya. A technical document for the first meeting of the Ad Hoc Study Group on Alternative Crops established by the Conference of the Parties to the*



- WHO Framework Convention on Tobacco Control; 27-28 February 2007; World Health Organization; 2007.
- International Institute for Sustainable Development (2023). GLOBAL MARKET REPORT Sugar cane prices and sustainability. <https://www.iisd.org/system/files/2023-09/2023-global-market-report-sugar-cane.pdf>
- International Organisation of Vine and Wine. (2022). State of the world vine and wine sector in 2022. [https://www.oiv.int/sites/default/files/documents/OIV\\_State\\_of\\_the\\_world\\_Vine\\_and\\_Wine\\_sector\\_in\\_2022\\_2.pdf](https://www.oiv.int/sites/default/files/documents/OIV_State_of_the_world_Vine_and_Wine_sector_in_2022_2.pdf)
- International Union Against Tuberculosis and Lung Disease (2021). Higher tobacco taxes for a healthier Timor-Leste. <https://theunion.org/sites/default/files/2021-08/Timor-Leste%20Tax%20Policy%20Paper%20July%202021.pdf>
- IUCN. (2021). Marine plastic pollution. <https://www.iucn.org/resources/issues-brief/marine-plastic-pollution>
- IWRS (2021). Drinks Market Analysis. No- and low-alcohol category value surpasses \$11bn in 2022. <https://www.theiwsr.com/no-and-low-alcohol-category-value-surpasses-11bn-in-2022/>
- Jha, P., Hill, C., Wu, D. C., & Peto, R. (2020). Cigarette prices, smuggling, and deaths in France and Canada. *The Lancet*, 395(10217), 27–28. [https://doi.org/10.1016/s0140-6736\(19\)31291-7](https://doi.org/10.1016/s0140-6736(19)31291-7)
- John, R. M. (2008). Crowding out effect of tobacco expenditure and its implications on household resource allocation in India. *Social Science & Medicine*, 66(6), 1356-1367. <https://doi.org/10.1016/j.socscimed.2007.11.020>
- John R.M. , Ross H. (2018). Illicit cigarette sales in Indian cities: findings from a retail survey. *Tobacco Control*, 27:684. doi:10.1136/tobaccocontrol-2017-053999
- Joossens, L., & Raw, M. (2012). From cigarette smuggling to illicit tobacco trade. *Tobacco Control*, 21(2), 230-234. <https://doi.org/10.1136/tobaccocontrol-2011-050205>
- Kapoor, N., Arora, S., & Kalra, S. (2021). Gender Disparities in People Living with Obesity - An Uncharted Territory. *Journal of Midlife Health*, 12(2), 103-107. [https://doi.org/10.4103/jmh.jmh\\_48\\_21](https://doi.org/10.4103/jmh.jmh_48_21)
- Kanis, J. A., Johnell, O., Odén, A., et al. (2005). Smoking and fracture risk: A meta-analysis. *Osteoporosis International*, 16, 155–162. 3
- Kidane, A., Hepelwa, A., Ngeh, E., & Hu, T. W. (2014). A comparative analysis of technical efficiency of smallholder tobacco and maize farmers in Tabora, Tanzania. Paper presented at the Workshop on Tobacco Control Research in Africa, Cape Town, South Africa, July 2014.
- Kumar, A., Singh, H., & Kumar, S. (2011). Value chains of agricultural commodities and their role in food security and poverty alleviation – A synthesis. *Agricultural Economics Research Review*, 24, 169–181.
- Le Bodo, Y., Etilé, F., Gagnon, F., & De Wals, P. (2019). Conditions influencing the adoption of a soda tax for public health: analysis of the French case (2005–2012). *Food Policy*, 88, 101765.

- Lencucha, R., Drope, J., Magati, P., et al. (2022). Tobacco farming: Overcoming an understated impediment to comprehensive tobacco control. *Tobacco Control*, 31, 308-312. <https://doi.org/10.1136/tobaccocontrol-2021-056564>
- Lerman, C., Gu, H., Loughead, J., Ruparel, K., Yang, Y., & Stein, E. A. (2014). Large-scale brain network coupling predicts acute nicotine abstinence effects on craving and cognitive function. *JAMA psychiatry*, 71(5), 523–530. <https://doi.org/10.1001/jamapsychiatry.2013.4091>
- Li, Q., Magati, P., Lencucha, R., et al. (2019). The economic geography of Kenyan tobacco farmers' livelihood decisions. *Nicotine & Tobacco Research*, 21, 1711–1714. <https://doi.org/10.1093/ntr/ntz011>
- Mahofa, G, Chrispen Sukume C., Mutyasira V. (2022). Agricultural commercialisation, gender relations and women's empowerment in smallholder farm households: evidence from Zimbabwe. [https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/17372/APRA\\_Working\\_Paper\\_88\\_Agricultural\\_Commercialisation\\_Gender\\_Relations\\_Women\\_Empowerment\\_Smallholder\\_Farm\\_Households\\_Zimbabwe.pdf?sequence=2&isAllowed=y](https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/17372/APRA_Working_Paper_88_Agricultural_Commercialisation_Gender_Relations_Women_Empowerment_Smallholder_Farm_Households_Zimbabwe.pdf?sequence=2&isAllowed=y)
- Mendoza-Velázquez, A., and Aguirre Sedeño, D. (2019). Special excise tax on food and beverages and its impact on inflation in Mexico in terms of dynamics, persistence, and change of regime. *Pan American Journal of Public Health*. Vol. 43(88). <https://www.paho.org/journal/en/articles/special-excise-tax-food-and-beverages-and-its-impact-inflation-mexico-terms-dynamics>
- Minian, N., Penner, J., Voci, S., & Selby, P. (2016). Woman focused smoking cessation programming: a qualitative study. *BMC women's health*, 16, 17. <https://doi.org/10.1186/s12905-016-0298-2>
- Mwafulirwa, N. (2023). Tenancy labour abolition policy faces resistance. *MW Nation* (15.9.2023) <https://mwnation.com/tenancy-labour-abolition-policy-faces-resistance/>
- National Cancer Institute (2017). NCI Tobacco Control Monograph Series 21 - The Economics of Tobacco and Tobacco Control. Chapter 15 – Employment Impact of Tobacco Control. [https://cancercontrol.cancer.gov/sites/default/files/2020-06/m21\\_15.pdf](https://cancercontrol.cancer.gov/sites/default/files/2020-06/m21_15.pdf)
- National Research Council and Institute of Medicine. (2015). *Understanding the U.S. Illicit Tobacco Market: Characteristics, Policy Context, and Lessons from International Experiences*. Washington, DC: The National Academies Press.
- Nelson, J. P. (2013). Meta-analysis of alcohol price and income elasticities – with corrections for publication bias. *Health Economics Review*, 3(17). <https://doi.org/10.1186/2191-1991-3-17>
- Nelson J. P. (2014). Gender differences in alcohol demand: a systematic review of the role of prices and taxes. *Health economics*, 23(10), 1260–1280. <https://doi.org/10.1002/hec.2974>
- Newman, R., & Noy, I. (2023). The global costs of extreme weather that are attributable to climate change. *Nature Communications*, 14, Article 6103. <https://www.nature.com/articles/s41467-023-41888-1>
- NCD Alliance (2010). Non- communicable diseases: a priority for women's health and development. [https://ncdalliance.org/sites/default/files/resource\\_files/Non%20Communicable%20Diseases%20A%20priority%20for%20womens%27s%20health%20and%20development.pdf](https://ncdalliance.org/sites/default/files/resource_files/Non%20Communicable%20Diseases%20A%20priority%20for%20womens%27s%20health%20and%20development.pdf)



- Ngo, A., Fong, G. T., Craig, L. V., & Shang, C. (2019). Analysis of gender differences in the impact of taxation and taxation structure on cigarette consumption in 17 ITC countries. *International Journal of Environmental Research and Public Health*, 16(7), 1275. <https://doi.org/10.3390/ijerph16071275>
- Nolen-Hoeksema S. (2004). Gender differences in risk factors and consequences for alcohol use and problems. *Clin Psychol Rev*. 2004 Dec;24(8):981-1010. doi: 10.1016/j.cpr.2004.08.003. PMID: 15533281.
- Nyberg, J. (n.d.), Sugar International Market Profile. FAO
- ODI (2012). Impact of the Common Agricultural Policy on Food Price Volatility for Developing Countries. <https://odi.org/en/publications/impact-of-the-common-agricultural-policy-on-food-price-volatility-for-developing-countries/>
- OECD (2024). Malawi. <https://oec.world/en/profile/country/mwi?depthSelector1=HS2Depth>
- OECD. (2021). Preventing Harmful Alcohol Use. [https://www.oecd-ilibrary.org/social-issues-migration-health/preventing-harmful-alcohol-use\\_6e4b4ffb-en](https://www.oecd-ilibrary.org/social-issues-migration-health/preventing-harmful-alcohol-use_6e4b4ffb-en)
- OECD. (2022). Illicit Trade in High-Risk Sectors: Implications of Illicit Alcohol for Public Health and Criminal Networks. France: OECD Publishing.
- OECD. (2023). Special focus: An overview of the impact of alcohol policies on alcohol producers and vendors. Retrieved June 16, 2023, from <https://www.oecd-ilibrary.org/sites/819e3e94-en/index.html?itemId=/content/component/819e3e94-en>
- OECD. (2023b). Gender, Education and Skills. The Persistence of Gender Gaps in Education and Skills. <https://www.oecd.org/publications/gender-education-and-skills-34680dd5-en.htm>
- OHCHR (2022). Malawi: Children working on tobacco farms remain out of school, say UN experts. Press release. <https://www.ohchr.org/en/press-releases/2022/12/malawi-children-working-tobacco-farms-remain-out-school-say-un-experts>
- Olson-Sawyer, K., & Madel, R. (2020). The water footprint of your plastic bottle. Foodprint. <https://foodprint.org/blog/plastic-water-bottle/>
- European anti-fraud office (OLAF). (2023) Illegal tobacco. Brussels: European Commission 2023. Available: [https://anti-fraud.ec.europa.eu/policy/policies-prevent-and-deter-fraud/illegal-tobacco\\_en](https://anti-fraud.ec.europa.eu/policy/policies-prevent-and-deter-fraud/illegal-tobacco_en)
- Pan American Health Organization (2015). Tobacco control and illicit trade in tobacco products in Panama. <https://www.paho.org/sites/default/files/tobacco-PAHO-Fact-sheet-Tobacco-control-illicit-trade-products-Panama-2015.pdf>
- Paraje, G., Stoklosa, M., & Blecher, E. (2022). Illicit trade in tobacco products: Recent trends and coming challenges. *Tobacco Control*, 31, 257–262. <https://doi.org/10.1136/tobaccocontrol-2021-056557>
- Paraje, G. R., Jha, P., Savedoff, W., & Fuchs, A. (2023, October). Taxation of tobacco, alcohol, and sugar-sweetened beverages: Reviewing the evidence and dispelling the myths. *BMJ Global Health*, 8(Suppl 8), e011866. <https://doi.org/10.1136/bmjgh-2023-011866>

- Park, S. J., Lim, H. S., Lee, K., & Yoo, S. J. (2018). Green Tobacco Sickness Among Tobacco Harvesters in a Korean Village. *Safety and health at work*, 9(1), 71–74.  
<https://doi.org/10.1016/j.shaw.2017.06.007>
- PepsiCo (2023). PepsiCo Reports Second-Quarter 2023 Results; Raises Full-Year Guidance.  
[https://investors.pepsico.com/docs/default-source/investors/q2-2023/q2-2023-earnings-release\\_sbkjql2mrs693bw.pdf](https://investors.pepsico.com/docs/default-source/investors/q2-2023/q2-2023-earnings-release_sbkjql2mrs693bw.pdf)
- Petit P., Nagy J. (2016). How to design and enforce tobacco excises? International Monetary Fund 2016. <https://www.imf.org/external/pubs/ft/howtonotes/2016/howtonote1603.pdf>
- Phetphum, C., Prajongjeep, A., Keeratisiroj, O., Simsin, S., & Thawatchaijareonying, K. (2022). Deteriorating quality of life and a desire to stop growing tobacco among Virginia and burley tobacco farmers in Thailand. *JCO Global Oncology*, (8). <https://doi.org/10.1200/go.22.00180>
- Pierce, J. P., Patterson, R. E., Senger, C. M., et al. (2014). Lifetime cigarette smoking and breast cancer prognosis in the after breast cancer pooling project. *Journal of the National Cancer Institute*, 106, djt359. <https://doi.org/10.1093/jnci/djt359>
- Pinto da Silva, L., & Esteves da Silva, J. C. G. (2022). Evaluation of the carbon footprint of the life cycle of wine production: A review. *Cleaner and Circular Bioeconomy*, 2, 100021.  
doi:10.1016/j.clcb.2022.100021.
- Pitchford, J., Turnovsky, S.J. (1976). Some Effects of Taxes on Inflation. *The Quarterly Journal of Economics*. Vol. 90(4), pp. 523-539.
- Phillip Morris International (2022). Investor Information October 2022.  
<https://philipmorrisinternational.gcs-web.com/static-files/88d67ac2-85a8-4509-bbec-e061490b43ac>
- Phillip Morris International (2023). Philip Morris International Reports 2023 Third-Quarter and Nine-Month Year-to-Date Results. <https://www.pmi.com/media-center/press-releases/press-details?newsId=26881>
- Powel, L.M., and Leider, J. (2022). Impact of the Seattle Sweetened Beverage Tax on substitution to alcoholic beverages. *PLoS ONE*. Vol. 17(1). <https://doi.org/10.1371/journal.pone.0262578>
- Price Waterhouse. The economic impact of the tobacco industry on the United States economy. Arlington, VA: Price Waterhouse; 1990. Available from:  
<https://www.industrydocumentslibrary.ucsf.edu/tobacco/docs/fsjk0110>.
- Price Waterhouse. The economic impact of the tobacco industry on the United States economy in 1990. Arlington, VA: Price Waterhouse; 1992. Available from:  
<https://www.industrydocumentslibrary.ucsf.edu/tobacco/docs/jllx0062>.
- Rehm, J., Shield, K. D., & Weiderpass, E. (2020). Alcohol consumption: A leading risk factor for cancer. In C. P. Wild, E. Weiderpass, & B. W. Stewart (Eds.), *World Cancer Report* (pp. 68–76). Lyon, France: International Agency for Research on Cancer.
- Reuter, P., Bouchard, M., Chaloupka, F.J., Cook, P.J., Farrelly, M.C., Fong, G.T., Harmon, R.A., Kleemans, E.R., Kottak, C.P., Levi, M., Owens, E., Rees, V.W., So, A.D., von Lampe, K., & Wipfli, H. (2015). *Understanding the U.S. Illicit Tobacco Market: Characteristics, Policy Context, and Lessons from International Experiences*.

- Rocha G., Kirste A., Dittmar F., Asua I. (2023). Achieving net zero in beverages. Kearney. <https://www.kearney.com/industry/consumer-retail/article/achieving-net-zero-in-beverages>
- Roerecke, M., Vafaei, A., Hasan, O. S. M., et al. (2019). Alcohol consumption and risk of liver cirrhosis: A systematic review and meta-analysis. *The American Journal of Gastroenterology*, 114, 1574–1586.
- Rogers, N. T., Pell, D., Mytton, O. T., et al. (2023). Changes in soft drinks purchased by British households associated with the UK soft drinks industry levy: A controlled interrupted time series analysis. *BMJ Open*, 13, e077059. <https://doi.org/10.1136/bmjopen-2023-077059>.
- Roura, E., Castellsagué, X., Pawlita, M., et al. (2014). Smoking as a major risk factor for cervical cancer and pre-cancer: Results from the EPIC cohort. *International Journal of Cancer*, 135, 453–466. <https://onlinelibrary.wiley.com/doi/10.1002/ijc.28666>.
- Royo-Bordonada, M. Á., Fernández-Escobar, C., Gil-Bellosta, C. J., & Ordaz, E. (2022). Effect of excise tax on sugar-sweetened beverages in Catalonia, Spain, three and a half years after its introduction. *International Journal of Behavioral Nutrition and Physical Activity*, 19(1). <https://doi.org/10.1186/s12966-022-01262-8>
- Ruths, J. C., Shikida, P. F. A., & Fracarolli, I. F. L. (2023). Rural work in the sugarcane sector and its influences on health: Scoping review. *Revista Brasileira de Medicina do Trabalho*, 21(1), e2023779. <https://rbmt.org.br/details/1812/en-US/rural-work-in-the-sugarcane-sector-and-its-influences-on-health--scoping-review>
- Sabir, M., Saleem, W., Iqbal, M.A., & Aamir, N. (2021). Economic Implications of Cigarette Taxation in Pakistan: An Exploration Through a CGE Model [Report]. SPDC. <https://tobacconomics.org/files/research/726/spdc-rp-cge-report-final.pdf>
- Sahadewo, G. A., Drope, J., Li, Q., Witoelar, F., & Lencucha, R. (2020). In-and-Out of Tobacco Farming: Shifting Behavior of Tobacco Farmers in Indonesia. *International Journal of Environmental Research and Public Health*, 17(24), 9416. <https://doi.org/10.3390/ijerph17249416>
- Sahadewo, G. A., Drope, J., Li, Q., et al. (2021). Tobacco or not tobacco: Predicting farming households' income in Indonesia. *Tobacco Control*, 30, 320–327. <https://tobaccocontrol.bmj.com/content/30/3/320>
- Sahadewo, G.A., Drope, J., Witoelar, F., Li, Q., & Lencucha, R. (2021b). The Economics of Tobacco Farming in Indonesia: 3rd Wave Tobacco Farmers Survey [Report]. Tobacconomics. <https://www.tobacconomics.org/files/research/748/entobacco-farming-report-wave3.pdf>
- Selvanathan, S., & Selvanathan, E. (2006). Consumption patterns of food, tobacco, and beverages: A cross-country analysis. *Applied Economics*, 38, 1567-1584. <https://doi.org/10.1080/00036840500392664>
- Schierhout, G., Palagyi, A., Gadsen, T., Dubois, G., Renshaw, N., & Dodd, R. (2021). Leveraging global health wins for sustainable, person-centered healthcare systems. NCD Alliance / The Helmsley Charitable Trust Policy Research Report.
- Scollo, M., et al. (2003). Review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. *Tobacco Control*. Vol. 12, pp. 13-20.

- S&P (2022). CS Brazil H1 Oct sugar production expected to rise 69.1% on year: survey. Retrieved from: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/agriculture/102122-cs-brazil-h1-oct-sugar-production-expected-to-rise-691-on-year-survey>
- Sparks, A., et al. (2022). The Potential Economic and Social Effects of an Alcohol Tax Increase in Hawai'i. University of Hawaii. <https://www.hawaii.edu/aging/phac/wp-content/uploads/2022/03/Hawaii-Alcohol-Tax-Policy-Study-v1.2.pdf>
- Stacey, N., Edoaka, I., Hofman, K., Popkin, B. M., & Ng, S. W. (2021). Changes in beverage purchases following the announcement and implementation of South Africa's Health Promotion Levy: An observational study. *Lancet Planet Health*, 5(4), e200-e208.
- Sweeting, J., Ma, T., Johnson, M., et al. (2009). Anti-contraband policy measures: Evidence for better practice. The Ontario Tobacco Research Unit. Retrieved from [https://www.otru.org/wp-content/uploads/2012/06/special\\_anti\\_contraband\\_measures.pdf](https://www.otru.org/wp-content/uploads/2012/06/special_anti_contraband_measures.pdf)
- Tankari, M. R. (2017). Cash crops reduce the welfare of farm households in Senegal. *Food Security*, 9, 1105–1115. <https://doi.org/10.1007/s12571-017-0727-6>
- The American Consumer Institute Center for Citizen Research. (2023). Taxes and Regulations Hamper the Restaurant Industry's Road to Recovery. <https://www.theamericanconsumer.org/2022/03/taxes-and-regulations-hamper-the-restaurant-industrys-road-to-recovery/>
- The Government of Canada (2008). Federal and provincial governments reach landmark settlement with tobacco companies. <https://www.canada.ca/en/news/archive/2008/07/federal-provincial-governments-reach-landmark-settlement-tobacco-companies.html>
- Thow, A. M., Lencucha, R. A., Rooney, K., Colagiuri, S., & Lenzen, M. (2021). Implications for farmers of measures to reduce sugars consumption. *Bulletin of the World Health Organization*, 99(1), 41. <https://doi.org/10.2471/BLT.20.257667>
- TobaccoAtlas.org (2023). Challenges – Illicit trade. <https://tobaccoatlas.org/challenges/illicit-trade/>
- Tobacco Commission (2021). Demand for Malawi's tobacco intact – Tobacco Commission Malawi. <https://tc.mw/demand-for-malawis-tobacco-intact-tobacco-commission/>
- Tobacco Merchants Association. (1996). Tobacco's contribution to the national economy (1980-1995). Princeton, NJ: Tobacco Merchants Association. Retrieved from <https://www.industrydocumentslibrary.ucsf.edu/tobacco/docs/gphp0054>.
- UNAIDS (2023). Responding to gender-based violence through sorority and information. <https://www.unaids.org/en/keywords/gender-based-violence>
- University of Bath (2023). Newer Nicotine and Tobacco Products. <https://tobaccotactics.org/article/newer-nicotine-and-tobacco-products/>
- U.S. Department of Health and Human Services. (2010a). A report of the Surgeon General: How tobacco smoke causes disease: What it means to you. [https://www.cdc.gov/tobacco/sgr/2010/consumer\\_booklet/pdf/consumer.pdf](https://www.cdc.gov/tobacco/sgr/2010/consumer_booklet/pdf/consumer.pdf)

- U.S. Department of Health and Human Services. (2010b). Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.  
[https://www.cdc.gov/tobacco/data\\_statistics/sgr/2010/highlight\\_sheets/pdfs/overview\\_reproductive.pdf](https://www.cdc.gov/tobacco/data_statistics/sgr/2010/highlight_sheets/pdfs/overview_reproductive.pdf)
- U.S. Department of Labor (2021). 2021 Findings on the Worst Forms of Child Labor: Malawi.  
[https://www.dol.gov/sites/dolgov/files/ILAB/child\\_labor\\_reports/tda2021/Malawi.pdf](https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2021/Malawi.pdf)
- Vulovic, V. (2018). Tobacco Control Policies and Employment. A Tobacconomics Policy Brief. Chicago, IL: Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago. *www.tobacconomics.org*
- Wang, H., Sindelar, J. L., & Busch, S. H. (2006). The impact of tobacco expenditure on household consumption patterns in rural China. *Social Science & Medicine*, 62(6), 1414-1426.  
<https://doi.org/10.1016/j.socscimed.2005.07.032>
- Warner, K. E. (1995). The importance of tobacco to a country's economy. In K. Slama (Ed.), *Tobacco and health* (pp. 301-308). New York: Plenum Press.
- Wharton Applied Research Center. A study of the tobacco industry's economic contribution to the nation, its fifty states, and the District of Columbia. Philadelphia: Wharton Applied Research Center and Wharton Econometric
- White, J. S., Basu, S., Kaplan, S., Madsen, K. A., Villas-Boas, S. B., & Schillinger, D. (2023). Evaluation of the sugar-sweetened beverage tax in Oakland, United States, 2015-2019: A quasi-experimental and cost-effectiveness study. *PLoS medicine*, 20(4), e1004212.  
<https://doi.org/10.1371/journal.pmed.1004212>
- World Bank (n.d.). Global SSB Tax Database. SSB tax coverage. <https://ssbtax.worldbank.org/story-two/>
- World Bank. (2016). High and Dry: Climate Change, Water, and the Economy.  
<https://www.worldbank.org/en/topic/water/publication/high-and-dry-climate-change-water-and-the-economy>
- World Bank. (2019). Distributional Effects of Tobacco Taxation: A Comparative Analysis.  
<https://documents1.worldbank.org/curated/en/358341554831537700/pdf/Distributional-Effects-of-Tobacco-Taxation-A-Comparative-Analysis.pdf>
- World Bank. (2019b). Confronting Illicit Tobacco Trade: a Global Review of Country Experiences.  
<https://documents.worldbank.org/en/publication/documents-reports/documentdetail/677451548260528135/confronting-illicit-tobacco-trade-a-global-review-of-country-experiences>
- World Bank. (2020a). Knowledge Brief. Health earmarks and health taxes: what do we know?  
<https://documents1.worldbank.org/curated/en/415911607500858658/pdf/Health-Earmarks-and-Health-Taxes-What-Do-We-Know.pdf>
- World Bank. (2020b). Taxes on sugar-sweetened beverages: International evidence and experiences.  
<https://openknowledge.worldbank.org/server/api/core/bitstreams/4ca4b739-f713-5a89-aca2-02ec50976e7c/content>

World Bank (2023a). The World Bank in Malawi.

<https://www.worldbank.org/en/country/malawi/overview#1>

World Bank (2023b). Health Taxes and Inflation. Available at

<https://documents1.worldbank.org/curated/en/099531302232310282/pdf/IDU02744ac8c07576041e209fea0171a74ecce7e.pdf>

World Bank. (2023c). Unpacking the empirics behind health tax revenue.

<https://thedocs.worldbank.org/en/doc/f1f068e38935e2f5d92b7edf365d5089-0350032023/original/KN-4-Unpacking-the-empirics-behind-health-tax-revenues.pdf>

World Customs Organization, Illicit Trade Report 2022. [https://www.wcoomd.org/-](https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/illicit-trade-report/itr_2022_en.pdf?db=web)

[/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/illicit-trade-report/itr\\_2022\\_en.pdf?db=web](https://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/illicit-trade-report/itr_2022_en.pdf?db=web)

World Health Organization. (2006). Intimate partner violence and alcohol. [https://movendi.ngo/wp-](https://movendi.ngo/wp-content/uploads/2019/05/fs_intimate.pdf)

[content/uploads/2019/05/fs\\_intimate.pdf](https://movendi.ngo/wp-content/uploads/2019/05/fs_intimate.pdf)

World Health Organization. (2010). Gender, Women and the Tobacco Epidemic.

<https://www.who.int/publications/i/item/9789240004849>

World Health Organization. (2011) Alcohol: Fact Sheet. [http://www.who.int/substance\\_abuse/](http://www.who.int/substance_abuse/facts/alcohol/en/index.html)

[facts/alcohol/en/index.html](http://www.who.int/substance_abuse/facts/alcohol/en/index.html).

World Health Organization. (2013). Protocol to eliminate illicit trade in tobacco products.

[https://iris.who.int/bitstream/handle/10665/80873/9789241505246\\_eng.pdf?sequence=1](https://iris.who.int/bitstream/handle/10665/80873/9789241505246_eng.pdf?sequence=1)

World Health Organization. (2014). Secretariat Study of the Basic Requirements of the Tracking-and-Tracing Regime to be Established in Accordance with Article 8 of the Protocol to Eliminate Illicit Trade in Tobacco Products. Geneva, CH: Secretariat, WHO Framework Convention on Tobacco Control, World Health Organization.

World Health Organization. (2016). Earmarked tobacco taxes: lessons learnt from nine countries.

<https://www.who.int/publications/i/item/9789241515825>

World Health Organization. (2017). Brazil Impact Assessment.

<https://fctc.who.int/publications/m/item/factsheet-ia-brazil>

World Health Organization (2019). Health Taxes - A primer. Available at:

<https://apps.who.int/iris/handle/10665/329757>

World Health Organization. (2020). More than 100 reasons to quit tobacco.

<https://www.who.int/news-room/spotlight/more-than-100-reasons-to-quit-tobacco>

World Health Organization. (2021a). Home/News/Tobacco use falling: WHO urges countries to

invest in helping more people to quit tobacco. <https://www.who.int/news/item/16-11-2021-tobacco-use-falling-who-urges-countries-to-invest-in-helping-more-people-to-quit-tobacco>

World Health Organization. (2021b). WHO report on the global tobacco epidemic 2021: addressing new and emerging products. Annex 9.4. <https://www.who.int/publications/i/item/WHO-HEP-HPR-TFI-2021.9.4>



- World Health Organization. (2022). Tobacco: poisoning our planet. <https://iris.who.int/bitstream/handle/10665/354579/9789240051287-eng.pdf?sequence=1>
- World Health Organization. (2023). SAFER - Raise prices on alcohol through excise taxes and pricing policies. <https://www.who.int/initiatives/SAFER/pricing-policies>
- World Health Organization. (2023a). WHO report on the global tobacco epidemic, 2023. Protect people from tobacco smoke. ISBN: 978-92-4-007716-4. <https://iris.who.int/bitstream/handle/10665/372043/9789240077164-eng.pdf?sequence=1>
- World Health Organization (2023). A public health perspective on zero- and low-alcohol beverages. Brief 10. Geneva: Snapshot series on alcohol control policies and practice. Licence: CC BY-NC-SA 3.0 IGO. <https://iris.who.int/bitstream/handle/10665/366740/9789240072152-eng.pdf?sequence=1>
- World Health Organization. (2023a). World No Tobacco Day 2023 – grow food, not tobacco. Q&A. World Health Organization. <https://www.who.int/news-room/questions-and-answers/item/world-no-tobacco-day-2023---grow-food--not-tobacco>
- World Health Organization. (2023b). Tobacco farmers switch to sustainable crops in Brazil. <https://www.who.int/news-room/feature-stories/detail/tobacco-farmers-switch-to-sustainable-crops-in-brazil>
- World Health Organization. (2023c). World No Tobacco Day 2023. Grow food, not tobacco. <https://iris.who.int/bitstream/handle/10665/368076/9789240073937-eng.pdf?sequence=1>
- World Health Organization. (2023d). Health Taxes [https://www.who.int/health-topics/health-taxes#tab=tab\\_1](https://www.who.int/health-topics/health-taxes#tab=tab_1)
- World Health Organization (EMRO) (2017). How does tobacco impact women and children? <https://www.emro.who.int/tfi-campaigns/2017/how-does-tobacco-impact-women-and-children.html>
- Wright, A., Smith, K.E. & Hellowell, M. (2017). Policy lessons from health taxes: a systematic review of empirical studies. BMC Public Health. Vol.17(583). <https://doi.org/10.1186/s12889-017-4497-z>
- World Wildlife Fund. (2015). Sugarcane Farming's Toll on the Environment. <https://www.worldwildlife.org/magazine/issues/summer-2015/articles/sugarcane-farming-s-toll-on-the-environment>
- Yang, W., Xu, C., & Kong, F. (2022). Does Non-Food Cultivation of Cropland Increase Farmers' Income? International Journal of Environmental Research and Public Health, 19(12), 7329. <https://doi.org/10.3390/ijerph19127329>
- Zafeiridou, M., Hopkinson, N. S., & Voulvoulis, N. (2018). Cigarette smoking: An assessment of tobacco's global environmental footprint across its entire supply chain. Environmental Science & Technology, 5

## Chapter 10: How to Generate Public Acceptability for Health Taxes

### 1. Introduction

Public acceptability is a critical component of the feasibility of health taxes. Acceptability shapes the practicality and viability of implementing taxation measures.<sup>19</sup> This chapter will explore the nature and importance of public acceptability, within the broader context of health taxes; notably, their contribution to achieving the Sustainable Development Goals (SDGs) and the response to health crises, including the COVID-19 pandemic and non-communicable diseases (NCDs) that represent the new primary health threat, especially for lower and middle-income countries.<sup>20</sup>

The imposition of health taxes on sugary beverages, tobacco, or alcohol, plays a vital role in public health policy. These taxes are designed to discourage such harmful consumption while generating revenue, including for healthcare systems, and promoting healthier behaviours. However, taxes to disincentivize consumption of alcohol, tobacco, and sugar-sweetened beverages (SSBs) are underutilized, in part due to concerns regarding acceptability by key stakeholders, including the public.<sup>21</sup>

Public acceptability thus stands at the core of the feasibility of health taxes, which ensures that health taxes not only achieve their intended health and public finance objectives but are also sustainable in the long term without causing undue hardship or resistance.<sup>22</sup> Acceptability encompasses the willingness of the general population to embrace and comply with these taxation measures. Without being publicly acceptable, even the most well-designed health tax policies can falter.

Acceptability must be considered against the backdrop of cultural dynamics that play a significant role in shaping the consumption patterns of alcohol, tobacco, and SSBs. Environmental and cultural factors that influence consumption include socioeconomic disadvantage (tobacco), religious beliefs (tobacco and alcohol), and living in an urban area.<sup>23</sup> Assessing public acceptability involves understanding the perceptions, attitudes, cultures, and behaviors of the people directly affected by health taxes. It also consists of crafting communication strategies and providing education to ensure the public comprehends the rationale behind these taxes and their benefits regarding health improvements and likely increased access to quality healthcare.

#### a) Global Context for Health Taxes

Health taxes are not isolated policy measures but may be adopted in the broader global health landscape, aligning with critical international initiatives such as the Sustainable Development Goals (SDGs). SDG3 specifically focuses on health, well-being, and Universal Health Coverage (UHC). These taxes not only may aid in directly achieving health-related SDG targets but also address health disparities and contribute towards equitable access to healthcare services.<sup>24</sup> The public acceptability of such taxes is

<sup>19</sup> World Health Organization (WHO). (2021). "Tobacco Taxation: A Win-Win Measure for Fiscal Space and Health (<https://www.who.int/activities/raising-taxes-on-tobacco>).

<sup>20</sup> Sustainable Development Goal 3: Good Health and Well-being | United Nations in Rwanda. (n.d.). Retrieved October 18, 2023, from <https://rwanda.un.org/en/sdgs/3/key-activities>.

<sup>21</sup> Ghebreyesus TA & Clark H. 2023. Health taxes for healthier lives: an opportunity for all governments. *BMJ Global Health* Vol. 8 Issue Suppl 8

<sup>22</sup> *Taxes for health: Evidence clears the air—The Lancet*. (2018). Retrieved October 13, 2023, from [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)30629-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)30629-9/fulltext)

<sup>23</sup> Cummings, K.M., G.T. Fong, and R. Borland, *Environmental influences on tobacco use: evidence from societal and community influences on tobacco use and dependence*. *Annual Review of Clinical Psychology*, 2009. **5**: p. 433-458. ; Athauda, L.K., et al., *Factors influencing alcohol use among adolescents in south Asia: a systematic review*. *Journal of studies on alcohol and drugs*, 2020. **81**(5): p. 529-542

<sup>24</sup> Sustainable Development Goal 3: Good Health and Well-being | United Nations in Rwanda. (n.d.). Retrieved October 18, 2023, from <https://rwanda.un.org/en/sdgs/3/key-activities>



integral to their success in funding efforts to mitigate the risks posed by public health crises such as the COVID-19 pandemic and the growing NCDs.

NCDs, such as heart disease, diabetes, and cancer, have become a greater global health burden. More recently, COVID-19, a highly contagious respiratory illness, has underscored the importance of a robust healthcare system. Alarming, individuals with NCDs are at a significantly higher risk of severe COVID-19 outcomes.<sup>25</sup> The intersection of these pandemics has drawn attention to the importance of introducing effective measures – including health taxes – to address these common risk factors.

In this context, it is vital to emphasize the benefits of health taxes as addressed in the Addis Ababa Action Agenda on Financing for Development. They not only may fund pandemic responses and health care systems but also create a healthier, more resilient population. By linking these taxes to visible improvements in healthcare and disease prevention, public acceptability can be bolstered. For example, a portion of the revenue generated from these global health taxes can be earmarked for strengthening healthcare infrastructure, vaccine distribution, and NCD prevention programs. This not only addresses immediate pandemic needs but also fortifies healthcare systems to better manage NCDs.

## 2. The importance of public acceptability

Public acceptability is a crucial element for implementing feasible health taxes. It refers to the degree of approval, support, or willingness of the general population to embrace and comply with health taxation policies. These may be designed to improve public health outcomes, and to generate revenue (including for healthcare-related purposes and to address societal health-related challenges).<sup>26</sup> Public acceptability involves the public's understanding, agreement, and positive perception of the need for such taxes. In general, acceptability considerations related to public policy include transparency as well as potential impacts on equity, health and the economy.<sup>27</sup> More specific to health taxes, public acceptability has three key dimensions, which are discussed below.

First, the acceptability of taxation on health-harming products as an intervention (considered by itself) depends on public recognition of both the policy 'problem' of NCDs and the appropriateness and effectiveness of taxation as an intervention.<sup>28</sup> In situations where there is strong public recognition of the health harms caused by tobacco, alcohol and SSBs, together with recognition of price as an influence on consumption, health taxes are likely to be more acceptable. For example, alcohol consumption is a prevalent and deeply rooted component of numerous cultures worldwide. Alcohol consumption is associated with a variety of health issues, including an elevated likelihood of cancer development. Public awareness of this connection can support the endorsement of policies designed to mitigate the harm caused by alcohol.<sup>29</sup> This dimension of acceptability can also vary depending on the comparator. For example, when taxation is compared to other NCD policy interventions, it is often seen as less acceptable than other options, such as labelling.<sup>30</sup> Public acceptability of taxation as an intervention

<sup>25</sup> Atkins, J.L., et al., *Preexisting comorbidities predicting COVID-19 and mortality in the UK biobank community cohort*. The Journals of Gerontology: Series A, 2020. **75**(11): p. 2224-2230. doi: <https://doi.org/10.1093/gerona/glaa183>

<sup>26</sup> Sharp, C.A., et al., *Public acceptability of public health policy to improve population health: A population-based survey*. Health Expectations, 2020. **23**(4): p. 802-812. doi: 10.1111/hex.13041.

<sup>27</sup> Barry, L.E., et al., *An umbrella review of the acceptability of fiscal and pricing policies to reduce diet-related noncommunicable disease*. Nutrition Reviews, 2023. **81**(10): p. 1351-1372.

<sup>28</sup> Petrescu, D.C., et al., *Public acceptability in the UK and USA of nudging to reduce obesity: the example of reducing sugar-sweetened beverages consumption*. PLoS One, 2016. **11**(6).

<sup>29</sup> Knowledge of alcohol as a risk factor for cancer was significantly associated with support for policies to reduce alcohol related harm, including pricing and taxation of alcohol (Buykx, Gilligan, Ward, Kippen, & Chapman, 2015).

<sup>30</sup> Diepeveen, S., Ling, T., Suhrcke, M., Roland, M., & Marteau, T. M. (2013). Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. BMC Public Health, **13**(1), 756. doi:10.1186/1471-2458-13-756 ; Lobstein, T., M. Neveux, and J. Landon, *Costs, equity and acceptability of three policies to prevent obesity: A narrative review to support policy development*. Obes Sci

also varies depending on the product being taxed. For example, particularly in high-income contexts, public acceptability tends to be higher for tobacco than for alcohol taxes or unhealthy food or beverage taxes.<sup>31</sup> Factors influencing this difference, explored in more detail below, include that tobacco taxes have often been in place for longer, there is widespread awareness of the health harms associated with tobacco consumption, and the historical use of revenues to support public health spending.<sup>32</sup>

A second dimension of public acceptability is the perception of constituencies; acceptability to the public interacts with acceptability among industry and political groups. Concerns still persist regarding the negative impact of health taxes on job reduction despite a lack of evidence of these adverse effects.<sup>33</sup> Countries that have introduced or increased health taxes have faced public opposition from commercial interests and industry lobbies.<sup>34</sup> In Mexico, for example, soft drink manufacturers strongly opposed a tax on sugary beverages in 2014 to address high rates of obesity and related health problems. Despite the opposition, the tax was implemented (See Box 1). There can be a perceived tension between a risk of potential short-term economic losses compared to long-term health benefits.<sup>35</sup> In Peru, in the lead-up to proposed health tax reforms in 2016, the most common concerns raised in the public media were that health taxes would impact prices and sales, decreasing employment and investments and negatively impacting market competition.<sup>36</sup> Similarly, in Ghana, industry actors and some government representatives opposed health taxes, citing concerns about potential economic harm.<sup>37</sup> Acceptability of health taxes may also be influenced by beliefs among political actors regarding impacts on people or industries in their constituencies. For example, in Israel, legislators argued that limits should exist to limit government intervention because health taxes would impede individual freedom.<sup>38</sup>

A third dimension of acceptability relates to health tax design. Health taxes have been widely implemented – particularly for tobacco and alcohol – but the design often does not reflect best-practice, in terms of the scope, structure and rate of the taxes.<sup>39</sup> This includes the use of excise taxes (rather than sales taxes), the application of taxes based on volume rather than price (specific taxes rather than ad valorem taxes) and the application of relatively high tax rates appropriate to the externality [insert cross reference to relevant chapter].<sup>40</sup> As such, in many cases it is not the acceptability of a new tax that is important, but the acceptability of changes to current tax design, and particularly, tax rates. Changes to

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Pract, 2020. **6**(5): p. 562-583. ; Reynolds, J.P., et al., *Public acceptability of nudging and taxing to reduce consumption of alcohol, tobacco, and food: A population-based survey experiment*. *Social Science & Medicine*, 2019. **236**: p. 112395

<sup>31</sup> Reynolds, J.P., et al., *Public acceptability of nudging and taxing to reduce consumption of alcohol, tobacco, and food: A population-based survey experiment*. *Social Science & Medicine*, 2019. **236**: p. 112395

<sup>32</sup> Wright, A., K.E. Smith, and M. Hellowell, *Policy lessons from health taxes: a systematic review of empirical studies*. *BMC Public Health*, 2017. **17**(1): p. 583. Doi: 10.1186/s12889-017-4497-z.

<sup>33</sup> Barry LE, Kee F, Woodside J, Cawley J, Doherty E et al. An umbrella review of the acceptability of fiscal and pricing policies to reduce diet-related noncommunicable disease. *Nutrition Reviews* Vol. 81(10):1351–1372. <https://doi.org/10.1093/nutrit/nuad011>.

<sup>34</sup> Lwin, K.S., et al., *Framing health taxes: learning from low-and middle-income countries*. *BMJ Global Health*, 2023. **8**(Suppl 8): p. e012955.

<sup>35</sup> Ghebreyesus, T.A. and H. Clark, *Health taxes for healthier lives: an opportunity for all governments*. *BMJ Global Health*, 2023. **8**(Suppl 8)

<sup>36</sup> Zuleta, M., et al., *Political and socioeconomic factors that shaped health taxes implementation in Peru*. *BMJ Global Health*, 2023. **8**(Suppl 8): p. e012024.

<sup>37</sup> Singh A, Smith K, Hellowell M, et al. An exploration of stakeholder views and perceptions on taxing tobacco, alcohol and sugar- sweetened beverages in Ghana. *BMJ Global Health* 2023;8:e012054. doi:10.1136/ bmjgh-2023-012054.

<sup>38</sup> Tamir, O., et al., *Taxation of sugar sweetened beverages and unhealthy foods: a qualitative study of key opinion leaders' views*. *Israel journal of health policy research*, 2018. **7**(1): p. 1-11. Doi: <https://doi.org/10.1186/s13584-018-0240-1>.

<sup>39</sup> Ghebreyesus, T.A. and H. Clark, *Health taxes for healthier lives: an opportunity for all governments*. *BMJ Global Health*, 2023. **8**(Suppl 8)

<sup>40</sup> Siu, E. and A.M. Thow, *Linking health and finance ministries to improve taxes on unhealthy products*. *Bulletin of the World Health Organization*, 2022. **100**(9): p. 570.

health tax design and rate have been publicly opposed in many low-and-middle income countries.<sup>41</sup> For example, increasing the tobacco tax rate in Ethiopia was enabled by analysis of the additional revenue that would be generated, as well as discrediting assertions that a tax rate increase would lead to an increase in illicit trade through highlighting the more important role of border control.<sup>42</sup> Similarly, changes to SSB tax design in France, Belgium and Latvia to use a differentiated rate faced public opposition and were supported by policy learning from other jurisdictions, as well as evidence for effectiveness in decreasing sugar content via incentivizing reformulation.<sup>43</sup>

Overall, understanding different dimensions of acceptability and identifying approaches and strategies to address public concerns is an important consideration in the development of health taxation. For example, when taxes have been framed in understandable ways, they have garnered more support from policy champions including the Ministry of Finance and civil society organizations.<sup>44,45</sup> This in turn has balanced (negative) public framing of health taxes by industry actors and enhanced the feasibility of successfully implementing health taxes.<sup>46</sup>

### 3. Explaining public attitudes towards health taxes

A major influence on public attitudes towards health taxes is individual consumption of tobacco, alcohol and SSBs. In general, people prefer interventions that affect the behaviour of others, such that non-consumers are more likely to support taxes.<sup>47</sup> The fact that most people in high-income countries no longer smoke has led to a shift in public attitudes and behaviours regarding tobacco, reducing its acceptability.<sup>48</sup> This can increase public acceptability of taxes and other tobacco control measures, since people are more likely to support measures which do not impact on them personally. For example, non-smokers are significantly more supportive of tobacco tax increases<sup>49</sup> and higher alcohol consumption is associated with reduced support for alcohol taxation.<sup>50</sup> In contexts where rates of consumption are high, public acceptability of taxes is likely to be lower. This can be exacerbated where there is an aspirational dimension to consumption – for example, where tobacco smoking, unhealthy food

<sup>41</sup> See for example, Ahsan A, Amalia N, Rahmayanti KP, et al. 2023. *Health taxes in Indonesia: a review of policy debates on the tobacco, alcoholic beverages, and sugar-sweetened beverage taxes in the media*. *BMJ Global Health*, 2023. Oct;8(Suppl 8) ; Acharya Y, Karmacharya V, Pau del U, et al. *Perceptions of Key Stakeholders on Taxes on Tobacco and Alcohol Products in Nepal*. *BMJ Glob Health*, 2023 Oct;8(Suppl 8) ; Erku D, Yigzaw N, Tegegn HK, et al. *Framing, moral foundations and health taxes: interpretive analysis of Ethiopia's tobacco excise tax policy passage*. *BMJ Glob Health*; 2023. **8** (Suppl 8)

<sup>42</sup> Erku D, Yigzaw N, Tegegn HK, et al. *Framing, moral foundations and health taxes: interpretive analysis of Ethiopia's tobacco excise tax policy passage*. *BMJ Glob Health*, 2023. **8** (Suppl 8)

<sup>43</sup> Thow, A.M., et al., *Sugar-sweetened beverage taxes in Europe: learning for the future*. *European Journal of Public Health*, 2022. **32**(2): p. 273-80.

<sup>44</sup> Carriedo A, Koon AD, Encarnación LM, Lee K et al. *The political economy of sugar-sweetened beverage taxation in Latin America: lessons from Mexico, Chile and Colombia*. *Globalization and Health* 2021, **17**:5.

<sup>45</sup> Lwin KS, Koon AD, Rasanathan K, et al. Framing health taxes: learning from low- and middle-income countries. *BMJ Global Health* 2023; **8**:e012955.

<sup>46</sup> Lwin KS, Koon AD, Rasanathan K, et al. Framing health taxes: learning from low- and middle-income countries. *BMJ Global Health* 2023; **8**:e012955.

<sup>47</sup> Diepeveen, S., et al., *Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis*. *BMC Public Health*, 2013. **13**(1): p. 756

<sup>48</sup> Diepeveen, S., et al., *Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis*. *BMC Public Health*, 2013. **13**(1): p. 756.

<sup>49</sup> Farley, S.M., et al., *Public opinions on tax and retail-based tobacco control strategies*. *Tobacco control*, 2015. **24**(e1): p. e10-e13.; Hanewinkel, R. and B. Isensee, *Opinion on tobacco tax increase: Factors associated with individuals' support in Germany*. *Health Policy*, 2008. **86**(2): p. 234-238.; Spivak, A.L., M.S. Givel, and S.M. Monnat, *Self-interest and public opinion in health policy: smoking behavior and support for tobacco control*. *Social Theory & Health*, 2018. **16**(1): p. 20-43

<sup>50</sup> Buykx, P., et al., *Public support for alcohol policies associated with knowledge of cancer risk*. *International Journal of Drug Policy*, 2015. **26**(4): p. 371-379.

consumption or drinking alcohol is associated with status. One factor unique to SSB taxation is that SSBs are commonly consumed by children. A study in Australia found that concerns related to protecting children from health harms of SSB consumption increased the acceptability of interventions.<sup>51</sup>

A challenge to public acceptability of health taxes stems from public resistance to taxation in general, coupled with the fact that the personal benefits of health taxation are heterogeneous, and individuals often don't see a specific benefit, particularly in the near future. In effect, we see a collective action challenge, in which the aggregate benefit of health taxes at a population level is almost invisible to a given individual. However, gradual changes in public attitudes have been observed over time, and the public is more likely to accept taxation on unhealthy commodities if legislation has already been enacted.<sup>52</sup> Linked to public resistance to taxation is mistrust of government. Several studies have found that mistrust of government, including whether revenue will not be used for public health, is associated with low acceptability of health taxes.<sup>53</sup>

Revenue use also influences public acceptability. Earmarking of tax revenue to support health and other social policy objectives increases public acceptability of health taxes.<sup>54</sup> For example, in New York City, only 25% of smokers were in favour of increasing cigarette tax, but if the tax revenues were earmarked for smoking prevention and treatment, support increased to 56%.<sup>55</sup> Similarly, public acceptance of alcohol taxation in Australia was higher if the additional revenue collected was dedicated towards prevention and treatment of alcohol related harm.<sup>56</sup> See Chapter 3 for further discussion on health tax revenue.

Public awareness of the application of health taxes is an important precursor to forming public attitudes. The salience of health taxes is a contributor to awareness and varies depending on the tax mechanism (for example, whether the tax is identified in the posted price).<sup>57</sup> Awareness of health taxes is also influenced by public discussion in media, which is in turn influenced by industry and public health advocacy regarding the potential impact of a tax.<sup>58</sup>

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<sup>51</sup> Boelsen-Robinson, T., et al., *Evaluating the implementation and customer acceptability of a sugar-sweetened beverage reduction initiative in thirty Australian aquatic and recreation centres*. Public Health Nutrition, 2021. **24**(15): p. 5166-5175.

<sup>52</sup> Diepeveen, S., et al., *Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis*. BMC Public Health, 2013. **13**(1): p. 756

<sup>53</sup> Somerville, C., et al., *Public attitudes towards pricing policies to change health-related behaviours: a UK focus group study*. The European Journal of Public Health, 2015. **25**(6): p. 1058-1064. ; Eykelenboom, M., van Stralen, M.M., Olthof, M.R., et al (2019). Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, **16**(1), 78. ; Wright A, Smith KE and Hellowell M. Policy lessons from health taxes: a systematic review of empirical studies. BMC Public Health 2017, **17**:583

<sup>54</sup> Eykelenboom, M., et al., Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*, 2019. **16**(1): p. 78.

<sup>55</sup> Farley, S.M., et al., *Public opinions on tax and retail-based tobacco control strategies*. Tobacco control, 2015. **24**(e1): p. e10-e13

<sup>56</sup> Tobin, C., A.R. Moodie, and C. Livingstone, *A review of public opinion towards alcohol controls in Australia*. BMC Public Health, 2011. **11**(1): p. 58

<sup>57</sup> Goldin, J., *Optimal tax salience*. Journal of Public Economics, 2015. **131**: p. 115-123.; Goldin, J. and T. Homonoff, *Smoke gets in your eyes: cigarette tax salience and regressivity*. American Economic Journal: Economic Policy, 2013. **5**(1): p. 302-336.

<sup>58</sup> Altman, E.A., K.A. Madsen, and L.A. Schmidt, *Missed opportunities: the need to promote public knowledge and awareness of sugar-sweetened beverage taxes*. International journal of environmental research and public health, 2021. **18**(9): p. 4607

Media reporting has been identified as an important influence on public acceptability. There is evidence that industry has actively influenced media reporting to undermine public acceptability of taxation, for example, in Hong Kong, the alcohol industry has worked closely with media in an attempt to garner public support, and to shape public opinion that the alcohol tax was unfair.<sup>59</sup> In Indonesia, media reporting regarding tobacco taxation was found to be biased towards industry statements, with industry actors emerging as opinion leaders in the media.<sup>60</sup> Similarly, in France, public support for tobacco taxation was undermined by a strong communication strategy by tobaccoists, who framed themselves as close to the people and their concerns, especially in increasingly under-served rural areas where they maintain public services, social support, and conviviality.<sup>61</sup>

In contrast, introducing the SSB tax in Mexico provides an example of a supportive media that increased public acceptability. Media campaigns were successfully used by public health advocates to raise the public and political profile of both the health harms associated with SSB consumption, and SSB taxation as an appropriate policy intervention<sup>62</sup> (See Box 1).

**Box 1: Lessons from Mexico on the role of NGOs in public acceptability<sup>63</sup>**

Mexico was the first country in the Americas to pass an SSB tax in October 2013. Its successful implementation the following year marked increased global interest in SSB taxes. The tax of one peso per liter (about 10% of SSB retail price) on any beverage sweetened with sugar provided significant additional revenue for the Mexican government, as well as reduced SSB consumption by between about 6% and 10%, thereby helping to address the obesity epidemic in Mexico. Before 2013, only nine other nations had passed SSB taxes, but since Mexico passed its SSB tax, around 23 different countries and eight jurisdictions in the US have adopted a tax on SSB.

This experience provides essential lessons from Mexico on how to frame an SSB tax to enhance its feasibility in other countries with similar implementation contexts. First, Non-Governmental Organizations (NGOs) used the available empirical evidence to increase public and government awareness of excessive SSB consumption and its associated health problems. Through public relations campaigns, *el Poder del Consumidor (Consumer Power)*, an NGO focused on consumer rights and the *Alianza por la Salud Alimentaria (Alliance for Food Health)*, an umbrella organization of 22 NGOs and 650 civil society groups, brought visibility to the obesity epidemic, helping shape public perception that Mexico's obesity epidemic was driven in part by SSB consumption.

Second, supporters needed to understand how to manage the political and economic context. Facilitated by a grant from Bloomberg Philanthropies, supporter groups were able to hire a political strategy and lobbying firm and design and implement advocacy efforts inside the national government and the Mexican public. Third, framing the tax as revenue-generating helped get the proposal onto the policy

<sup>59</sup> Yoon, S. and T.-H. Lam, *The alcohol industry lobby and Hong Kong's zero wine and beer tax policy*. BMC Public Health, 2012. 12(1): p. 717

<sup>60</sup> Ahsan, A., et al., *Health taxes in Indonesia: a review of policy debates on the tobacco, alcoholic beverages and sugar-sweetened beverage taxes in the media*. BMJ Global Health, 2023. 8(Suppl 8): p. e012042

<sup>61</sup> Geindreau, D., M. Guillou-Landréat, and K. Gallopel-Morvan, *Tobacco Tax Increases: A Discourse Analysis of the French Print and Web News Media from 2000 to 2020*. International Journal of Environmental Research and Public Health, 2022. 19(22): p. 15152

<sup>62</sup> Wright, A., K.E. Smith, and M. Hellowell, *Policy lessons from health taxes: a systematic review of empirical studies*. BMC Public Health, 2017. 17(1): p. 583

<sup>63</sup> Based on Erin James, Martín Lajous & Michael R. Reich. *The Politics of Taxes for Health: An Analysis of the Passage of the Sugar-Sweetened Beverage Tax in Mexico*, *Health Systems & Reform*, 2020. 6:1, e1669122, DOI: 10.1080/23288604.2019.1669122.

agenda and enabled buy-in from the powerful Ministry of Finance (Hacienda). Finally, forming networks within the legislature early on allowed tax proponents to have a network of allies within Congress ready for when the SSB tax was introduced as a bill.

In sum, the favorable correlation of forces from well-organized civil society, private financial support, academics, and high-level political decision-making enabled the implementation of the SSB tax twenty years ago.

Public acceptability is also influenced by industry activity. There is substantial evidence that the tobacco industry has sought to influence public attitudes about tobacco control measures, including taxation. This has included deliberate misrepresentation of the costs and benefits of tobacco control measures, and underplaying the potential benefits of taxation.<sup>64</sup> Similarly, the SSB industry has sought to undermine public support for SSB taxation through casting doubt on the scientific evidence linking SSBs to poor health outcomes, as well as the effectiveness of SSB taxation, and emphasising potential negative aspects such as regressivity.<sup>65</sup> In addition, the SSB and related industries have emphasised the role of a lack of physical activity rather than diet in contributing to obesity.<sup>66</sup> The alcohol industry has also sought to undermine the acceptability of taxation through arguments related to economic interests, culture, and livelihoods of producers (see Box 2). Corporate social responsibility activities are another means through which the tobacco industry has sought to decrease public and political acceptability of tobacco control measures.<sup>67</sup> For example, in the UK, British-American Tobacco used corporate social responsibility investments as a tool to improve public perception of the company during the late 1990s and early 2000's, in order to 'gain the access and influence that we need'.<sup>68</sup> Similarly, the SSB and alcohol industries have used sponsorship of public events such as sports to normalize consumption and reduce acceptability of public health interventions, including taxation.<sup>69</sup>

**Box 2: Industry advocacy to exclude wines from increases in excise taxes in Czechia**

In Czechia, a lack of public acceptability of taxes on wines has contributed to an ongoing exemption of still wines from excise taxation, despite a suggestion by the National Economic Council of the Government to introduce a tax as part of a consolidation package, in an attempt to generate revenue and balance the government budget.<sup>70</sup> In 2021, Czechia was the second largest per-capita alcohol consumer in the EU, which poses public health concerns. However, taxation has been strongly opposed by industry actors, on the basis that a tax would reduce competitiveness of Czech winegrowers, with consumers shifting purchases away from domestically produced Moravian wines, as they would become more expensive, and instead turn to cheaper, imported varieties. In addition, the wine industry represents around 20% of the agriculture sector in Czechia leading to concerns over livelihood impacts. The lack of acceptability has also been linked to the promotion of wine culture and wine tourism, with

<sup>64</sup> Gilmore, A.B., et al., Exposing and addressing tobacco industry conduct in low-income and middle-income countries. *The Lancet*, 2015. 385 (9972): p. 1029-1043

<sup>65</sup> Du, M., et al., Sugar-Sweetened Beverage Taxes: Industry Response and Tactics. *Yale J Biol Med*, 2018. 91(2): p. 185-190

<sup>66</sup> Bridge, G., M. Lomazzi, and R. Bedi, Implementation of a sugar-sweetened beverage tax in low- and middle-income countries: recommendations for policymakers. *Journal of Public Health Policy*, 2020. 41(1): p. 84-97.

<sup>67</sup> Gilmore, A.B., et al., Exposing and addressing tobacco industry conduct in low-income and middle-income countries. *The Lancet*, 2015. 385(9972): p. 1029-1043.

<sup>68</sup> Fooks GJ, Gilmore AB, Smith KE, Collin J, Holden C, Lee K. Corporate social responsibility and access to policy elites: an analysis of tobacco industry documents. *PLoS medicine*. 2011, 23;8(8)

<sup>69</sup> Kelly, B., et al., Building solutions to protect children from unhealthy food and drink sport sponsorship. 2013.; Brown, K., Association Between Alcohol Sports Sponsorship and Consumption: A Systematic Review. *Alcohol and Alcoholism*, 2016. 51(6): p. 747-755.; Cody, K. and S. Jackson, The contested terrain of alcohol sponsorship of sport in New Zealand. *International Review for the Sociology of Sport*, 2016. 51(4): p. 375-393.

<sup>70</sup> McEnchroe, T., Moravian winemakers up in arms over proposal to tax still wines, in *Radio Prague International* 2023, Czech Radio.; Czech Daily, Lawmakers in South Moravian Region Protest Against Introduction of Consumption Tax on Wine, in *Czech Daily*. 2023, Czech Daily: Czechia

a tax placing an administrative burden on winegrowers and running counter to efforts to develop the tourism industry.<sup>71</sup> There has been significant public discussion regarding this issue.

#### 4. How to generate public acceptability

##### a) The importance of public communication regarding health taxes

Public advocacy regarding the negative health impacts of the targeted commodities and the effectiveness of taxation can also increase the acceptability of health taxes.<sup>72</sup> This includes ensuring that the public are aware of the health, social and economic burden of NCDs and other related health issues (such as dental caries associated with SSB consumption and road traffic accidents associated with alcohol intake). For example, in Mexico, the introduction of an SSB was associated with an extensive advocacy campaign that emphasised the health harms of SSBs.<sup>73</sup> Similarly, in Australia, research has indicated that knowledge of alcohol as a risk factor for cancer was significantly associated with support for taxation of alcohol.<sup>74</sup> Such public awareness campaigns can also raise awareness of broader, non-health impacts, including related environmental issues. Communicating the effectiveness of health taxes has also been found to increase acceptability.<sup>75</sup>

Addressing public perceptions of fairness and the appropriateness of government intervention through clear communication is also critical for the acceptability of health taxes. Arguments from the public and from industry regarding “nanny statism” are often used to oppose health taxes, which imply that governments are treating adults like children through the imposition of regulations that seek to change their behaviour.<sup>76</sup> Public perceptions of the potential for greater impact on the poor or other groups also need to be addressed. Industry actors often frame taxes as unfair and regressive (see Chapter 8), and public acceptability can be increased by countering this framing with data as well as emphasis on positive health and social benefits.<sup>77</sup>

<sup>71</sup> McEnchroe, T., Moravian winemakers up in arms over proposal to tax still wines, in Radio Prague International 2023, Czech Radio.; Czech Daily, Lawmakers in South Moravian Region Protest Against Introduction of Consumption Tax on Wine, in Czech Daily. 2023, Czech Daily: Czechia

<sup>72</sup> Reynolds, J.P., et al., Public acceptability of nudging and taxing to reduce consumption of alcohol, tobacco, and food: A population-based survey experiment. *Soc Sci Med*, 2019. 236: p. 112395.; Wright, A., K.E. Smith, and M. Hellowell, Policy lessons from health taxes: a systematic review of empirical studies. *BMC public health*, 2017. 17(1): p. 1-14

<sup>73</sup> Fuster, M., et al., Understanding policy change for obesity prevention: learning from sugar-sweetened beverages taxes in Mexico and Chile. *Health Promot Int*, 2020.

<sup>74</sup> Buykx, P., et al., Public support for alcohol policies associated with knowledge of cancer risk. *International Journal of Drug Policy*, 2015. 26(4): p. 371-379

<sup>75</sup> Reynolds JP, Pilling M, Marteau TM. Communicating quantitative evidence of policy effectiveness and support for the policy: Three experimental studies. *Social Science & Medicine*. 2018 Dec 1;218:1-2. ; Pechey R, Burge P, Mentzakis E, Suhreke M, Marteau TM. Public acceptability of population-level interventions to reduce alcohol consumption: a discrete choice experiment. *Social science & medicine*. 2014 Jul 1;113:104-9.

<sup>76</sup> Moore M, Yeatman H, Davey R. Which nanny—the state or industry? Wowers, teetotallers and the fun police in public health advocacy. *Public health*. 2015 Aug 1;129(8):1030-7. ; Steele M, Mialon M, Browne S, Campbell N, Finucane F. Obesity, public health ethics and the nanny state. *Ethics, Medicine and Public Health*. 2021 Dec 1;19:100724.

<sup>77</sup> Akin-Onitolo A, Hawkins B. *Framing tobacco control: the case of the Nigerian tobacco tax debates*. *Health Policy and Planning*. 2022 Jan 1;37(1):22-32. ; Elliott LM, Dalglis SL, Topp SM. Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: a scoping review of policy content, actors, process and context. *International Journal of Health Policy and Management*. 2022 Apr 1;11(4):414-28. ; Thow AM, Rippin HL, Mulcahy G, Duffey K, Wickramasinghe K. *Sugar-sweetened beverage taxes in Europe: learning for the future*. *European Journal of Public Health*. 2022 Apr 1;32(2):273-80.

## b) The role of revenue use

Communicating the public benefit from health tax revenues can also generate public acceptability. This does not necessarily entail formal earmarking, although for some governments this may be a preferred option. Informal earmarking in the form of commitments to compensatory measures can support public acceptability (see Chapter 6). For example, enhancing social welfare benefits for low-income consumers, or concurrent public investment in programmes that support and enable reduced consumption of taxed commodities (including programmes to support tobacco cessation, or recovery from alcohol addiction). Channeling earmarking through the annual budget can reinforce this commitment through improved accountability on the use of these resources, and also help gather public support, while improving governance and transparency. Formal earmarking can thus strengthen sustainability of public health capacity and service delivery, as well as redress power imbalances between the public and private sector in relation to their influence on public health.<sup>78</sup> With respect to formal earmarking, there is consistent evidence that allocating taxes specifically for healthcare and using that money as promised typically boosts public approval.<sup>79</sup> This also highlights the importance of transparency in revenue use. This approach can strengthen sustainability of public health capacity and service delivery, as well as redress power imbalances between the public and private sector in relation to their influence on public health.<sup>80</sup> As an example, an analysis of the SSB tax in France, a measure initially put forth with the primary objective of combating the country's growing obesity problem, found that including the explicit goal of raising funds for public health initiatives increased public support.<sup>81</sup>

## c) Addressing industry response

Public health communication campaigns, in conjunction with comprehensive policy packages to reduce advertising and sponsorship, and ultimately consumption of tobacco, alcohol and SSBs, can also contribute to increasing public acceptability through their impact on the social norms related to consumption and reducing acceptance of industry framing.<sup>82</sup> There is a positive interaction between the denormalization of consumption of alcohol, tobacco and SSBs and associated industries, and support for health taxes. For example, in Hong Kong, tobacco industry denormalization beliefs were associated with support for tobacco taxes among adolescents, particularly among non-smokers.<sup>83</sup> Similarly, denormalization of alcohol consumption through health promotion efforts appears to be associated with support for restrictive alcohol policies, including taxes.<sup>84</sup> SSB taxes may be associated with denormalization, and in turn associated with increased public support after their implementation.<sup>85</sup> Conversely, health taxes are less likely to be introduced when targeted commodities have high public acceptance.<sup>86</sup>

<sup>78</sup> Wright A, Smith KE and Hellowell M. *Policy lessons from health taxes: a systematic review of empirical studies*. BMC Public Health 2017. 17(1): p. 583. Doi: 10.1186/s12889-017-4497-z.

<sup>79</sup> Wright A, Smith KE and Hellowell M. *Policy lessons from health taxes: a systematic review of empirical studies*. BMC Public Health 2017. 17(1): p. 583. Doi: 10.1186/s12889-017-4497-z.

<sup>80</sup> Wright A, Smith KE and Hellowell M. *Policy lessons from health taxes: a systematic review of empirical studies*. BMC Public Health 2017. 17(1): p. 583. Doi: 10.1186/s12889-017-4497-z.

<sup>81</sup> Julia, C., et al., *Public perception and characteristics related to acceptance of the sugar-sweetened beverage taxation launched in France in 2012*. Public Health Nutrition, 2015. 18(14): p. 2679-2688.

<sup>82</sup> Elliott, L., S. Topp, and S. Dalglis, *Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: A scoping review of policy content, actors, process and context*. International Journal of Health Policy and Management, 2020

<sup>83</sup> Chen, J., et al., *Adolescent Support for Tobacco Control Policies and Associations with Tobacco Denormalization Beliefs and Harm Perceptions*. International Journal of Environmental Research and Public Health, 2019. 16(1): p. 147.

<sup>84</sup> Caluzzi, G., et al., *Declining drinking among adolescents: are we seeing a denormalisation of drinking and a normalisation of non-drinking?* Addiction, 2022. 117(5): p. 1204-1212.

<sup>85</sup> Le Bodo, Y., et al., *Potential "signal" effects from sugar-sweetened beverage taxation. Taxing Soda for Public Health: A Canadian Perspective*, 2016: p. 151-160

<sup>86</sup> Elliott, L., S. Topp, and S. Dalglis, *Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: A scoping review of policy content, actors, process and context*. International Journal of Health Policy and Management, 2020



Effectively addressing industry responses to health taxes can also be supported by institutional efforts to limit avenues for impact.<sup>87</sup> These can include measures to require declarations of conflicts of interests, to restrict advertising, and to limit lobbying.

#### **d) The role of policy design and stakeholder engagement**

Strategic policy design and stakeholder engagement can also support public acceptability of health taxes. In particular, hearing and addressing public and industry concerns regarding potential impacts on businesses, equity and employment can support public acceptability. This may include tax design approaches such as limiting the scope of the tax. For example, taking steps to limit administrative burden on small businesses, as was done in Hungary with the Public Health Product Tax.<sup>88</sup>

In planning stakeholder engagement regarding health taxes, it is also critical to identify and manage potential conflicts of interest in stakeholder engagement. For example, in Ghana, some stakeholders also believed that links between politicians and affected industries represent an important barrier, indicating the importance of transparency and addressing conflicts of interest for building trust and enabling health taxes.<sup>89</sup> This may entail limiting participation by non-Government stakeholders in design decisions regarding health taxes, while ensuring that consultation is undertaken regarding potential impacts and tax implementation.

In contexts where political and institutional trust is low, efforts to generate public acceptability may need to include efforts to build trust. This can include public communication as part of a commitment to transparency and inclusive processes. For example, undertaking stakeholder dialogues and ensuring that community voices are heard in relation to tax design as well as revenue use and compensatory measures. For example, in several West African countries, effective stakeholder participation was seen to support evidence use in tobacco tax reform.<sup>90</sup>

#### **e) Influence of the overall tax package on public acceptability**

Public acceptability can also be fostered by communicating health taxes as part of the broader tax framework. By making the health objectives of excise taxes clear within the broader context of a redistributive tax framework, concerns regarding potential for regressivity can be addressed. For example, in the Philippines, articulating health taxes as part of a broader pro-poor tax reform increased acceptability (see Box 3).

From a health perspective, it is also critical to consider policy coherence within the broader tax framework. This can include considering the potential impact of health taxes on corporate tax revenue (i.e. if they contribute to reductions in sales then corporate tax revenue could theoretically decrease). It can also involve minimizing any tax incentives applied to the commodities targeted by health taxes, such as tax credits for advertising.

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<sup>87</sup> Mirza Z, Munir D. Conflicting interests, institutional fragmentation and opportunity structures: an analysis of political institutions and the health taxes regime in Pakistan. *BMJ Global Health*. 2023;8(Suppl 8).

<sup>88</sup> Thow AM, Rippin HL, Mulcahy G, Duffey K, Wickramasinghe K. Sugar-sweetened beverage taxes in Europe: learning for the future. *European Journal of Public Health*. 2022 Apr 1;32(2):273-80.

<sup>89</sup> Singh A, Smith K, Hellowell M, et al. An exploration of stakeholder views and perceptions on taxing tobacco, alcohol and sugar-sweetened beverages in Ghana. *BMJ Global Health* 2023;8:e012054. doi:10.1136/bmjgh-2023-012054.

<sup>90</sup> Amisi MM, Awal MS, Pabari M, Bedu-Addo D. How relationship and dialogue facilitate evidence use: Lessons from African countries. *African Evaluation Journal*. 2021 Dec 9;9(1):559.

**Box 3: Health taxes as part of tax reform in the Philippines**

In the Philippines, including tobacco tax increases and a new SSB tax in a broader package of tax reform helped to increase the acceptability of these health taxes.<sup>91</sup> The 2018 Tax Reform for Acceleration and Inclusion (TRAIN) Act was a broad tax reform with a pro-poor agenda, that reduced personal income taxes and increased consumption taxes, including excise taxes. The health taxes were positioned as maximizing benefits to both public health and government revenue, through which these taxes would contribute to the pro-poor objectives of the tax reform.<sup>92</sup>

**5. Public acceptability and the policy process****a) Searching for windows of opportunity**

The broader policy and political context influence the acceptability of health taxes. Electoral commitments to tax reform and/or health reform have been found to create windows of opportunity for the introduction of health taxes.<sup>93</sup> For example, extensive tax reform in the Philippines included increases in tobacco tax rates as well as the introduction of a new SSB tax (see Box 3).

Actively coupling taxes to social problems that are issues of public concern can create windows of opportunity for health taxes. For example, the introduction of an SSB tax was coupled to concerns regarding the agriculture sector in France, and to concerns regarding health workforce losses in Hungary.<sup>94</sup> Further to this, earmarking of funds for public health and other social concerns can increase public acceptability, in part by addressing a common public perception that health taxes are simply a means to raise revenue.<sup>95</sup>

The COVID-19 pandemic heightened awareness of health risks associated with NCDs and the importance of financing health systems, and created a window of opportunity for health taxes as a means for addressing underlying health risks that contribute to disease severity. Furthermore, the Covid-19 pandemic, the war in Ukraine and rising interest rates in response to the cost of living crisis have reduced tax revenue worldwide, creating budget gaps. Health taxes have been identified as a means to both boost revenue and support better health, including reducing obesity as a risk factor for more severe COVID-19 health outcomes.<sup>96</sup> For example, Turkmenistan raised excises on both tobacco and alcohol products as part of post-COVID recovery measures.<sup>97</sup> International Financial Institutions have also identified

<sup>91</sup> Onagan, F.C.C., B.L.C. Ho, and K.K.T. Chua, *Development of a sweetened beverage tax, Philippines*. Bulletin of the World Health Organization, 2019. 97(2): p. 154.; United Nations Development Programme, *Policy brief tobacco taxation to accelerate the SDGs, equity and sustainability in Asia and the Pacific*. 2022, UNDP: New York.

<sup>92</sup> Onagan, F.C.C., B.L.C. Ho, and K.K.T. Chua, *Development of a sweetened beverage tax, Philippines*. Bulletin of the World Health Organization, 2019. 97(2): p. 154.; United Nations Development Programme, *Policy brief tobacco taxation to accelerate the SDGs, equity and sustainability in Asia and the Pacific*. 2022, UNDP: New York.

<sup>93</sup> Elliott, L., S. Topp, and S. Dalglis, *Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: A scoping review of policy content, actors, process and context*. International Journal of Health Policy and Management, 2020

<sup>94</sup> Hagenars, L., et al., *Effectiveness and policy determinants of sugar-sweetened beverage taxes*. Journal of Dental Research, 2021. 100(13): p. 1444-1451.; Thow, A.M., et al., *Sugar-sweetened beverage taxes in Europe: learning for the future*. European Journal of Public Health, 2022. 32(2): p. 273-80.

<sup>95</sup> Elliott, L., S. Topp, and S. Dalglis, *Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: A scoping review of policy content, actors, process and context*. International Journal of Health Policy and Management, 2020.

<sup>96</sup> Lane, C., A. Glassman, and E. Smitham, *Using Health Taxes to Support Revenue: An Action Agenda for the IMF and World Bank*. CGD Policy Paper 203. Washington, DC, Center for Global Development. 2021.

<sup>97</sup> <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>

health taxes as a means to strengthen the resilience of health systems in the context of population aging.<sup>98</sup>

### **b) Examples of potential policy-mixes/packages**

Evidence-based public health recommendations from the WHO and others that aim to reduce consumption of tobacco, alcohol and SSBs emphasise that price is only one contributor to consumption. As such, for effective action to reduce intakes, a policy package is required. For tobacco, this is exemplified by the articles of the Framework Convention on Tobacco Control, which in addition to taxation includes complementary policy measures to raise consumer awareness of health harms associated with consumption (including social marketing and labelling), change environments to denormalize tobacco consumption (such as restrictions on advertising and place-based smoking bans), and counter illicit trade (Box 3 provides an example). Similar measures are recommended with respect to alcohol and SSBs in the WHO *Global Action Plan for the Prevention and Control of NCDs*, which includes policy options ranging from public awareness campaigns, restricting advertising and promotion, labelling, and supporting healthier environments.

#### ***Box 4: Public acceptability in relation to policy package for tobacco in Australia***

Regular increases in excise taxation have formed part of the policy package for tobacco control in Australia, which also includes smoking bans, labelling requirements and restrictions on advertising, in line with the Framework Convention on Tobacco Control. Tobacco tax increases have made an independent contribution to reducing overall smoking prevalence, particularly among populations of lower socio-economic status. For example, a 12.5% tax increase in 2013 was associated with a reduction in overall smoking prevalence of 6%.<sup>99</sup> The Australian experience suggests that staged increases in excise taxation could be more effective in sustaining changes in smoking prevalence than one-off increases<sup>100</sup>

The acceptability of tobacco tax excise increases in Australia differs by smoking status. Overall, tax increases have been less acceptable than other forms of tobacco control policy, other than smoking bans. Non-smokers and occasional smokers tend to find taxes more acceptable, perceiving price increases as effective in preventing tobacco uptake by children and incentivizing quitting. Framing of tobacco control policies, including taxes, as a means to protecting children and hypothecating tobacco excise for health education and care increased acceptability.<sup>101</sup>

### **c) Measuring acceptability in due time**

Monitoring public support for health taxes can further support public acceptability. For example, in Kenya, evidence for high levels of public support for other tobacco control measures, disseminated when the tobacco control law was being voted on, likely contributed to unanimous support.<sup>102</sup> Monitoring of impact of taxes can also play a role in increasing public acceptability for health taxes in two ways: first, through raising public and political awareness of the taxes raised and their benefits to

<sup>98</sup> OECD, *Tax and fiscal policies after the COVID-19 crisis*. 2021, Organization for Economic Cooperation and Development: Paris.

<sup>99</sup> Wilkinson, A.L., et al., *Smoking prevalence following tobacco tax increases in Australia between 2001 and 2017: an interrupted time-series analysis*. *The Lancet Public Health*, 2019. **4**(12): p. e618-e627.

<sup>100</sup> Wilkinson, A.L., et al., *Smoking prevalence following tobacco tax increases in Australia between 2001 and 2017: an interrupted time-series analysis*. *The Lancet Public Health*, 2019. **4**(12): p. e618-e627

<sup>101</sup> Carter, S.M. and S. Chapman, *Smokers and non-smokers talk about regulatory options in tobacco control*. *Tobacco Control*, 2006. **15**(5): p. 398-404

<sup>102</sup> Maina, W.K., R. Kitonyo, and A.E. Ogwel, *Using findings from a public opinion poll to build political support for tobacco control policy in Kenya*. *Tobacco Control*, 2013. **22**(6): p. 423-426

health, and second, through informing more effective advocacy by civil society and other public health actors.<sup>103</sup>

## **6. Conclusion**

Public acceptability of health taxes is critical to enhance their feasibility of implementation. Key considerations relate to tax design and effectiveness, perceptions of key stakeholders, prevalence of consumption and industry activity. Strategies to generate public acceptability include strategic public communication and revenue use, addressing industry concerns and efforts to normalize consumption, considering health taxes within an overall tax package, and strategic policy design and stakeholder engagement.

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<sup>103</sup>Sandoval, R.C., et al., *Monitoring and measuring health taxes*, in *HEALTH TAXES: Policy and Practice*. 2022. p. 351-399

## Chapter 12. Specific Issues with Respect to Alcohol Taxation

### 1. Introduction: Global evidence on the harm from alcohol consumption and the effectiveness of alcohol control policies, including alcohol taxation

#### a) Evidence of adverse effects on health and welfare: for the drinker, for others around the drinker, and for the society and the environment

At a global level, alcohol is among the higher risk factors for health. Current estimates from the Global Burden of Disease studies rank alcohol in the top ten risk factors for death or disability, and the highest risk factor for ages 25 to 49 (GBD 2019 Global Risk Factors Collaborators, 2020). But the harm from drinking is not only to health, and not only to drinkers, but to those around them. There are also welfare and other social costs for the drinker, those around them, and for their society, including for the work of the societal response systems and agencies responding to and dealing with the harm. Econometric studies of the social costs of alcohol have primarily counted the costs of the drinker's health problems and the social responses to them, but adding in the costs to those around the drinker and their problems from the drinking roughly doubles the cost (Jiang et al., 2022).

The costs connected to heavier drinking are substantially greater than for lighter drinking, but current analyses find that, on a net basis, there are some negative effects on health even from light drinking. There is also a substantial literature on the "single distribution" of levels of alcohol consumption in a population, that finds that the amount and level of heavy drinking is related to the levels of drinking of those drinking much less (Room & Livingston, 2017). From this perspective, the drinking level of the population as a whole becomes a matter of concern. In terms of the UN's Sustainable Development Goals, the preparation and provision of alcoholic drinks, as well as what results from their use, is of concern. Alcohol production, distribution and consumption is a substantial net negative factor for a majority of the 17 Sustainable Development Goals (Room et al., 2022; WHO Euro, 2022)

#### b) The leading place of alcohol taxation in policies to limit harms

*i) Taxes are among WHO's "best buys" for limiting harm from alcohol.*

In setting an agenda for limiting the harm from alcohol to noncommunicable diseases, WHO named alcohol taxes as one of the three "best buys" for controlling the levels of alcohol consumption, as a measure which was both effective and relatively inexpensive for a government to apply (WHO, 2017, p. 9). Taxes are of course inherently a source of revenue for governments, and the costs of collecting an alcohol tax is usually much less than the revenue from it.

*ii) Alcohol taxes are a population-level measure, which avoids singling out and stigmatising individuals*

Alcohol taxes apply generally to the product, and do not single out buyers, as measures to limit harmful drinking such as a Banned Drinker Register do. Such individualised controls are expensive to implement, and have the disadvantage of singling out the individual drinkers, putting them at risk of stigmatisation (Room, 2012).

### 2. Taxing alcohol: the market and its regulation, and considerations in the structure of the taxes, and their levels

#### a) Levels of government

Alcohol taxes can be imposed at any level of government, and can take many forms. Selling and providing alcohol at the retail level, either by the glass on premises or in a container to take elsewhere, is usually licensed, and there is usually a charge for the licence which may include revenue for some level of government. But such licensing fees are not considered here; our attention is on charges for

the alcohol, applied on the basis of the quantity of liquid or of pure alcohol in the liquid or as a percentage of its price.

These can be applied by various levels of government – nationally, at the state or provincial level for federal states, or at a local government level. Federated countries differ on whether the alcohol taxing power is at the federal level (e.g., Australia), at a lower level (e.g., the United Kingdom), or at both (e.g., the United States). The tax is often collected at the wholesale or importer level, rather than from the retail level, so it may be based on the wholesale price. It does not replace more general consumption taxes which may also apply, such as general sales taxes, which are usually collected at the retail level.

Alcohol taxes thus have a geographic specificity: they are applied to alcohol at a point which is either where the beverage is delivered to the customer, or at a wholesaler's premises in the jurisdiction of the customer. This situation has an effect on the structure of alcohol distribution, putting a more location-specific element in the distribution structure, despite the transnational nature of much of the alcohol industry, and the domination of beer and spirits production by transnational corporations (Jernigan & Ross, 2020).

The geographic specificity of alcohol taxes means that a buyer can escape a high local tax by buying across a border. This is true between states in the US and India, and across national borders, particularly for smaller countries in Europe, Africa and Asia. It would be possible in such circumstances for a consortium of neighbouring countries to agree on common alcohol tax policies, but this has rarely been done.

#### **b) Organization of the market**

The production and distribution chain for commercial alcoholic beverages is fairly standard. The raw materials for alcoholic beverages are agricultural crops. For beer, spirits and cider, most of the plants from which they are processed have alternative uses as foodstuffs. This is true also for grapes, but for wine there is substantial differentiation by grape variety and the land (“terroir”) on which the grapes are grown. The fermentation or distillation process on the raw agricultural products is the distinguishing feature of the production chain at which the alcohol industry usually takes over. The transnational alcohol companies, particularly in beer and spirits, control the production and distribution chain from that point, including the substantial international shipping of the product, until it is in the hands of the wholesaler or importer in the country in which the product is to be sold. The wholesale industry is largely separate from the retail level of alcohol sales, although in some places with large retail firms, those firms may also run their own wholesale-level business.

At the retail level in higher-income and many other countries, there are two primary ways in which alcohol is sold: on-sale and off-sale. On-sale means that the alcohol is served to customers mostly sitting down in the seller's premises, either in a tavern where drinking is the main activity, or in a restaurant where the alcohol is part of a meal. In off-sale, the alcoholic beverages are sold in containers – bottles or cans – to be taken away and consumed at home or elsewhere off-premises. The two types of retail have always had some overlap, and this has been increasing in recent years, in part in connection with the advent of online ordering and fast delivery.

In a majority of countries, governments control the alcohol market by licensing the producers, distributors and sellers, with holding a licence conditional on following government regulations on when alcohol can be sold to whom under what circumstances. The licensing system is a direct path by which the government can enforce its alcohol taxes.

An alternative in some places is a government monopoly of at least part of the market. The primary form of such government monopolies is of all or part of the off-sale retail market, with government stores monopolising the sale of all or specified forms of alcohol. In the US, for instance, 17 of the 50 states have some form of retail monopoly, selling all of the spirits, or spirits and wine, for off-site consumption. Except for Alberta, each province in Canada has a retail monopoly for off-sale of most

forms of alcoholic beverages, along with a provincial monopoly also at the wholesale level. Most of the Nordic countries in northern Europe (not mainland Denmark) also have off-sale retail monopolies.

Such monopoly systems have several advantages, from a public health perspective of limiting harms to health and welfare from alcohol (Room & Cisneros Örnberg, 2019). With respect to government alcohol taxation, a monopoly system can serve as a complement or adjunct to the tax system, in that a government agency is setting the retail price of the beverage.

### **c) Alternative bases for the taxation**

There are three main bases for alcoholic beverage taxation: per litre of ethanol (the 100% pure alcohol in the beverage); per litre of the liquid beverage; and as a percentage of the value or price. It is not uncommon for governments to apply one of these bases for one class of alcoholic beverages, and a second basis for another class. For instance, in Australia wine is taxed on its value, while beer and spirits are taxed (at different rates) on the basis of their ethanol content.

Since the ethanol content is the primary element in how intoxicating a given quantity of the beverage is, taxing on the basis of the beverage's ethanol content ties the tax most directly to most forms of harm from drinking, and is thus primarily recommended from the perspective of public health and welfare. But this requires that there are trustworthy arrangements for measuring the "alcohol content" of the beverage at the point in the distribution chain where the tax is determined. A tax on the volume of the beverage or on the price or value of the bottle or can of it more easily be determined and collected. Since there are big variations in strength (percentage of ethanol) for drinks which appear similar, particularly for beer and spirits, a tax based on the volume of beverage will not be proportional to the potential for harm.

Other considerations than the overall potential for harm are often built into an alcohol tax system. A public health argument can be made for a higher tax per unit of ethanol on strong spirits, since these may more easily be concealed and drinking a large amount can be fatal, and so may be attractive to underage drinkers and can kill by overdose much more easily than a weaker beverage. Sweet mixed drinks containing alcohol may be particularly attractive to teenage drinkers, and this may be argued to justify a higher tax on them. A tax based on value or price will be collecting more from richer than from poorer drinkers, and this can be argued to be more socially equitable. On the other hand, there is an "alcohol harm paradox" that the harm per litre of alcohol is greater for poorer than for rich persons (Room & Rehm, 2023), and countering this inequality could become an argument for higher taxes on cheaper products.

### **d) Level of taxation as a fraction of the price.**

There has been little attempt yet by public health advocates to set any international standard for levels of alcohol taxation—unlike for tobacco, where WHO has recommended a tax level of 75% of the retail price (WHO-Euro, 2023). WHO has recommended raising alcohol tax levels as one of three "best buys" for controlling alcohol consumption levels (WHO, 2017), but has not suggested any particular level.

There is substantial political pressure from industries and interests involved in producing and serving alcohol to keep taxes on it down. There are also several other considerations for governments to take into account.

- If there is a substantial national market for "informal" (i.e., untaxed) alcohol, it competes with the taxed alcohol for share of the total alcohol market. It is likely to be assumed that raising taxes will result in an increase in the informal alcohol sold. However, the reality is often more complicated, with a change in taxes often resulting in the informal alcohol sellers also changing their prices in the same direction (Okaru et al., 2019).

- Particularly for smaller tax jurisdictions, cross-border trade is a consideration. If the price of alcoholic beverages is considerably less in a neighbouring jurisdiction, a substantial cross-border trade, with alcohol brought in by cross-border travellers, can result. For instance, when Estonia reduced its alcohol taxes in 2019, it was in response to a doubling of cross-border purchases from Latvia in the preceding five years (Rehm et al, 2023).
- A fixed rate of tax in units of the national currency becomes reduced by inflation, compared to other commodities and to wage levels. Thus for a tax at a named rate, whether based on the ethanol or the liquid content, it is wise to provide for automatic inflation adjustments, or for annual or other periodic resetting of the rate.

#### **e) Collecting the tax**

The alcohol tax may be collected by the government at various points along the production, distribution and retail sale path, as provided by government regulations. The likely choice is either the wholesale or the retail level. The basis of the tax will probably play a substantial role in determining the level. A tax based on the retail price is likely to be collected as part of the retail transaction with the customer, and paid to the government by the retailer. A tax on the alcohol content may be more efficiently collected earlier in the production and distribution chain. This primarily means at the wholesaler or importer level, since the amount cannot be settled before the final product has been prepared and put in its retail container.

Collecting the tax from private industry parties is facilitated for a government by a specific licensing system for preparing, distributing or selling alcoholic beverages, which not only specifically identifies those parties who are involved in the alcohol trade, but also provides a specific means of enforcement for governing rules, including collecting and transmitting alcohol taxes.

### **3. The political economy of alcohol taxation: the nay-sayers**

#### **a) Alcohol as “our drug” for the influential and the governing**

Alcoholic beverages are a symbol of luxury in many societies and at the international level, for instance being made available without charge by airlines in their first-class cabins. At meetings between leaders of governments and of corporations, there is often a toast over an alcoholic drink as a symbol of mutual respect and collective interest. These days, alcohol’s social position is quite different from the social location of cigarettes: having a smoke together is no longer a part of high-status meetings, and cigarette smoking is increasingly a marker of lower socioeconomic status.

This means that, in contrast to tobacco, rulemaking decisions about alcohol are likely to be made by drinkers and their associates, who may be taking into account their personal relationships with alcohol and with drinkers. It is notable, for instance, that the cafeteria at the World Health Organization’s headquarters building in Geneva still offers alcoholic beverages on sale at lunchtime; WHO’s political governing body, the World Health Assembly, declined to remove it from being available where they meet, although this is against the spirit of WHO’s advice on restricting alcohol availability.

#### **b) Alcohol as a symbol and means of sociability and relaxation**

In many milieux in diverse societies, an alcohol drink together is a symbol of shared interest and commensality. Within the society, there are social worlds, defined by common interests or activities, for which drinking together is a means and expression of commensality (MacLean et al., 2021). Others in the society may not share the heavier drinkers’ expectations about heavy drinking occasions (Room et al., 2019), but drinking and indeed the heavy drinking in these social worlds is tolerated by others in the society. This means that in many societies – and at the international and intergovernmental level -



- alcohol drinking is in a different status from the use of other psychoactive substances. Alcohol is thus not regarded as covered by the international drug treaties – specifically the 1971 Convention on Psychotropic Substances. The official UN “Commentary” on that treaty acknowledges that alcohol fits the criteria for coverage by the treaty as a “dangerous substance” that causes serious public health and social problems, but notes that the delegates deciding on the Convention in 1971 “did not intend to apply [it] to alcohol” (United Nations, 1976, p. 48).

### **c) Expression of the political interest of the alcohol industry and the alcohol supply chain**

There are substantial industries and associated economic interests involved in the production, distribution and sale of alcoholic beverages. Since plants are the raw material for all alcoholic beverages, farming interests are involved in the alcohol production chain. Many alcoholic beverages are sold and consumed far from where their raw materials were grown, so that various packing and freight interests are involved. The defining features of alcoholic beverage production are the fermentation and distillation processes involved in producing alcoholic beverages, which for beer and spirits were concentrated and industrialised early in the Industrial Revolution. Alcoholic beverages are sold and consumed in connection with eating, socialising and other activities, which means that various consumer-oriented industries – supermarkets and other food stores, restaurants and taverns, and industries serving sports and other recreational activities – have an interest in sales of alcoholic beverages. In addition to the core alcoholic beverage industry interests – concerned with producing, promoting and distributing their brands of the fermented or distilled product – there are thus many interests which have some stake in the shape and size of the alcoholic beverage market, and are likely to lend a hand in political lobbying when alcohol industry interests are at stake.

The alcoholic beverage industry is transnational in character, and, particularly for beer and spirits, has been increasingly dominated by a relatively small number of transnational corporations (Jernigan & Ross, 2020), which also provide the core funding for “Social Aspects and Public Relations Organisation” (SAPRO) entities with the dual purpose of improving the public reputation of the corporations and the industry by “good works”, and promoting the industry’s policy interests. The industry and its SAPROs pursue policy influence both by public and by off-the-record channels (Room, 2006). On the public channel side, alcohol industry and related organisations, for instance, made 46 submissions to the World Health Organization in response to its invitation for submissions concerning an Alcohol Action Plan being prepared to improve results from its Global Strategy to Reduce the Harmful Effects of Alcohol (O’Brien et al., 2023). Office visits and informal communications are among the off-the-record channels.

The vested interests in the alcohol market are thus a crucial part of the political economy of alcohol policy. Though attention by researchers and public health organisations to the political processes determining alcohol policy has increased in recent years (McCambridge et al., 2019), they are no match for the extent and strength of lobbying by alcohol industries and related interests.

### **d) Bringing balance to the political economy of alcohol taxation**

Policymaking concerning the varied factors influencing how readily available alcohol is to consumers, including the dimension of its taxation, is thus subject to an unbalanced set of influences. A strong alcohol industry lobby and its allies work to influence policymakers both in the open and behind closed doors. Responsibility for dealing with harms from alcohol are broadly spread across government departments and agencies – the list starts with local governments, the police, welfare, mental health and health systems. Some sections of the professions and interest groups – e.g., emergency-room physicians, child protection welfare workers, women’s interest groups – may speak up about the alcohol involvement in the problems they encounter in their daily practice, but their contribution to the political economy is small compared with the alcohol industry and its allies. In dealing with issues of alcohol taxation, there is a need for the political process to take account of the lack of balance in the influences from whom it is hearing.

#### 4. Conclusion: Alcohol taxes as an effective way of limiting substantial harms

The basic conclusion from the perspective of protecting public health and welfare is that relatively high taxes on alcoholic beverages are an effective way of limiting the substantial harms that are attributable to drinking. There has been no clear international discussion of how high the taxes should be, but WHO's standard for tobacco taxes that they should be at least 75% of the untaxed retail price seems a reasonable rule. To be most effective in limiting harm, the taxes should be based on the ethanol content of the beverage.

High alcohol taxes are an effective way of limiting harm from alcohol, but the decisions on tax levels should be part of a general governmental commitment to policies to limit levels of harm from alcohol. Government departments and agencies responsible for health and welfare should play the leading role in setting and implementing these policies and practices, and the actions of the government department and agencies in charge of tax collection should be coordinated with and supportive of these alcohol policies. A high tax on alcohol should be part of a general commitment and program to limit harms from alcohol.

#### References

- GBD 2019 Global Risk Factors Collaborators (2020) Global burden of 87 risk factors in 204 countries and territories, 1990-2019: A systematic analysis for the Global Burden of Disease 2019. *The Lancet* 396:1223-1249.
- Jernigan, D. & Ross, C.S. (2020) The alcohol marketing landscape: Alcohol industry size, structure, strategies, and public health responses. *Journal of Studies on Alcohol and Drugs. Supplement*, (Suppl 19): 13-25.
- Jiang, H., Doran, C.M., Room, R., Chikritzhs, T., Ferris, J. & Laslett, A.-M. (2022) Beyond the drinker: Alcohol's hidden costs in 2016 in Australia. *Journal of Studies on Alcohol and Drugs* 83(4):512-524.
- MacLean, S., Dwyer, R., Pennay, A., Savic, M., Wilkinson, C., Roberts, S., Turner, K., Saleeba, E. & Room, R. (2021) The 'social worlds' concept: A useful tool for public health-oriented studies of drinking cultures. *Addiction Research and Theory* 29(3):231-238. doi: 10.1080/16066359.2020.1820491
- McCambridge, J., Coleman, R. & McEachern, J. (2019) Public health surveillance studies of alcohol industry market and political strategies: a systematic review. *Journal of Studies on Alcohol and Drugs* 80(2):149-157.
- O'Brien, P., Dwyer, R., Gleeson, D., Cook, M. & Room, R. (2023) Influencing the global governance of alcohol: Alcohol industry views in submissions to the WHO consultation for the Alcohol Action Plan 2022-2030. *International Journal of Drug Policy* 119:114105.
- Okaru, A.O., Rehm, J., Sommerfeld, K., Kuballa, T., Walch, S.G. & Lachenmeier, D.W. (2019) The threat to quality of alcoholic beverages by unrecorded consumption. In: Grumezescu, A.M. & Holban, A.M. (Eds.), *Alcoholic Beverages*, pp. 1–34. Woodhead Publishing. <https://doi.org/10.1016/B978-0-12-815269-0.00001-5>
- Rehm, J., Badaras, R., Ferreira-Borges, C., Galkus, L., Midttun, N.G., Gobiņa, I., Janik-Koncewicz, K., Jasilionis, D., Jiang, H., Kim, K.V., Lange, S., Liutkutė-Gumarov, V., Manthey, J., Miščikienė, L., Neufeld, M., Petkevičiene, J., Radišauskas, R., Reile, R., Room, R., Stoppel, R., Tanutienė, I., Tran, A., Trišauske, J., Zatoński, M., Zatoński, W.A., Zurltytė, I. & Štelemėkas, M. (2023) Impact of the WHO "best buys" for alcohol policy on consumption and health in the Baltic countries and Poland 2000–2020. *Lancet Regional Health - Europe* 33:100704. <https://doi.org/10.1016/j.lanep.2023.100704>

- Room, R. (2006) Advancing industry interests in alcohol policy: the double game. *Nordisk Alkohol- & Narkotikatidskrift* 26: 389-402.  
<https://journals.sagepub.com/doi/pdf/10.1177/145507250602300603>
- Room, R. (2012) Individualised control of drinkers: back to the future? *Contemporary Drug Problems* 39(2):311-343. <http://journals.sagepub.com/doi/pdf/10.1177/009145091203900207>
- Room, R. & Cisneros Örnberg, J. (2019) Government monopoly as an instrument for public health and welfare: Lessons for cannabis from experience with alcohol monopolies. *International Journal of Drug Policy* 74:223-228.
- Room, R., Cook, M. & Laslett, A.-M. (2022) Substance use and the Sustainable Development Goals: will development bring greater problems? *Drugs: Education, Prevention and Policy*, early view 27 November 2022. Doi: 10.1080/09687637.2022.2150125
- Room, R., Kuntsche, S., Dietze, P., Munné, M., Monteiro, M. & Greenfield, T. (2019) Testing consensus about situational norms on drinking: a cross-national comparison, *Journal of Studies on Alcohol and Drugs* 80(6):651-658.
- Room, R. & Livingston, M. (2017) The distribution of customary behavior in a population: The Total Consumption Model and alcohol policy, *Sociological Perspectives* 60(1):10-22.  
<http://journals.sagepub.com/doi/pdf/10.1177/0731121416683278>
- Room, R. & Rehm, J. (2023) “Harm per litre” as a concept and a measure in studying determinants of relations between alcohol consumption and harm. *International Journal of Drug Policy* 115:104006 (doi: 10.1016/j.drugpo.2023.104006).
- United Nations (1976) *Commentary on the Convention on Psychotropic Substances*. New York: United Nations. Sales No. E.76.XI.5.
- World Health Organization (2017) Tackling NCDs: ‘Best buys’ and other recommended interventions for the control of non-communicable diseases. Geneva: WHO.  
<https://iris.who.int/bitstream/handle/10665/259232/WHO-NMH-NVI-17.9-eng.pdf?sequence=1>
- WHO-Euro (2020). Alcohol Consumption and Sustainable Development. Copenhagen: World Health Organization Regional Office for Europe.  
[https://www.euro.who.int/\\_data/assets/pdf\\_file/0008/464642/Alcohol-consumption-and-sustainable-development-factsheet-eng.pdf](https://www.euro.who.int/_data/assets/pdf_file/0008/464642/Alcohol-consumption-and-sustainable-development-factsheet-eng.pdf)
- WHO-Euro (2023) Promoting taxation on tobacco products. Copenhagen: World Health Organization, Regional Office for Europe. <https://www.who.int/europe/activities/promoting-taxation-on-tobacco-products>

## Chapter 13: Specific Issues with respect to Taxation to Support Improved Nutrition

### 1. Introduction and context

#### a) The rationale for nutrition-targeted taxes

Nutrition-targeted taxes are a fiscal policy tool aimed at reducing the affordability of unhealthy foods and beverages and encouraging substitution for healthy alternatives. The main goal is to improve population health by reducing the impact of unhealthy diets. Such taxes can also raise tax revenue.

The economic rationale for nutrition-targeted taxes is similar to that for other health taxes and includes correcting for negative externalities and addressing internalities linked to consumption. Externalities refer to consumers' choices harming others and society. In the context of diet, the most important externalised cost to society is additional spending on health care to treat diseases and disabilities caused by obesity and other diet-related diseases. These could be caused by the incentives created by publicly funded health care (or through private insurance) to adopt riskier and unhealthy behaviour as the total burden of disease is not entirely born by the consumer – while the burden of disease (a total cost concept) is not an equivalent or even an approximation of the externality (a marginal cost concept), its magnitude is often gauged by it, short of other measures. Additional costs may result from productivity losses and reduced tax revenues. Following Pigou's principle, unhealthy foods and beverages may represent adequate subjects of taxation as the vast majority of their consumption does not represent a necessity - as long as there is access to healthier alternatives - and they generate negative externalities which are not reflected in their market price.<sup>104</sup>

Internalities refer to inconsistencies between short- and long-term preferences, which can notably result from addiction. Consumers therefore underweight future health costs (both negative health outcomes and healthcare costs) when making food and beverage purchase decisions. Consumers can also face challenges of asymmetry of information, with manufacturers frequently possessing greater knowledge about products, including production methods and nutrition information. This asymmetry may increase with the level of food processing. Both producers and consumers may also lack comprehensive knowledge about the long-term health consequences of over-consuming certain processed foods and beverages.<sup>105</sup> Internalities, asymmetric information, or lack of information all lead to consumers maximizing short-term gratification over long-term consequences (biased maximization of intertemporal utility).<sup>106</sup> For example, in the United States, sugar-sweetened beverage (SSB) consumption is higher in consumers who are less informed about nutrition or have less self-control.<sup>107</sup> Nutrition-targeted taxes can participate in addressing internalities and asymmetric information by increasing the relative cost of unhealthy foods and beverages consumption and signalling their health risk<sup>4</sup>,<sup>108</sup> thereby encouraging people to avoid acting against their own self-interest.<sup>109</sup>

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<sup>104</sup> Pigou A. *The economics of welfare*. 1st ed. New York: Routledge; 2017.

<sup>105</sup> Golan E, Kuchler F, Mitchell L, Greene C, Jessup A. Economics of Food Labeling. *Journal of Consumer Policy*. 2001; 24:117-84.

<sup>106</sup> Allcott H, Lockwood BB, Taubinsky D. Should we tax sugar-sweetened beverages? An overview of theory and evidence. *Journal of Economic Perspectives*. 2019; 33:202-27.

<sup>107</sup> Allcott H, Lockwood BB, Taubinsky D. Should we tax sugar-sweetened beverages? An overview of theory and evidence. *Journal of Economic Perspectives*. 2019; 33:202-27.

<sup>108</sup> Alvarado M, Penney TL, Unwin N, Murphy MM, Adams J. Evidence of a health risk 'signalling effect' following the introduction of a sugar-sweetened beverage tax. *Food Policy*. 2021; 102:102104.

<sup>109</sup> Mirrlees J. *Tax by design: The Mirrlees review*: OUP Oxford; 2011.

## b) Overview of the drivers of food choice and the role of taxation

Understanding food choice is complex.<sup>110</sup> Food choices are driven by many determinants (Box 1).<sup>111</sup> Nutrition-targeted taxes primarily influence demand by reducing the affordability of unhealthy food and beverage products relative to healthier alternatives. Lower tax rates or subsidies for healthy foods can also help to influence affordability and demand. Nutrition-targeted taxes can also influence demand by serving as a signal and increasing consumer knowledge and awareness about health risks associated with excess consumption, as well as acting to counter sociocultural determinants.<sup>112</sup> They can contribute to shaping food environments by incentivizing the industry to reformulate products or diversify product portfolios (as a means of minimizing tax liability). Depending on tax design, this may reduce the caloric, sugar, sodium, or fat content of available products.

### Box 1 Drivers of food choice and examples

**Economic determinants:** affordability; wealth

**Food environment and other physical determinants:** accessibility; seasonality

**Sociocultural determinants:** traditions; values; peer influence; marketing and media

**Beliefs and intrapersonal drivers of behaviour:** knowledge and skills; time use; preferences and habits

**Psychological and biological determinants:** stress and mood; physiological needs; biological features

## c) Overview regarding the global implementation of nutrition-targeted taxes

Nutrition-targeted taxes remain less utilised worldwide and have mainly focused on SSBs to date, with more than half of SSB taxes being introduced within the last decade. This is in large part related to the ease of taxing SSBs, and to their documented overwhelming contribution to the extra caloric intake causing obesity.<sup>113</sup> In 2023, 117 countries, covering more than half (57%) of the world's population, applied national-level taxes on SSBs (Figure 1).<sup>114</sup> These taxes are more common in lower-income economies. More than two-thirds of people living in lower-middle-income (85%) and low-income (69%) economies are covered by a national SSB tax, compared with only one-third of people living in upper-middle-income (32%) and high-income (33%) economies.<sup>115</sup>

<sup>110</sup> Blake CE, Frongillo EA, Warren AM, Constantinides SV, Rampalli KK, Bhandari S. Elaborating the science of food choice for rapidly changing food systems in low-and middle-income countries. *Global Food Security*. 2021; 28:100503.

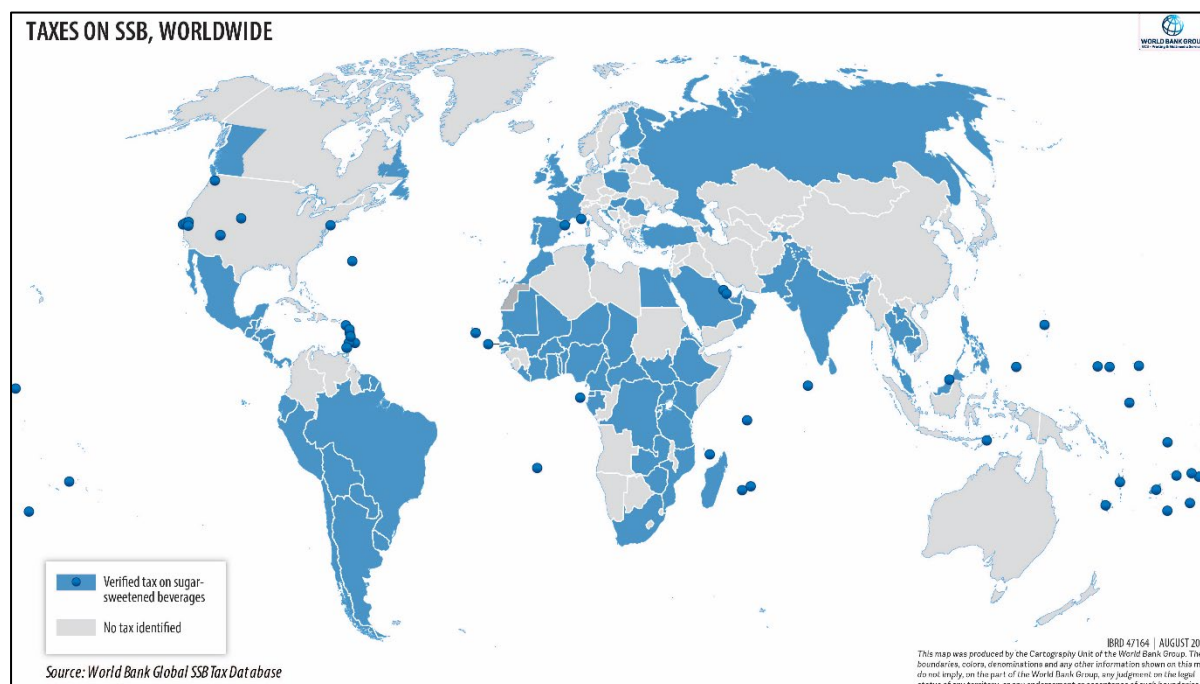
<sup>111</sup> European Food Information Council. The Factors That Influence Our Food Choices. 2006; Available from: <https://www.eufic.org/en/healthy-living/article/the-determinants-of-food-choice>; Boneyk M, Isanovic S, Samin S, Rampalli KK, Frongillo EA, Avula R, et al. Development of a methods repository for food choice behaviors and drivers at the household and individual levels. Research Note 1, Work Package 42023.

<sup>112</sup> Alvarado M, Penney TL, Unwin N, Murphy MM, Adams J. Evidence of a health risk 'signalling effect' following the introduction of a sugar-sweetened beverage tax. *Food Policy*. 2021; 102:102104; Dal E, MoralesOpazo C, Yagüe Blanco JL, Angulo Urarte A. Fiscal Policies and Malnutrition: Signaling Effect of the Sugar-Sweetened Beverages Tax in Catalonia, Spain. *Fao Agricultural Development Economics Working Paper*. 2020.

<sup>113</sup> Malik VS, Hu FB. The role of sugar-sweetened beverages in the global epidemics of obesity and chronic diseases. *Nature Reviews Endocrinology*. 2022; 18:205-18.

<sup>114</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

<sup>115</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

**Figure 1 Coverage of national-level taxes on SSBs, as of August 2023**

Source: World Bank Global SSB Tax Database<sup>116</sup>

However, SSBs represent only a subset of unhealthy diets. Far fewer jurisdictions apply unhealthy food taxes (Figure 2). Jurisdictions with unhealthy food taxes in place include Bermuda, Colombia, Dominica, Ethiopia, Fiji, French Polynesia, Hungary, Mexico, Nauru, Navajo Nation in the United States, Romania, Samoa, and Tonga.<sup>117</sup> Most existing taxes have been limited to a narrow range of specified and unequivocally unhealthy foods (such as confectionery, chocolates, biscuits, salty snacks, and high-fat animal products). For example, Dominica taxes confectionery and chocolate bars, in addition to SSBs. French Polynesia imposes an import tax on imported confectionery, marmalade, and ice cream. Some countries have more directly taxed the unhealthy ingredient, e.g. St Vincent and the Grenadines taxes sugar and Norway has an excise tax on different types of sugar and rock candy, which does not apply when sugar is used as an ingredient in another product.

More recently, some countries have widened the scope of their unhealthy food taxes. For example, Bermuda initially only levied a 50% import duty on SSBs, sugar confectionery excluding cocoa-based products, and pure sugar imports. However, from 2019, this tax was increased to 75% and now covers all food products containing cocoa and added sugar, with revenue subsidizing selected fruit and vegetables.<sup>118</sup> Most notably, Colombia introduced an excise tax in November 2023 on ultra-processed foods that exceed set thresholds for sugars, sodium, and saturated fat.

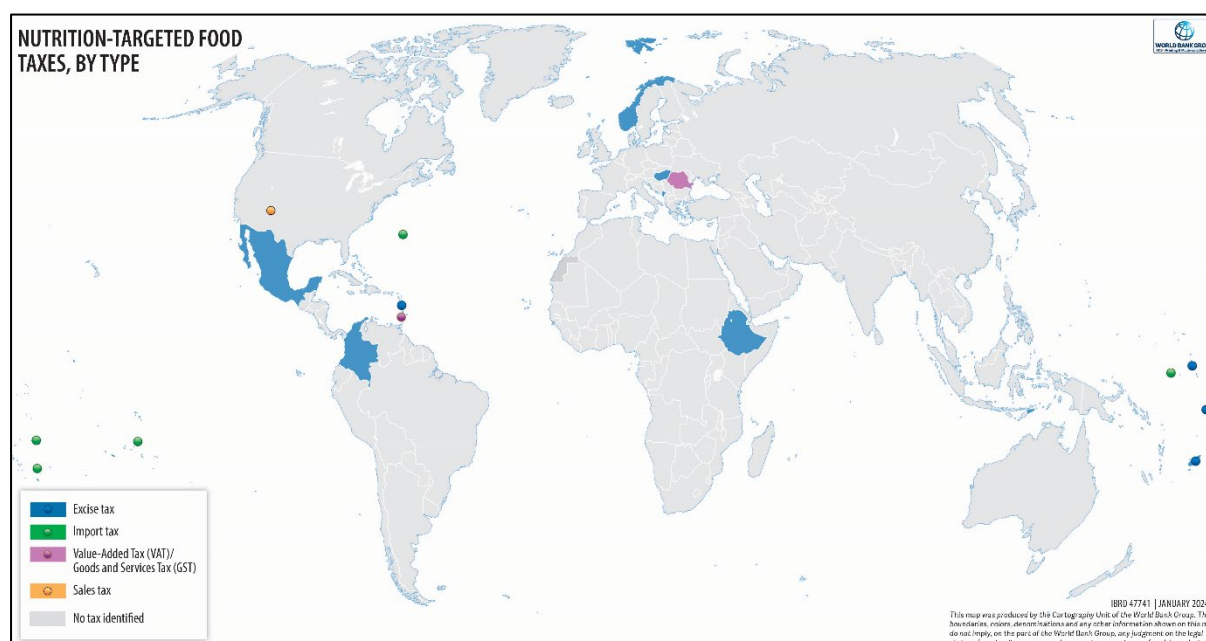
<sup>116</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

<sup>117</sup> Sassi F, Roche M, Belloni A, Pineda E, Olney J. Food Taxes for Healthy Eating London, UK: Centre for Health Economics and Policy Innovation, Imperial College London, Centre for Health Economics and Policy Innovation ICL;2023.

<sup>118</sup> Sassi F, Roche M, Belloni A, Pineda E, Olney J. Food Taxes for Healthy Eating London, UK: Centre for Health Economics and Policy Innovation, Imperial College London, Centre for Health Economics and Policy Innovation ICL;2023; Segal AB, Olney J, Case KK, Sassi F. The benefits and challenges of taxing sugar in a small island state: an interrupted time series analysis. *International Journal of Behavioral Nutrition and Physical Activity*. 2022; 19:1-11.



**Figure 2 Coverage of national-level unhealthy food taxes, as of January 2024**



#### **d) Interface between nutrition-targeted taxation and other policy agendas and priorities**

Nutrition-targeted taxation can support efforts towards sustainable development priorities more broadly, namely environmental sustainability and economic growth. Food systems contribute approximately a third of global greenhouse gas emissions mainly through production and land use,<sup>119</sup> and unhealthy dietary patterns have been implicated as a major contributor.<sup>120</sup> Food and beverage packaging also contributes to pollution and greenhouse gas emissions (although this contribution must be balanced against the role of packaging in preventing food waste). Nutrition-targeted taxation that creates incentives for the consumption of healthier, minimally processed and packaged foods can thus support environmental sustainability.

The significant societal and economic burden of non-communicable diseases (NCDs) means that nutrition-targeted taxes that incentivise healthier diets also contribute to long-term priorities for economic growth and poverty reduction. Taxes are an effective measure for reducing consumption of foods and beverages associated with NCD risk.<sup>121</sup> Reducing NCD risk contributes to productivity gains and returns on investments into human capital, contributing to economic growth objectives. It also reduces the likelihood of catastrophic healthcare expenditure for households, which can improve resilience and reduce poverty.<sup>122</sup>

<sup>119</sup> Crippa M, Solazzo E, Guizzardi D, Monforti-Ferrario F, Tubiello FN, Leip A. Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*. 2021; 2:198-209.

<sup>120</sup> Willett W, Rockström J, Loken B, Springmann M, Lang T, Vermeulen S, et al. Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet*. 2019; 393:447-92.

<sup>121</sup> Andreyeva T, Marple K, Marinello S, Moore TE, Powell LM. Outcomes following taxation of sugar-sweetened beverages: a systematic review and meta-analysis. *JAMA Network Open*. 2022; 5:e2215276-e; Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>122</sup> World Health Organization. Saving lives, spending less: the case for investing in noncommunicable diseases. 2021.

## 2. Specific considerations for SSB taxation

SSBs are a clear candidate for nutrition-targeted taxation. Many SSBs are high in free sugars<sup>123</sup> and contribute a significant proportion of excess sugar and energy intakes around the world, while providing little-to-no nutritional value.<sup>124</sup> There is strong evidence linking their consumption to multiple health risks, including type 2 diabetes, dental caries, and overweight and obesity – which in turn is associated with increased risk of heart disease, stroke, and some cancers.<sup>125</sup> SSBs are also a discrete, well-defined category that is relatively simple to identify and define for taxation. SSBs are considered a more feasible and effective target for taxation than sugar (i.e. what is commonly called ‘table sugar’: sugar derived from cane and beet), despite the fact that sugar consumption is similarly associated with poor health outcomes. A traditional excise tax on sugar would be applied to sugar as a ‘finished’ product (for example, similar to the application of excise taxes on cigarettes and not raw tobacco), at the point of manufacture and import. This would also result in the effective taxation of processed food and beverage products containing sugar *that are manufactured domestically*. However, because the majority of sugar is consumed in processed foods and beverages,<sup>126</sup> a tax on sugar content would also need to be applied to imports of sugar-containing foods and beverages.<sup>127</sup> This component of excise taxation would require the application of a more complex tax based on sugar content (see section 3 on specific considerations for unhealthy food taxes, for a more detailed discussion).

Tax design is critical to maximize health and equity outcomes. As relatively newer taxes, there is less evidence for, and consensus on, best practices in SSB tax design compared to tobacco and alcohol taxes, and governments have experimented with a wide range of designs. Designing a SSB tax involves trade-offs between existing tax policy, best practices, tax administration capacities, and complex political economies. Tax design is also likely to be influenced by tax objectives, with revenue-raising potential likely to be particularly important in lower-income economies.

However, most existing SSB taxes could be improved from a health perspective. Most current taxes are ad valorem or volume based, with less than one in five SSB taxes worldwide targeted at sugar content. Many taxes do not include all SSB categories (see below), lowering their health and revenue potential. Finally, while there is significant heterogeneity across countries, tax rates applied to SSBs are generally low, with a global median excise and total tax share in the retail price of an internationally comparable brand of sugar-sweetened carbonated drink of 3.4% and 18.4% in 2023, respectively.<sup>128</sup>

### a) Approaches to categorising and defining SSBs for taxation

Ideally, SSB taxes would apply to all commonly consumed non-alcoholic beverages that contain free sugars, including carbonated soft drinks, energy drinks, sports drinks, sweetened and unsweetened fruit and vegetable juices, sweetened ready-to-drink teas and coffees, sweetened milk-based drinks,

<sup>123</sup> Free sugars include caloric sweeteners added to foods and beverages by the manufacturer, cook, or consumer (such as sucrose and high-fructose corn syrup), as well as sugars naturally present in honey, syrups, fruit and vegetable juices, and fruit and vegetable juice concentrates.

<sup>124</sup> Malik VS, Hu FB. The role of sugar-sweetened beverages in the global epidemics of obesity and chronic diseases. *Nature Reviews Endocrinology*. 2022; 18:205-18; Bailey RL, Fulgoni III VL, Cowan AE, Gaine PC. Sources of added sugars in young children, adolescents, and adults with low and high intakes of added sugars. *Nutrients*. 2018; 10:102; Lara-Castor L, Micha R, Cudhea F, Miller V, Shi P, Zhang J, et al. Sugar-sweetened beverage intakes among adults between 1990 and 2018 in 185 countries. *Nature communications*. 2023; 14:5957.

<sup>125</sup> Singh GM, Micha R, Khatibzadeh S, Lim S, Ezzati M, Mozaffarian D. Estimated global, regional, and national disease burdens related to sugar-sweetened beverage consumption in 2010. *Circulation*. 2015; 132:639-66; Bleich SN, Vercammen KA. The negative impact of sugar-sweetened beverages on children’s health: an update of the literature. *BMC obesity*. 2018; 5:1-27; Malik VS, Popkin BM, Bray GA, Després J-P, Willett WC, Hu FB. Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes: a meta-analysis. *Diabetes care*. 2010; 33:2477-83.

<sup>126</sup> Bailey RL, Fulgoni VL, Cowan AE, Gaine PC. Sources of Added Sugars in Young Children, Adolescents, and Adults with Low and High Intakes of Added Sugars. *Nutrients*. 2018; 10.

<sup>127</sup> Bahl RW, Bird RM. Taxing Sugary Drinks. Available at SSRN 3649182. 2020.

<sup>128</sup> World Health Organization. Global report on the use of sugar-sweetened beverage taxes, 2023. Geneva 2023.



sweetened waters, and beverage concentrates (liquid, powder, and gel concentrates used to prepare SSBs). This is to limit potential loopholes and substitution to similarly unhealthy beverages, both of which undermine potential health gains. While fruit and vegetable juices and sugar-sweetened milk-based drinks have some nutritional value, their high free sugar content means they raise similar health concerns as more easily recognized SSBs such as carbonated soft drinks. At the same time, taxes should not apply to unsweetened bottled water and plain unsweetened milk, which should be incentivized as healthy substitutes.<sup>129</sup> SSB taxes also typically exclude medical or therapeutic beverages considered necessary to some diets, including infant formula and nutritional supplement drinks.

In practice, few existing taxes extend to all SSB categories and many apply broadly to all non-alcoholic beverages, including non-SSBs (NSSBs) such as plain milk and unsweetened water. Sweetened water-based beverages, including carbonated soft drinks and energy drinks, are covered by almost all current SSB taxes. One-third of taxes apply only to these SSBs, with some applying only to carbonated products. Natural and added sugars in juices are often approached differently despite carrying similar health risks, with sweetened juices excluded from one-third and unsweetened (100%) juices excluded from two-thirds of current SSB taxes (Figure 3). Sweetened milk-based drinks are excluded from half of current SSB taxes.<sup>130</sup> Some taxes apply only to SSBs containing sugar (or added sugar) above a specified threshold (such as 5 grams sugar per 100ml).

### **b) Considerations regarding the inclusion of non-sugar-sweetened beverages**

Three out of four SSB taxes worldwide apply to NSSBs – beverages sweetened with low- or no-calorie synthetic and naturally occurring sugar substitutes.<sup>131</sup> In many cases, these products are included in SSB taxes by default because the World Customs Organization Harmonized Commodity Description and Coding System nomenclature (also referred to as Harmonized Tariff System or HS codes) widely used to identify taxed products does not distinguish between caloric (sugar) and non-caloric sweeteners.

There is currently no clear guidance on whether NSSBs should be covered by SSB taxes. On the one hand, excluding these beverages may help to reduce sugar consumption, by encouraging substitution and incentivizing reformulation. Excluding diet drinks may also lower industry opposition to a tax, given the market opportunities provided (e.g. for reformulation and new product development).<sup>132</sup>

On the other hand, there is some limited evidence to suggest that high intake (typically one or more servings a day) of NSSBs is positively associated with cardiovascular-related, digestive disease-related, and all-cause mortality.<sup>133</sup> This may be due to strengthening individuals' taste preferences for sweetness, stimulating insulin response, and altering gut microflora linked to insulin resistance.<sup>134</sup> The WHO recently advised against using artificial sweeteners for weight control.<sup>135</sup> One of the most widely used artificial sweeteners, aspartame, has also been classified as 'possibly carcinogenic' based on weak evidence of an association with liver cancer.<sup>136</sup>

<sup>129</sup> WHO. WHO manual on sugar-sweetened beverage taxation policies to promote healthy diets. Geneva 2022.

<sup>130</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC 2023.

<sup>131</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC 2023.

<sup>132</sup> Thow AM, Rippin HL, Mulcahy G, Duffey K, Wickramasinghe K. Sugar-sweetened beverage taxes in Europe: learning for the future. *European Journal of Public Health*. 2022; 32:273-80.

<sup>133</sup> Malik VS, Li Y, Pan A, De Koning L, Schernhammer E, Willett WC, et al. Long-term consumption of sugar-sweetened and artificially sweetened beverages and risk of mortality in US adults. *Circulation*. 2019; 139:2113-25; Mullee A, Romaguera D, Pearson-Stuttard J, Viallon V, Stepien M, Freisling H, et al. Association between soft drink consumption and mortality in 10 European countries. *JAMA internal medicine*. 2019; 179:1479-90.

<sup>134</sup> Malik VS, Li Y, Pan A, De Koning L, Schernhammer E, Willett WC, et al. Long-term consumption of sugar-sweetened and artificially sweetened beverages and risk of mortality in US adults. *Circulation*. 2019; 139:2113-25.

<sup>135</sup> World Health Organization. Use of non-sugar sweeteners: WHO guideline. Geneva: World Health Organization; 2023. Licence: CC BY-NC-SA 3.0 IGO.

<sup>136</sup> Riboli E, Beland FA, Lachenmeier DW, Marques MM, Phillips DH, Schernhammer E, et al. Carcinogenicity of aspartame, methyleugenol, and isoeugenol. *The Lancet Oncology*. 2023; 24:848-50.

Limited evidence from evaluations of existing taxes suggests that excluding NSSBs can strongly incentivize the supply and consumption of non-sugar sweeteners.<sup>137</sup> In the UK, for example, sales of low- and zero-sugar drinks (not including unsweetened water) rose significantly more than pre-tax trends in the first three years following the announcement of the Soft Drink Industry Levy (SDIL), both in terms of absolute volume sale and as a proportion of drinks sold.<sup>138</sup>

This suggests the need for caution when considering whether to include or exclude these beverages in a SSB tax. Priority should be given to encouraging substitution towards drinks that are less sweet, and preferably to unsweetened beverages such as plain milk and water.

### **c) Considerations regarding the inclusion of unsweetened (100%) juices**

Unsweetened (100%) fruit and vegetable juices are often perceived to be a healthier option than other SSBs due to their content of antioxidant and bioactive substances, including vitamins, minerals, and polyphenols. However, they are also high in free sugars as the structure of the fruit or vegetable has been broken down, with some 100% fruit juices containing similar or higher amounts of sugar than carbonated soft drinks. These sugars, while naturally present, function in essentially the same way as added sugars once metabolized in the body. 100% fruits and vegetable juices have a moderately high glycemic index (i.e., how quickly the consumed sugar increases blood sugar levels when consumed on its own) and are less satiating and more easily over-consumed than solid foods, contributing to energy imbalance. Given these metabolic pathways, the WHO consistently defines SSBs to include 100% juices.<sup>139</sup> Few studies have examined the health impacts of 100% juice separately from other SSBs and the quality of studies is generally rated as low; however, the limited evidence available indicates small positive associations between 100% fruit juice consumption and long-term weight gain,<sup>140</sup> tooth decay,<sup>141</sup> type 2 diabetes<sup>142</sup> and cancer risk.<sup>143</sup>

Overall, coverage of 100% juices (and sweetened milk-based drinks) is higher in low- and middle-income than high-income countries (Figure 3). Two-thirds of SSB taxes in low-income countries apply to 100% juices, for example. However, there is still significant scope to increase SSB tax coverage of 100% juices in all regions (Figure 3). From a practical perspective, fresh, locally produced fruit and

<sup>137</sup> Dickson A, Gehrsitz M, Kemp J. Does a Spoonful of sugar levy help the calories go down? an analysis of the UK soft drinks industry levy. *Review of Economics and Statistics*. 2023;1-29; Royo-Bordonada MÁ, Fernández-Escobar C, Gil-Bellosta CJ, Ordaz E. Effect of excise tax on sugar-sweetened beverages in Catalonia, Spain, three and a half years after its introduction. *International Journal of Behavioral Nutrition and Physical Activity*. 2022; 19:1-11.

<sup>138</sup> Bandy L, Scarborough P, Harrington R, Rayner M, Jebb S. Reductions in sugar sales from soft drinks in the UK from 2015 to 2018. *BMC medicine*. 2020; 18:1-10; Scarborough P, Adhikari V, Harrington RA, Elhussein A, Briggs A, Rayner M, et al. Impact of the announcement and implementation of the UK Soft Drinks Industry Levy on sugar content, price, product size and number of available soft drinks in the UK, 2015-19: A controlled interrupted time series analysis. *PLoS medicine*. 2020; 17:e1003025.

<sup>139</sup> World Health Organization. *Taxes on sugary drinks: Why do it?*. Geneva: World Health Organization; 2017; WHO. *WHO manual on sugar-sweetened beverage taxation policies to promote healthy diets*. Geneva 2022.

<sup>140</sup> Pan A, Malik VS, Hao T, Willett WC, Mozaffarian D, Hu FB. Changes in water and beverage intake and long-term weight changes: results from three prospective cohort studies. *International journal of obesity*. 2013; 37:1378-85; Mozaffarian D, Hao T, Rimm EB, Willett WC, Hu FB. Changes in diet and lifestyle and long-term weight gain in women and men. *New England journal of medicine*. 2011; 364:2392-404.

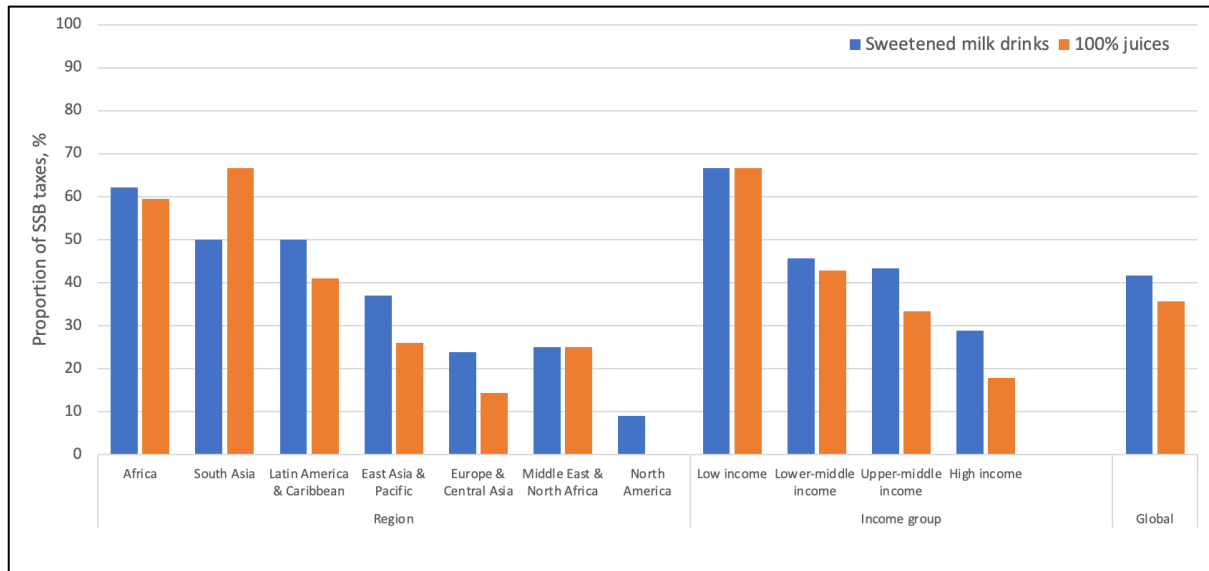
<sup>141</sup> Salas M, Nascimento G, Vargas-Ferreira F, Tarquinio S, Huysmans M, Demarco F. Diet influenced tooth erosion prevalence in children and adolescents: Results of a meta-analysis and meta-regression. *Journal of dentistry*. 2015; 43:865-75.

<sup>142</sup> Imamura F, O'Connor L, Ye Z, Mursu J, Hayashino Y, Bhupathiraju SN, et al. Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: systematic review, meta-analysis, and estimation of population attributable fraction. *Bmj*. 2015; 351; Muraki I, Imamura F, Manson JE, Hu FB, Willett WC, van Dam RM, et al. Fruit consumption and risk of type 2 diabetes: results from three prospective longitudinal cohort studies. *Bmj*. 2013; 347.

<sup>143</sup> Pan B, Lai H, Ma N, Li D, Deng X, Wang X, et al. Association of soft drinks and 100% fruit juice consumption with risk of cancer: a systematic review and dose-response meta-analysis of prospective cohort studies. *International Journal of Behavioral Nutrition and Physical Activity*. 2023; 20:1-16.

vegetables juices may not be captured by a tax (when, for example, they are prepared at point of sale or sold through informal retail).

**Figure 3** Proportion of SSB taxes that also apply to 100% juices and milk-based drinks, as of August 23



#### d) Evidence on the impact on prices, sales, reformulation, and diet/health outcomes

There is strong, consistent evidence that SSB taxes raise prices and reduce sales of taxed beverages.<sup>144</sup> A recent systematic review and meta-analysis of available evaluation studies found an average pass-through rate (the extent to which a tax is passed on to consumers in the form of higher retail prices) of 82% (95% confidence intervals (CI), 66% to 98%), with high heterogeneity across taxes, sub-populations, and product categories.<sup>145</sup> Consumer demand for SSBs tends to be highly sensitive to tax-induced price increases, with an average estimated price elasticity of demand of  $-1.59$  (95% CI,  $-2.11$  to  $-1.08$ ). Given that most evaluated SSB taxes have been relatively small, sales of taxed products have been reduced by a mean of approximately 15% (95% CI, 9% to 20%). Available studies on beverage sales provide no evidence, on average, of significant substitution to untaxed beverages, though again there is a high level of heterogeneity across taxes and studies.<sup>146</sup>

There is less evidence to date on changes in consumption of taxed and untaxed products in response to implemented SSB taxes, mainly due to the more limited availability of longitudinal consumption data compared to sales data. Where evaluation evidence is available, SSB taxes have been shown to reduce consumption. A meta-analysis of intervention and prospective cohort studies determined that a 10%

<sup>144</sup> Andreyeva T, Marple K, Marinello S, Moore TE, Powell LM. Outcomes following taxation of sugar-sweetened beverages: a systematic review and meta-analysis. *JAMA Network Open*. 2022; 5:e2215276-e; Teng AM, Jones AC, Mizdrak A, Signal L, Genç M, Wilson N. Impact of sugar-sweetened beverage taxes on purchases and dietary intake: Systematic review and meta-analysis. *Obesity Reviews*. 2019; 20:1187-204.

<sup>145</sup> Andreyeva T, Marple K, Marinello S, Moore TE, Powell LM. Outcomes following taxation of sugar-sweetened beverages: a systematic review and meta-analysis. *JAMA Network Open*. 2022; 5:e2215276-e.

<sup>146</sup> Andreyeva T, Marple K, Marinello S, Moore TE, Powell LM. Outcomes following taxation of sugar-sweetened beverages: a systematic review and meta-analysis. *JAMA Network Open*. 2022; 5:e2215276-e.

price increase reduced SSB consumption by 7% (95% CI, 3 to 10%).<sup>147</sup> The smaller observed effects on SSB consumption to-date when compared to sales effects may be due, at least in part, to methodological limitations in available consumption studies.<sup>148</sup> Behavioural effects, such as stockpiling (when consumers buy more product immediately before introduction of a tax and store it for later), may also partly explain larger observed reductions in sales versus consumption in the short-term.

Evidence on more long-term effects of implemented SSB taxes, including on health outcomes, is also limited but emerging. The UK Soft Drink Industry Levy (SDIL) has been associated with an overall 8% relative reduction in obesity levels in girls aged 10/11 years, with the greatest reductions in the most deprived areas.<sup>149</sup> Mexico's SSB tax, introduced in 2014, has been associated with a 1.3 percentage point absolute decrease in overweight or obesity prevalence among adolescent girls within the first two years.<sup>150</sup> There is also emerging evidence of positive impacts on oral health. An analysis of hospital admission data in the UK identified a relative reduction of 12.1 percent (95% CI, 7.2% to 17.0%) in hospital admissions for carious tooth extractions in all children (0–18 years) in the first two years post SDIL implementation, with the greatest reductions in children under 4 years of age (28.6 percent, 95% CI, 21.5% to 35.6%).<sup>151</sup> A downward post-tax trend in oral health outpatient visits has also been identified in Mexico, along with reduced probability of having experienced dental caries for all age groups over 5 years old, and in the number of teeth with caries.<sup>152</sup>

High-quality modelling studies have consistently predicted significant reductions in disability-adjusted life years (DALYs), obesity, type 2 diabetes, dental caries, and health-care costs associated with SSB taxes, with the greatest benefits typically found in lower-income and younger age groups.<sup>153</sup> Extended cost-benefit analyses that account for consumer behavioral responses (lower income groups are, on average more responsive to tax-induced price increases than higher-income households) and the externalities associated with SSB consumption (such as increased health costs and reduced productivity) have found SSB taxes to have a net positive income effect, with lower income households expected to benefit from a disproportionate share of improved health outcomes, reduced healthcare costs, extended working lives, and reduced years of life lost.<sup>154</sup> The progressivity of SSB taxes can be further enhanced by linking tax revenues to pro-poor measures, such as Universal Health Care (UHC) expansion, and targeted transfers or subsidies.

### 3. Specific considerations for unhealthy food taxes

As described previously, many countries have introduced health-motivated taxes on SSBs, with far fewer countries applying unhealthy food taxes. While taxing unhealthy foods can be viewed as an extension of SSB taxes, it is considerably more complex for several reasons. First, foods are more

<sup>147</sup> Afshin A, Penalvo JL, Del Gobbo L, Silva J, Michaelson M, O'Flaherty M, et al. The prospective impact of food pricing on improving dietary consumption: a systematic review and meta-analysis. *PloS one*. 2017; 12:e0172277.

<sup>148</sup> Andreyeva T, Marple K, Marinello S, Moore TE, Powell LM. Outcomes following taxation of sugar-sweetened beverages: a systematic review and meta-analysis. *JAMA Network Open*. 2022; 5:e2215276-e.

<sup>149</sup> Rogers NT, Cummins S, Forde H, Jones CP, Mytton O, Rutter H, et al. Associations between trajectories of obesity prevalence in English primary school children and the UK soft drinks industry levy: An interrupted time series analysis of surveillance data. *PLoS Medicine*. 2023; 20:e1004160.

<sup>150</sup> Gračner T, Marquez-Padilla F, Hernandez-Cortes D. Changes in weight-related outcomes among adolescents following consumer price increases of taxed sugar-sweetened beverages. *JAMA pediatrics*. 2022; 176:150-8.

<sup>151</sup> Rogers NT, Conway DI, Mytton O, Roberts CH, Rutter H, Sherriff A, et al. Estimated impact of the UK soft drinks industry levy on childhood hospital admissions for carious tooth extractions: interrupted time series analysis. *BMJ nutrition, prevention & health*. 2023:e000714.

<sup>152</sup> Hernández-F M, Cantoral A, Colchero MA. Taxes to unhealthy food and beverages and oral health in Mexico: an observational study. *Caries Research*. 2021; 55:183-92.

<sup>153</sup> Hattersley L, Thiebaud A, Silver LD, Mandeville K. Taxes on Sugar-Sweetened Beverages-Summary of International Evidence and Experiences: International Evidence and Experiences. Washington, DC2020. Report No.: License: CC BY 3.0 IGO.

<sup>154</sup> Fuchs A, Pierola D. The Distributional Impacts of Health Taxes. *Equitable Growth, Finance and Institutional Insight - Poverty and Equity*. Washington, DC2022. Report No.: License: CC BY 3.0 IGO.

heterogeneous; thus, taxation may lead to significant substitutions. Second, foods contain both more nutrients of concern (beyond sugar) and nutrients that are essential to human life and well-being. Third, affordability becomes a more prominent concern when taxes are extended to products upon which food-insecure households may rely.

### **a) Approaches to categorising and defining unhealthy foods for taxation**

The categorization of food items to define the base for taxation is an important consideration. Many approaches could be used, varying in scope, from a narrow single-nutrient approach to nutrient profile models, processing levels, or environmental impacts. The choice of food categorization needs to account for a variety of factors, including consumption patterns, potential substitutions, and the overall policy goal behind the tax.

#### *i) Nutrient-content-based*

There is a strong rationale for basing unhealthy food taxes on nutrient content. Excessive sodium intake increases the risk of high blood pressure.<sup>155</sup> Free sugars and saturated fat intakes cause weight gain and are also directly associated with chronic disease risks.<sup>156</sup> It is recommended to limit their intake. A nutrition-targeted tax on food can focus on one specific nutrient, like the 2011 saturated fat tax in Denmark, or multiple nutrients of concern, like the tax on ultra-processed foods high in sugar, salt, and saturated fat introduced in Colombia in 2023. While a single-nutrient approach may appear simpler, its limited scope may lead to unintended substitutions to untaxed unhealthy items which may limit the intended health impact of the tax.

Nutrient profile models (NPMs) represent a promising tool to define foods for taxation across several nutrients. They are increasingly used to categorise foods in excess of critical nutrients and set front-of-pack nutrition labelling (FOPNL) policies and marketing regulations.<sup>157</sup> Many NPMs exist and serve different purposes. Some, like regional NPMs developed by the World Health Organization, set category-specific thresholds for each nutrient of concern. Primarily designed for the definition of food marketing regulations to children, they are well-suited to identify the products with the worst nutritional composition within a category. Others, like the UK-NPM and the Nutri-score, give a summary score to all food items based on their nutrient composition, enabling a potential tiered tax structure. While most NPMs include sugar, sodium, and saturated fats, some also consider other forms of fats like trans fats or give positive weights to products with higher fibre or fruit and vegetable content.

To facilitate tax administration, the nutrients accounted for in an NPM-based nutrition-targeted tax approach should use information readily available for food products. Using the same NPM approach across various food policies – for example, FOPNL, marketing regulations, and nutrition-targeted taxes – could make the tax base more transparent and simplify enforcement.

#### *ii) Energy density*

A simpler approach consists in disregarding nutrient content and basing unhealthy food taxes solely on energy density. In 2014, Mexico implemented an 8% excise tax on non-essential foods with an energy density above 275kcal/100g. These food items include deep-fried salted snacks, sugar confectionery, chocolates, cereal-based sweet foods, and ice cream among others. They were estimated to represent

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<sup>155</sup> World Health Organization. Guideline: Sodium intake for adults and children: World Health Organization; 2012.

<sup>156</sup> World Health Organization. Guideline: sugars intake for adults and children: World Health Organization; 2015; World Health Organization. Saturated fatty acid and trans-fatty acid intake for adults and children: WHO guideline. Saturated fatty acid and trans-fatty acid intake for adults and children: WHO guideline 2023.

<sup>157</sup> Labonté M-È, Poon T, Gladanac B, Ahmed M, Franco-Arellano B, Rayner M, et al. Nutrient profile models with applications in government-led nutrition policies aimed at health promotion and noncommunicable disease prevention: a systematic review. *Advances in Nutrition*. 2018; 9:741-88.

14.4% of the total energy intake among the Mexican population at the time the tax was implemented.<sup>158</sup> This tax decreased the purchase of taxed foods by 5-7% in the first two years of implementation, with a higher impact on low socio-economic status (SES) households and households with higher before-tax consumption of such foods. Nevertheless, the decrease in calories from taxed foods may have been compensated by increases in calories purchased from untaxed items.<sup>159</sup> Unhealthy food taxes based solely on energy density may be well suited for countries with low tax administrative capacity interested in targeting overweight and obesity. However, it does not account for diet quality and may not be appropriate to prevent nutrient-specific negative health outcomes.

### *iii) Level of food processing*

Aside from nutrients, a nutrition-targeted food tax could be based on the level of processing of food products. Highly processed foods tend to be more energy-dense and high in fat, sodium, and sugar (HFSS). Their intake is associated with worse cardiometabolic risk profiles and higher risks of cardiovascular disease, cerebrovascular disease, and depression.<sup>160</sup> The most applied processed food classification system in the literature is NOVA.<sup>161</sup> It groups food items based on the extent and purpose of food processing applied to them. It includes four categories: unprocessed or minimally processed, processed culinary ingredients, processed, and ultra-processed foods. The level of food processing could be used to determine the tax base or tax tiers, either by discriminating between food products based solely on their level of processing or by assessing both the level of processing and the nutritional quality of food products based on the NOVA classification and an NPM. The latter approach is similar to how the Pan American Health Organization (PAHO) NPM is designed.<sup>162</sup> However, processed food classifications, including NOVA, have been criticized for their significant degree of misclassification and not accounting for nutritional quality.<sup>163</sup> To this day, no country has used food processing as the sole base for nutrition-targeted taxation.

### *iv) The potential for health and environmental co-benefits*

While most existing unhealthy food taxes are based solely on health objectives, there is growing interest in combined policies that are optimized for both health and sustainability. As highlighted previously, food systems are responsible for a significant share of global greenhouse gas (GHG) emissions and environmental degradation. These represent externalities which could be internalized through taxation.

An increasing body of literature, mostly in high-income countries, has modelled the impact of taxes on foods based on their environmental impact, predicting significant reductions in GHG emissions.<sup>164</sup> Some studies have further simulated the impact of taxes on GHG-intensive foods on health outcomes, finding mixed results, highlighting that health goals and sustainability may not always be aligned and require context-specific design considerations.<sup>165</sup> Applying such taxes on specific GHG-intensive food

<sup>158</sup> Batis C, Pedraza LS, Sánchez-Pimienta TG, Aburto TC, Rivera-Dommarco JA. Energy, added sugar, and saturated fat contributions of taxed beverages and foods in Mexico. *Salud pública de México*. 2017; 59:512-7.

<sup>159</sup> Aguilar A, Gutierrez E, Seira E. The effectiveness of sin food taxes: evidence from Mexico. *Journal of Health Economics*. 2021; 77:102455.

<sup>160</sup> Pagliai G, Dinu M, Madarena M, Bonaccio M, Iacoviello L, Sofi F. Consumption of ultra-processed foods and health status: a systematic review and meta-analysis. *British Journal of Nutrition*. 2021; 125:308-18.

<sup>161</sup> Monteiro CA, Cannon G, Moubarac J-C, Levy RB, Louzada MLC, Jaime PC. The UN Decade of Nutrition, the NOVA food classification and the trouble with ultra-processing. *Public health nutrition*. 2018; 21:5-17.

<sup>162</sup> Pan American Health Organization. Pan American health organization nutrient profile model. Pan American Health Organization Washington DC; 2016.

<sup>163</sup> Braesco V, Souchon I, Sauviant P, Haurigné T, Maillot M, Féart C, et al. Ultra-processed foods: how functional is the NOVA system? *European Journal of Clinical Nutrition*. 2022; 76:1245-53.

<sup>164</sup> Cleghorn C, Mulder I, Macmillan A, Mizdrak A, Drew J, Nghiem N, et al. Can a greenhouse gas emissions tax on food also be healthy and equitable? A systemised review and modelling study from Aotearoa New Zealand. *International Journal of Environmental Research and Public Health*. 2022; 19:4421.

<sup>165</sup> Springmann M, Mason-D'Croz D, Robinson S, Wiebe K, Godfray HCJ, Rayner M, et al. Mitigation potential and global health impacts from emissions pricing of food commodities. *Nature Climate Change*. 2017; 7:69-74;

groups (e.g., animal products) rather than across the whole food supply could represent an avenue to maximize environmental benefits while minimising unintended negative nutritional and welfare outcomes.<sup>166</sup> Although previous studies have mostly focused on targeting GHG emission-intensive foods, other environmental aspects of food production should be accounted for (e.g., cropland use, nitrogen use, freshwater use).<sup>167</sup>

On the other hand, research is lacking on the environmental impact of unhealthy food taxes. Two studies in Australia and Brazil have shown that ultra-processed foods – and particularly meats – represent one of the main drivers of the rise in the total environmental impact of diets in the last decades.<sup>168</sup> Such foods tend to be high in fat, salt and sugar, and their consumption is associated with negative health outcomes.<sup>169</sup>

Additional research is needed to inform the design of taxes on foods to promote both healthy and sustainable diets.

### **b) Evidence on the impact on prices, sales, reformulation, and diet/health outcomes**

A recent systematic review found statistically significant increases in the price and decreases in the sales of taxed products following the introduction of taxes on HFSS foods.<sup>170</sup> Many factors influence tax pass-through to prices. Opportunities for tax avoidance for consumers may reduce tax pass-through, e.g., a neighbouring jurisdiction with no taxes or lower prices.<sup>171</sup> Higher levels of competition between producers or retailers may also lead to lower pass-through. The heterogeneous impact of unhealthy food taxes on sales by SES needs to be investigated further. The experience of Mexico's tax on non-essential energy-dense foods and the Hungarian Public Health Product Tax (PHPT) on foods high in salt and sugar show a statistically higher price sensitivity for sales among low SES.<sup>172</sup> Studies of the price elasticity of demand for foods also show that demand is more sensitive in lower-income countries. Within countries, the responsiveness of lower-income groups to price changes is somewhat greater, though differences are relatively modest.<sup>173</sup>

Unhealthy food taxes may lead consumers to substitute from purchasing taxed to untaxed products. The risk of substitution to untaxed unhealthy items – weakening the potential health impact of such taxes – is especially high when taxes are applied to foods, as opposed to beverages, because the range of

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Edjabou LD, Smed S. The effect of using consumption taxes on foods to promote climate friendly diets–The case of Denmark. *Food policy*. 2013; 39:84-96; Briggs AD, Kehlbacher A, Tiffin R, Garnett T, Rayner M, Scarborough P. Assessing the impact on chronic disease of incorporating the societal cost of greenhouse gases into the price of food: an econometric and comparative risk assessment modelling study. *BMJ open*. 2013; 3:e003543.

<sup>166</sup> Bonnet C, Bouamra-Mechemache Z, Corre T. An environmental tax towards more sustainable food: empirical evidence of the consumption of animal products in France. *Ecological Economics*. 2018; 147:48-61.

<sup>167</sup> Moberg E, Säll S, Hansson P-A, Rööös E. Taxing food consumption to reduce environmental impacts–Identification of synergies and goal conflicts. *Food Policy*. 2021; 101:102090.

<sup>168</sup> Hadjikakou M. Trimming the excess: environmental impacts of discretionary food consumption in Australia. *Ecological Economics*. 2017; 131:119-28.

<sup>69</sup>; da Silva JT, Garzillo JMF, Rauber F, Kluczkovski A, Rivera XS, da Cruz GL, et al. Greenhouse gas emissions, water footprint, and ecological footprint of food purchases according to their degree of processing in Brazilian metropolitan areas: a time-series study from 1987 to 2018. *The Lancet Planetary Health*. 2021; 5:e775-e85.

<sup>169</sup> Pagliai G, Dinu M, Madarena M, Bonaccio M, Iacoviello L, Sofi F. Consumption of ultra-processed foods and health status: a systematic review and meta-analysis. *British Journal of Nutrition*. 2021; 125:308-18.

<sup>170</sup> Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>171</sup> Cawley J, Frisvold DE. The pass-through of taxes on sugar-sweetened beverages to retail prices: the case of Berkeley, California. *Journal of Policy Analysis and Management*. 2017; 36:303-26.

<sup>172</sup> Batis C, Rivera JA, Popkin BM, Taillie LS. First-year evaluation of Mexico's tax on nonessential energy-dense foods: an observational study. *PLoS medicine*. 2016; 13:e1002057; Bíró A. Did the junk food tax make the Hungarians eat healthier? *Food Policy*. 2015; 54:107-15.

<sup>173</sup> Green R, Cornelsen L, Dangour AD, Turner R, Shankar B, Mazzocchi M, et al. The effect of rising food prices on food consumption: systematic review with meta-regression. *Bmj*. 2013; 346.

substitute options is wider. This risk varies based on product availability and the scope and overall design of the tax. Evidence from studies of real-world food taxes is limited and shows mixed results.<sup>174</sup> The current literature relies almost exclusively on simulation studies based on overly aggregated demand models with a limited ability to capture substitutions. Consideration of cross-price effects is essential in evaluating the effect of unhealthy food taxes and further research is needed in this area to inform tax design.

The evidence is also limited on the impact of unhealthy food taxes on industry reformulation. One year after the implementation of the PHPT in Hungary, approximately 40% of food manufacturers declared having modified their products to either reduce or eliminate the taxed ingredients (28% and 12%, respectively).<sup>175</sup> Effective tax design is crucial to encourage reformulation and maximize public health benefits.

A limited number of studies of real-world food taxes have assessed their impact on diet or health outcomes.<sup>176</sup> A meta-analysis of studies conducted between 1990 and 2016, which included both interventional and prospective research, determined that a 10% rise in the price of unhealthy food and drinks would result in a decrease of -0.06kg/m<sup>2</sup> in BMI, although not statistically significant.<sup>177</sup> It is difficult to isolate such impact from confounders as health impacts only occur years later. Nonetheless, several microsimulation model-based studies have predicted improvements in health outcomes.<sup>178</sup>

#### 4. Considerations regarding tax design

In addition to the scope of a nutrition-targeted tax (i.e., the categorisation of foods and beverages and the list of products covered), the type of tax, its structure, its base, and its rate(s) are other key dimensions to consider for effective tax policy design.

##### a) Tax type

Nutrition-targeted taxes are indirect taxes, levied on the production or purchase of unhealthy food and beverage products. They can take the form of excise taxes, sales taxes, value-added taxes, or import duties. Excise taxes are typically targeted to a narrow range of products and applied equally to both imported and domestic products. They are single-stage taxes usually levied at the manufacturer or importer level. Excise taxes have been considered the preferred instrument for health taxes because they can be targeted to raise the retail price of specific products or groups of products (including tobacco, alcohol, SSBs, and unhealthy foods) relative to healthy substitutes. They are therefore likely to be most effective at changing consumer behaviour and mitigating the negative effects of overconsumption of health-harming products.

Excise taxes are not always introduced with a health rationale or designed for health benefits. They are also applied as tax revenue mechanisms on non-alcoholic beverages (or select categories, such as carbonated beverages, including carbonated mineral waters), as well as other goods and services such as fuels, motor vehicles or airline tickets. More than four in five current SSB taxes are excise taxes

<sup>174</sup> Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>175</sup> Ecorys, Euromonitor, IDEA, ETI. Food taxes and their impact on competitiveness in the agri-food sector. Rotterdam: DG Enterprise and Industry. 2014.

<sup>176</sup> Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>177</sup> Afshin A, Penalvo JL, Del Gobbo L, Silva J, Michaelson M, O'Flaherty M, et al. The prospective impact of food pricing on improving dietary consumption: a systematic review and meta-analysis. *PloS one*. 2017; 12:e0172277.

<sup>178</sup> Härkänen T, Kotakorpi K, Pietinen P, Pirttilä J, Reinivuo H, Suoniemi I. The welfare effects of health-based food tax policy. *Food Policy*. 2014; 49:196-206; Cobiac LJ, Tam K, Veerman L, Blakely T. Taxes and subsidies for improving diet and population health in Australia: a cost-effectiveness modelling study. *PLoS medicine*. 2017; 14:e1002232; Tiffin R, Arnoult M. The public health impacts of a fat tax. *Eur J Clin Nutr*. 2011; 65:427-33.



(85%, 115/132).<sup>179</sup> Most countries applying unhealthy food taxes have done so using excise taxes, including Colombia, Ethiopia, Hungary, and Mexico.

Other tax instruments, such as import taxes, value-added taxes, and sales taxes, usually apply to a broad range of goods and services. A value-added tax (VAT) (referred to as Goods and Services Tax, or GST, in some jurisdictions) is applied at multiple stages of a product's value chain, with the final consumer paying its value. Sales taxes, on the other hand, are applied at the retailer level. Sales taxes can be included in the shelf price or added at checkout – either of which may increase saliency to the consumer depending on jurisdiction. VAT or sales taxes have a broad tax base and already apply to food in most countries under multiple tax rates. Therefore, there is potential to align VAT or sales tax rate differentiation with health goals. While the introduction of an excise tax may increase the overall tax burden, aligning existing differentiated VAT or sales tax rates – i.e., highest rates applied on unhealthy foods and lowest rates on healthy alternatives – may alleviate the equity concerns by acting as a subsidy for healthy alternatives. Given the importance of simpler tax systems for tax administration efficiency, the existence of tiered tax rates but in ways that often place a high tax burden on healthy foods and a lower or equal tax burden on less healthy foods could be a condition to the realignment of VAT or sales tax rates on foods with health objectives.

At least six jurisdictions worldwide currently target SSBs through the VAT system, using various approaches. In India, carbonated SSBs (including carbonated juices) are subject to the highest GST tier (28%) plus an additional 12% compensation, for a total tax of 40%. Grenada increased VAT on SSBs (excluding 100% juices) to 20% in 2023, from the standard rate of 15%. In Romania and Spain, SSBs are now subject to the standard VAT rate, where these products previously benefited from a reduced rate – an increase from 9 to 19% in Romania, and from 10% to 21% in Spain.<sup>181</sup> With most VAT rates in the range of 15-20% and most current SSB excise taxes applied at lower (in some cases, much lower) rates than this,<sup>180</sup> removing VAT exemptions or reduced rates on SSBs has the potential to make a considerable contribution to changing consumption.<sup>181</sup>

Import duties are applied on selected products imported and destined for domestic consumption (i.e., not in transit). They are generally collected at the point of entry into the country. Historically used to protect domestic industries or to generate additional revenue, they are gradually being phased out with the signature of free-trade agreements. They are therefore not the preferred option for taxing unhealthy products to decrease consumption. Nevertheless, they may be effective in reducing consumption in small island states where no domestically produced substitutes are available. At least nine small island states currently apply SSB import taxes with an explicit health rationale.<sup>182</sup> However, tariffs on imported products that may also be produced domestically would raise the relative price of the imported products and may induce tax substitution (tax avoidance) in favour of domestically produced items. This was the case in Tonga following an increase in the import duty on ice cream and instant noodles between 2015 and 2017.<sup>183</sup> In addition, preferential treatment for domestic production may break the principles of non-discrimination in international trade laws (see Chapter 9).

## **b) Tax structure considerations**

Nutrition-targeted taxes aim at disincentivizing the consumption of unhealthy foods and beverages. The choice of tax structure is important in achieving this goal. Specific taxes reduce the incentive to switch

<sup>179</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

<sup>180</sup> Roche M, Alvarado M, Sandoval RC, da Silva Gomes F, Paraje G. Comparing taxes as a percentage of sugar-sweetened beverage prices in Latin America and the Caribbean. *The Lancet Regional Health–Americas*. 2022; 11.

<sup>181</sup> Petit P, Mansour M, Wingender MP. How to Apply Excise Taxes to Fight Obesity: International Monetary Fund; 2021.

<sup>182</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

<sup>183</sup> World Bank. Using taxation to address noncommunicable diseases: lessons from Tonga. Nuku'alofa, Tonga: World Bank2019.

to cheaper brands as they apply equivalently to all products based on either their weight, volume, or their nutrient content. The latter has been found to lead to larger positive nutritional outcomes.<sup>184</sup> However, specific taxes need to be regularly adjusted to keep up with inflation and avoid erosion of their real value over time. They may also be seen as less equitable as they apply equivalently to all products regardless of their price band. On the other hand, ad valorem taxes – which are applied as a percentage of the value of a product – by nature follow price trends but tend to widen price dispersion between cheaper and premium brands. Ad valorem taxes are also more dependent on industry tax-avoidance strategies, such as under-invoicing, and may lead to lower tax pass-through.<sup>185</sup>

*i) Specific considerations for SSB tax structure*

SSB taxes applied based on sugar content are likely to be most effective at reducing sugar consumption and improving health outcomes. Yet as mentioned above, less than one in five SSB taxes worldwide are designed to target sugar content, with these taxes concentrated in high-income economies. Only six countries apply specific taxes based either fully (Cook Islands, Mauritius, South Africa) or partially (Ecuador, Poland, Sri Lanka) on sugar content, suggesting that this approach has been considered challenging by most policy makers to-date. Another approach is to apply a tiered volume-based tax with thresholds based on sugar content. To-date, 15 countries have used this design, including Chile, Morocco, Thailand, and the United Kingdom.<sup>186</sup> This design can approximate a sugar-based tax by applying higher rates to high-sugar SSBs and providing a supply-side incentive for industry to lower the sugar content of their products to limit tax liability, as well as other responses such as increasing promotion of lower-sugar products and reducing portion sizes of high-sugar products. Careful consideration is needed in setting appropriate thresholds for tax rate tiers, including determining the distribution of SSB sales volume by sugar content in the taxing jurisdiction.<sup>187</sup> Treatment of NSSBs is another important consideration for sugar-based taxes. For jurisdictions intending to tax these beverages, a mixed tax structure with SSBs taxed based on sugar content and NSSBs taxed based on volume may be an option.

*ii) Specific considerations for nutrition-targeted food tax structure*

Unhealthy food taxes can also encourage product reformulation. Applying taxes based on nutrient content, either through nutrient-content-based specific taxes or nutrient-based tiered taxes, gives stronger incentives to the industry, e.g., Hungary's PHPT tax.<sup>188</sup> The choice of tiered structure depends on the approach followed to categorise foods for taxation. NPMs are particularly well suited to inform the definition of tax tiers. Nevertheless, nutrient-based taxes may represent a challenge in countries with low tax administration and enforcement capacities.

**c) Incentivising the consumption of healthier alternatives**

*i) Specific considerations for SSB taxes*

When designing a SSB tax, it is important to ensure that healthy substitution options (including safe drinking water, unsweetened bottled water, and plain milk) are available to, and affordable for, the target population. A wide tax base covering all non-alcoholic beverages can be beneficial from a revenue

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<sup>184</sup> Harding M, Lovenheim M. The effect of prices on nutrition: comparing the impact of product-and nutrient-specific taxes. *Journal of Health Economics*. 2017; 53:53-71.

<sup>185</sup> Griffith R, Nesheim L, O'Connell M. Sin taxes in differentiated product oligopoly: an application to the butter and margarine market: cemmap working paper2010.

<sup>186</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

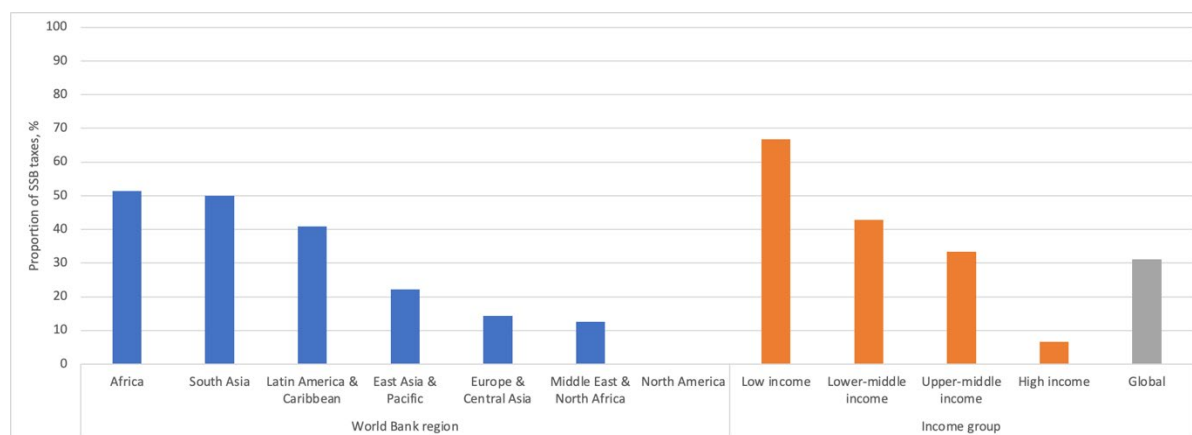
<sup>187</sup> Powell LM, Andreyeva T, Isgor Z. Distribution of sugar-sweetened beverage sales volume by sugar content in the United States: implications for tiered taxation and tax revenue. *Journal of public health policy*. 2020; 41:125-38.

<sup>188</sup> Ecorys, Euromonitor, IDEA, ETI. Food taxes and their impact on competitiveness in the agri-food sector. Rotterdam: DG Enterprise and Industry. 2014.

perspective, but taxing non-SSB, particularly unsweetened water and plain milk, substantially weakens the health potential of a tax.

One third of current SSB taxes globally, and more than half (56%) of SSB taxes in low-income economies, apply to unsweetened bottled water (Figure 4). Many of these taxes were not introduced with an explicit health rationale and apply to all non-alcoholic beverages, whether sweetened or not, or apply at a higher rate to bottled water. There is significant scope to improve the health potential of these taxes simply by excluding unsweetened bottled water.

**Figure 4** Proportion of SSB taxes that also apply to unsweetened water, as of August 23



Source: World Bank Global SSB Tax Database<sup>189</sup>

#### *ii) Specific considerations for unhealthy food taxes*

The scope of unhealthy food taxes needs to be broad to capture all unhealthy foods and tax rates sufficiently high to significantly impact their affordability and create meaningful incentives for both consumers and producers. Such taxes should not exacerbate social inequalities in the distribution of tax burden (see section 5 for further discussion on equity concerns). From a nutrition and equity perspective, disincentivizing unhealthy food consumption could be accompanied by incentivizing the consumption of healthier alternatives by increasing their affordability. As of 2021, three billion people could not afford a healthy diet.<sup>190</sup>

Aligning existing differentiated VAT or sales tax rates on foods with health objectives, with higher rates on unhealthy foods and lower or zero rates on healthier foods could incentivize substitutions to healthier foods and mitigate equity concerns. The extent to which depends on pre-existing rates applied to healthy foods, which need to be non-zero. Nevertheless, tax passthrough to prices may be lower for tax cuts than tax increases.<sup>191</sup> Consumers as well may not react symmetrically to price rises and cuts.<sup>192</sup> However, real-world evidence is scarce. The experience of the now repealed SSB tax in Denmark shows that consumers responded similarly to tax cuts and tax increase.<sup>193</sup> Additional research is needed on the potential asymmetries in tax pass-through to prices and individual responses to price changes between

<sup>189</sup> World Bank Group. Global SSB Tax Database. In: World Bank Group, editor. Washington, DC2023.

<sup>190</sup> Ritchie H. Three billion people cannot afford a healthy diet. Our World in Data; 2021; Available from: <https://ourworldindata.org/diet-affordability>.

<sup>191</sup> Bíró A. Did the junk food tax make the Hungarians eat healthier? Food Policy. 2015; 54:107-15.

<sup>192</sup> Biondi B, Cornelsen L, Mazzocchi M, Smith R. Between preferences and references: Asymmetric price elasticities and the simulation of fiscal policies. Journal of Economic Behavior & Organization. 2020; 180:108-28.

<sup>193</sup> Schmacker R, Smed S. Do prices and purchases respond similarly to soft drink tax increases and cuts? Economics & Human Biology. 2020; 37:100864.

unhealthy and healthier foods and price increases and decreases.<sup>194</sup> Governments may influence tax pass-through through political pressure or regulation.<sup>195</sup>

Another form of incentive for healthier alternatives is a subsidy on fruits and vegetables. A recent meta-analysis found that a 10% subsidy-induced reduction in the price of fruits and vegetables was associated with a 5.9% increase in sales (95% CI, -10.4% to -1.3%).<sup>196</sup> Increasing the affordability of healthy foods through subsidies could also compensate for the short-run increase in expenditure caused by unhealthy food taxes. Modelling studies have found that combining excise taxes on unhealthy foods with subsidies for healthier options encourages consumers to make healthier choices, leading to improved health outcomes.<sup>197</sup> Subsidies for healthy foods represent a promising policy tool, particularly in settings where there is no room for lowering consumption tax rates on such food items (e.g., fruits and vegetables are already exempted from value-added or sales taxes).

## 5. General considerations for nutrition-targeted taxation

### a) Administrative considerations

In contrast to alcohol and tobacco taxes, fewer countries have adopted nutrition-targeted taxes. As a result, administrative considerations include both changes in the design of existing taxes, as well as the design and implementation of new taxes. New taxes require administrative consideration of mechanisms, as well as the scope of the tax, in terms of what beverages and/or foods a tax might apply to. Changes to existing taxes also require the revision of the structure and scope of the tax.

A critical consideration for administration is the ease of identification of taxed beverages. Legal definitions of different categories of SSBs vary based on function, for example, within food standards codes for food safety and marketing purposes (e.g. these differentiate between alcohol-containing and non-alcohol-containing beverages), and within the harmonized tariff system, which provides differentiations related to trade. Using definitions of SSBs that align with existing tax classifications, such as the harmonized tariff system, could be more straightforward administratively. The Harmonized Tariff System is commonly used to define beverage types for differential taxation. HS codes for beverages align to a certain extent with health considerations, as they classify sweetened beverages, including energy drinks, carbonates, and liquid and powder concentrates that can be reconstituted into SSBs, separately to unsweetened water.<sup>198</sup> The Harmonized Tariff System has also been used to define food for taxation in contexts where a limited subset of foods has been taxed (e.g. confectionary).

However, existing classifications within food standards legislation and HS codes do not tend to align with health considerations of food and beverage taxation. The limitation of HS codes in defining beverages for taxation is the lack of differentiation between SSBs and NSSBs (i.e. HS Code 22.01 refers to waters not containing sugar, and HS Code 22.02 refers to “waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages, not including fruit, nut or vegetable juices”). It is possible to create more detailed country-

<sup>194</sup> Benzarti Y, Carloni D, Harju J, Kosonen T. What goes up may not come down: asymmetric incidence of value-added taxes. *Journal of Political Economy*. 2020; 128:4438-74; Talukdar D, Lindsey C. To buy or not to buy: Consumers' demand response patterns for healthy versus unhealthy food. *Journal of Marketing*. 2013; 77:124-38.

<sup>195</sup> Castelló JV, Casasnovas GL. Impact of SSB taxes on sales. *Economics & Human Biology*. 2020; 36:100821; Benzarti Y, Garriga S, Tortarolo D. Can VAT Cuts Dampen the Effects of Food Price Inflation? 2023.

<sup>196</sup> Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>197</sup> Hoenink JC, Mackenbach JD, Waterlander W, Lakerveld J, Van Der Laan N, Beulens JW. The effects of nudging and pricing on healthy food purchasing behavior in a virtual supermarket setting: a randomized experiment. *International Journal of Behavioral Nutrition and Physical Activity*. 2020; 17:1-12; Dodd R, Santos JA, Tan M, Campbell NR, Ni Mhurchu C, Cobb L, et al. Effectiveness and feasibility of taxing salt and foods high in sodium: a systematic review of the evidence. *Advances in Nutrition*. 2020; 11:1616-30.

<sup>198</sup> Hattersley L, Mandeville KL. Global Coverage and Design of Sugar-Sweetened Beverage Taxes. *JAMA Network Open*. 2023; 6:e231412-e.

specific codes to differentiate types of SSBs for taxation by performing a national ‘split’ of HS codes to create clear parameters for the SSBs subject to taxation.<sup>199</sup> However, using the HS codes would not enable more complex tax structures that differentiate based on sugar content within SSBs (for example, the use of tiers such as in the UK). Similarly, HS codes are not a suitable categorization for nutrition-targeted taxation on food because of the lack of alignment with nutritional criteria. A common approach for foods is to develop lists for exclusion or inclusion, based on the criteria or categories used to identify the object of the tax (in other words, listing foods based on the approaches described in section 3). However, the multiple legal categorizations of food – for example, HS codes which separate milk-based drinks from other types of beverages – can support arguments for exclusion of specific types of beverages. Tax administrators need to be aware of the interface between health-based classifications (discussed in the following paragraph) and existing classifications.

A second administrative consideration is the approach to assessing whether a given food or beverage is classed as ‘unhealthy’ and is subject to taxation. This may require information on nutrient composition in relation to relevant thresholds, and/or ingredients necessary for categorising beverages (particularly regarding the sugar content) and foods (for example, for classification based on processing level). These definitional approaches underpinning taxes may be relatively administratively complex. This is because tax administrators have limited capacity for measuring nutrient content (including sugar); responsibility for food and beverage composition usually lies with a food safety authority, which also has a mandate for governing labelling requirements (see below). Administrative complexity becomes even greater in the case of nutrition-targeted food taxation, where multiple nutrients of concern – and thus potentially multiple thresholds – may be considered (see section 3). To streamline the administration of nutrition policies, including taxation, one approach has been to develop common definitions and/or NPMs that are used for all nutrition policy interventions. For example, a recent analysis in Chile found that using the same NPM underpinning marketing restrictions and front-of-pack labelling for taxation would be an effective approach.<sup>200</sup>

Aligning taxation with nutrition labelling can support the administrative aspects of the identification of unhealthy foods and beverages. For SSB taxation, mandatory nutrition labelling of sugar content offers more scope for introducing taxes based on sugar content. For unhealthy food taxes, nutrient declaration labelling – which is recommended under Codex Alimentarius Commission Guidance<sup>201</sup> – provides a reference point for identifying foods subject to nutrient-based taxes (including NPM-based taxes and energy density-based taxes), and ingredient lists (which are recommended as mandatory) provide a reference point for identifying ultra-processed foods. Front-of-pack nutrition labels – such as Nutri-score, the Health Star Rating or warning labels – can provide a straightforward reference point for identifying foods subject to taxation based on more complex NPMs.<sup>202</sup> The alignment of taxes with food labelling may also increase salience, public acceptability and understanding of taxes (see Chapter 9).

The dynamics related to the formality of the food system affect how industry actors respond to nutrition-targeted taxes, as well as the administration of these taxes. In countries with substantial informal food systems, food often moves between formal and informal systems, creating challenges for tax administration. The nature of the specific national food system can inform the feasible scope of taxes. For example, nutrition-targeted taxes may be easier to implement in situations where the informal food system largely provides fresh and minimally processed foods, rather than highly processed HFSS foods. Policymakers must be aware that nutrition-targeted taxes may incentivise substitution by consumers and industry between food system avenues for production and sale. This dynamic will also influence

<sup>199</sup> Sandoval RC, Roche M, Belausteguigoitia I, Alvarado M, Galicia L, Gomes FS, et al. Excise taxes on sugar-sweetened beverages in Latin America and the Caribbean. *Revista Panamericana de Salud Pública*. 2021; 45:e21.

<sup>200</sup> Colchero MA, Paraje G, Popkin BM. The impacts on food purchases and tax revenues of a tax based on Chile’s nutrient profiling model. *Plos one*. 2021; 16:e0260693.

<sup>201</sup> Codex Alimentarius Commission. *Guidelines on Nutrition Labelling*. Rome2021. Report No.: CXG 2-1985.

<sup>202</sup> Colchero MA, Paraje G, Popkin BM. The impacts on food purchases and tax revenues of a tax based on Chile’s nutrient profiling model. *Plos one*. 2021; 16:e0260693.

industry opposition to taxation, particularly if similar products are sold in formal and informal food systems, with taxes only applied to formal food system producers.

### **b) Tax policy coherence regarding food**

The application of nutrition-targeted taxes needs to be considered in light of existing price-related policies applied to food. A range of policies that directly impact food prices are applied throughout food supply chains, which can create price incentives for consumers that may have (unintended) health consequences.<sup>203</sup> These include production incentives as well as consumer subsidies and price controls. Production supports, such as agricultural subsidies or other price supports, often apply to crops such as sugar or corn (contributing to production of high fructose corn syrup), which are used widely in processed foods and are a subject of health concerns.<sup>204</sup> Reviewing production measures for consistency with nutrition and health objectives can identify opportunities to improve policy coherence. For example, the removal of subsidies on sugar in Malaysia in 2013 was associated with price increases, although there has not been a formal evaluation.<sup>205</sup> Consumer-oriented pricing measures, designed to address food security and consumer protection, are particularly common in low- and middle-income countries.<sup>206</sup> Similarly, price control measures are widely used in low- and middle-income countries to address food affordability and food security.<sup>207</sup> For example, in the Pacific Island region, price controls that applied to unhealthy foods – including sugar, fats and oils – were identified as a concern regarding the promotion of healthier food environments.<sup>208</sup> A review of consumer subsidies from a nutrition perspective can promote policy coherence with respect to price incentives.

Conversely, other pricing measures can be used to complement or support the objectives of nutrition-targeted taxes. For example, reducing consumption taxes on fruits and vegetables in Sweden was estimated to increase the effectiveness of nutrition-targeted taxation on health outcomes<sup>209</sup> (see section 4). Further to consumer subsidies, the United Nations has also called for the repurposing of agricultural subsidies to promote healthier diets, which can complement nutrition-targeted taxes by improving the affordability of healthier alternatives.<sup>210</sup>

The broader policy environment can also promote or undermine policy coherence related to nutrition-targeted taxation. With respect to the broader tax framework, other (non-food and beverage) tax measures that apply to the food industry can also create incentives relevant to nutrition. For example, tax breaks for unhealthy food advertising can undermine efforts to protect children from the harmful effects of food marketing. There is also potential to develop other complementary policy measures to limit industry pricing strategies that lower the costs of unhealthy food. For example, restrictions on

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<sup>203</sup> FAO, IFAD, UNICEF, WFP, WHO. The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make health diets more affordable. Rome: FAO2022.

<sup>204</sup> Do WL, Bullard KM, Stein AD, Ali MK, Narayan KV, Siegel KR. Consumption of foods derived from subsidized crops remains associated with cardiometabolic risk: an update on the evidence using the national health and nutrition examination survey 2009–2014. *Nutrients*. 2020; 12:3244.

<sup>205</sup> Cherly Hew, Loke E. Sugar subsidy removal more bane than boon, say consumers. *The Star*. 2013.

<sup>206</sup> Asfaw A. Do Government Food Price Policies Affect the Prevalence of Obesity? Empirical Evidence from Egypt. *World Development*. 2007; 35:687-701.

<sup>207</sup> Ginn W, Pourroy M. Optimal monetary policy in the presence of food price subsidies. *Economic Modelling*. 2019; 81:551-75.

<sup>208</sup> Snowdon W, Lawrence M, Schultz J, Vivili P, Swinburn B. Evidence-informed process to identify policies that will promote a healthy food environment in the Pacific Islands. *Public health nutrition*. 2010; 13:886-92.

<sup>209</sup> Saha S, Nordström J, Scarborough P, Thunström L, Gerdttham U-G. In search of an appropriate mix of taxes and subsidies on nutrients and food: A modelling study of the effectiveness on health-related consumption and mortality. *Social Science & Medicine*. 2021; 287:114388.

<sup>210</sup> FAO, IFAD, UNICEF, WFP, WHO. The State of Food Security and Nutrition in the World 2022. Repurposing food and agricultural policies to make health diets more affordable. Rome: FAO2022.

retail price promotions for unhealthy food items, which are planned for introduction in the United Kingdom, can help to address a key strategy that the food retail industry uses to increase sales.<sup>211</sup>

### c) Considerations related to distributional equity impacts

There are two relatively unique features to the distributional impacts of nutrition-targeted taxation. First, food is essential for life and as such taxes are particularly sensitive for lower-income households. Overall food expenditure is relatively inelastic,<sup>212</sup> which means that broad-based taxes that apply to a wide range of foods can create a notable tax burden because it is harder for consumers to either reduce or substitute their consumption of taxed foods and beverages. For example, nutrient-based taxes targeting HFSS foods tend to apply to foods across multiple food sub-sectors, and it is important that these do not disincentivise consumption of “core” foods recommended in dietary guidelines. Many approaches to nutrition-targeted taxes exempt minimally processed “core” foods such as staple foods, fruits, vegetables, and some dairy and meat products. In the context of rising food inflation - higher food prices added 6 percentage points to consumer food inflation in 2022, and up to 14% for commonly traded food commodities<sup>213</sup> – food taxes that apply to core foods should be carefully considered. The ability of consumers to improve the quality of their diets by switching to untaxed healthy foods and beverages is critical to consider, including differences in (cross) price elasticities of demand by socio-economic status.<sup>214</sup>

The second feature relates to the heterogeneity of food and beverages, and the diverse substitution across products that can occur. If there are close untaxed substitutes that are healthier – for example, unsweetened beverages, or cheaper minimally processed alternatives – then substitution as a result of taxation can improve health overall. For example, substitution from SSBs to unsweetened milk amongst children offers health benefits.<sup>215</sup> On the other hand, substitution to less healthy alternatives can undermine health gains from nutrition-targeted taxes.

Given the importance of food in household expenditure among poorer households, there have been proposals to address affordability concerns associated with taxation through complementary subsidies on healthier foods. Lowering consumption tax rates on healthy alternatives or introducing consumer subsidies would also provide a means to further incentivise a shift to healthier food consumption. Consumer subsidies on fruit and vegetables, in particular, have been found to be effective in increasing sales.<sup>216</sup> Equity concerns could also be mitigated by compensatory mechanisms targeted to the most vulnerable, such as welfare benefits and cash transfer programs.<sup>217</sup>

Equity impacts will thus depend largely on the extent to which the consumers reduce consumption of the taxed foods (including substitution to untaxed foods).<sup>218</sup> With often higher price responsiveness among low income households, well designed nutrition-targeted taxes can present a minimal tax burden

<sup>211</sup> Watt TL, Beckert W, Smith RD, Cornelsen L. Reducing consumption of unhealthy foods and beverages through banning price promotions: what is the evidence and will it work? *Public health nutrition*. 2020; 23:2228-33.

<sup>212</sup> Green R, Cornelsen L, Dangour AD, Turner R, Shankar B, Mazzocchi M, et al. The effect of rising food prices on food consumption: systematic review with meta-regression. *Bmj*. 2013; 346.

<sup>213</sup> Bogmans C, Pescatori A, Ervin P. Global Food Prices to Remain Elevated Amid War, Costly Energy, La Niña. *International Monetary Fund Blog*. International Monetary Fund Blog: International Monetary Fund Blog; 2022.

<sup>214</sup> Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>215</sup> Thow AM, Downs SM, Mayes C, Trevena H, Waqanivalu T, Cawley J. Fiscal policy to improve diets and prevent noncommunicable diseases: from recommendations to action. *Bulletin of the World Health Organization*. 2018; 96:201.

<sup>216</sup> Andreyeva T, Marple K, Moore TE, Powell LM. Evaluation of economic and health outcomes associated with food taxes and subsidies: a systematic review and meta-analysis. *JAMA network open*. 2022; 5:e2214371-e.

<sup>217</sup> Harris T, Phillips D, Warwick R, Goldman M, Jellema J, Goraus-Tanska K, et al. Redistribution via VAT and cash transfers: an assessment in four low and middle income countries: IFS Working Papers 2018.

<sup>218</sup> Grummon AH, Lockwood BB, Taubinsky D, Allcott H. Designing better sugary drink taxes. *Science*. 2019; 365:989-90.

together with relatively higher gains for health, medical costs and economic productivity.<sup>219</sup> While additional research is needed, recent extended cost-benefit analyses of SSB taxation in Kazakhstan and Ukraine found that when accounting for health benefits including the associated increase in lifetime income and reduced health care costs, SSB taxes tend to benefit the poorest households the most and can have a progressive impact in the medium- and long-run.<sup>220</sup> As a result, nutrition-targeted taxes may seem regressive in the short term if we only account for the potential increase in household expenditure on food relative to income. However, lower SES individuals may accrue larger health benefits in the long run.<sup>221</sup>

#### **d) Industry & macro-economic impacts and the political economy dynamics of nutrition-targeted taxes**

Food and beverages contribute notably to gross domestic product in all countries, including through the contribution of their production, processing, transport, and retail. As a result, concerns regarding potential macro-economic impacts of nutrition-targeted taxes have political salience. For example, opponents of the fat tax implemented in Denmark argued that it negatively affected the meat, dairy, bakery, confectionary, and oil industries and was too troublesome to administer. The result was concerted industry opposition to the tax, which was removed based on industry estimates of its business impacts with limited considerations for its effect on saturated fat consumption.<sup>222</sup>

There is little evidence to support any negative macro-economic impacts from SSB or unhealthy food taxes.<sup>223</sup> While such taxes could impact specific sectors including manufacturing, retail, and crop production (e.g., sugar cane), modelling studies have shown minimum to net-zero impacts, and in some cases net positive impacts to the economy.<sup>224</sup> For example, Guerrero-Lopez and colleagues found no impact of Mexico's energy-dense food tax on employment in the manufacturing industry.<sup>225</sup> Positive employment impacts can arise because money not spent on unhealthy foods and beverages is often spent on other goods and services. Many companies affected by nutrition-targeted taxes produce a diverse range of products, some of which that would not be affected by the tax and thus may benefit from tax-induced substitutions (for example, SSB companies that also produce bottled water). In addition, employment impacts from nutrition-targeted taxes may be positive when consumers shift spending to services, which have a higher employment factor. For example, in the USA, modelling of employment impacts from SSB taxes across the economy as a whole showed a positive effect, including a shift to employment in non-beverage industry and government sectors.<sup>226</sup>

However, there may be some short-term and sector-specific impacts related to employment, depending on the nature of the national food system. For example, for countries with substantial sugar production, taxing sugary products may have some impact on sugar farmers who may be poor and relatively

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<sup>219</sup> Fuchs A, Pierola D. The Distributional Impacts of Health Taxes. *Equitable Growth, Finance and Institutional Insight - Poverty and Equity*. Washington, DC 2022. Report No.: License: CC BY 3.0 IGO.

<sup>220</sup> Fuchs A, Mandeville K, Alonso-Soria AC. *Health and Distributional Effects Taxing Sugar-Sweetened Beverages*. 2020.

<sup>221</sup> Sassi F, Belloni A, Mirelman AJ, Suhrcke M, Thomas A, Salti N, et al. Equity impacts of price policies to promote healthy behaviours. *The Lancet*. 2018; 391:2059-70.

<sup>222</sup> Vallgård S, Holm L, Jensen JD. The Danish tax on saturated fat: why it did not survive. *European journal of clinical nutrition*. 2015; 69:223-6.

<sup>223</sup> Mounsey S, Veerman L, Jan S, Thow AM. The macroeconomic impacts of diet-related fiscal policy for NCD prevention: A systematic review. *Economics & Human Biology*. 2020; 37:100854.

<sup>224</sup> Mounsey S, Veerman L, Jan S, Thow AM. The macroeconomic impacts of diet-related fiscal policy for NCD prevention: A systematic review. *Economics & Human Biology*. 2020; 37:100854.

<sup>225</sup> Guerrero-López CM, Molina M, Colchero MA. Employment changes associated with the introduction of taxes on sugar-sweetened beverages and nonessential energy-dense food in Mexico. *Preventive medicine*. 2017; 105:S43-S9.

<sup>226</sup> Powell LM, Wada R, Persky JJ, Chaloupka FJ. Employment impact of sugar-sweetened beverage taxes. *American journal of public health*. 2014; 104:672-7.



unskilled.<sup>227</sup> Given the diversity of uses of sugar though, any reduction in the demand for sugar from nutrition-targeted taxes could be absorbed by export markets. For example, in Ukraine, simulation of a recommended SSB tax found that the reduction in demand for domestically-produced sugar would be equal to at most 0.5% of exported sugar, meaning any decrease could likely be absorbed by export markets.<sup>228</sup> However, consideration of complementary policy opportunities (perhaps even funded from tax revenue) to support diversified production and transitional employment (perhaps can help mitigate macroeconomic concerns. Overall macroeconomic impact also needs to account for additional government spending resulting from increased tax revenue, as well as the contribution of taxation to reducing productivity losses arising from NCDs (less absenteeism, less premature labour force exit, etc.).<sup>229</sup>

### e) Framing and public acceptability

SSBs and unhealthy foods are widely consumed across the entire population, and their consumption is highly normalized in comparison with tobacco and alcohol use. These products are also popularly consumed by children, which is another important point of difference. The denormalization of unhealthy food and beverage consumption, through public awareness campaigns and the introduction of other complementary measures, can thus make an important contribution to the public acceptability of nutrition-targeted taxes.<sup>230</sup> The public acceptability of nutrition-targeted taxes is also influenced by media coverage, public health advocacy, the use of revenue and contextual factors such as associated health and social concerns.<sup>231</sup> For example, in Mexico, supportive media and civil society campaigns contributed to the acceptability of the SSB and energy-dense food taxes, and their adoption.<sup>232</sup> Framing associated with the introduction of nutrition-targeted taxes has included a focus on the health harms associated with SSB and unhealthy food consumption, the societal benefits from the introduction of taxation (both in terms of health impact and averted healthcare expenditure) and fiscal benefits from the tax.<sup>233</sup> Overall, the framing of nutrition-targeted taxes in ways that broadly align with the prevailing political sentiment is associated with the adoption of taxes.<sup>234</sup> In addition, strategic use of earmarking (soft or hard, see below), can increase acceptability of nutrition-targeted taxes.

<sup>227</sup> Thow AM, Lencucha RA, Rooney K, Colagiuri S, Lenzen M. Implications for farmers of measures to reduce sugars consumption. *Bulletin of the World Health Organization*. 2021; 99:41.

<sup>228</sup> Mandeville KL, Nivievskiy O, Neyter R, Martyshev P, Vakhitov V, Warren B, et al. Impact of a sugar-sweetened beverage tax on sugar producers in Ukraine. *European Journal of Public Health*. 2023; 33:665–7.

<sup>229</sup> Thow AM, Lencucha RA, Rooney K, Colagiuri S, Lenzen M. Implications for farmers of measures to reduce sugars consumption. *Bulletin of the World Health Organization*. 2021; 99:41.

<sup>230</sup> Le Bodo Y, Paquette M-C, De Wals P. Potential “signal” effects from sugar-sweetened beverage taxation. *Taxing Soda for Public Health: A Canadian Perspective*. Switzerland: Springer Nature; 2016. p. 151-60.

<sup>231</sup> Elliott LM, Dalgligh SL, Topp SM. Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: a scoping review of policy content, actors, process and context. *International Journal of Health Policy and Management*. 2022; 11:414-28; Eykelenboom M, Van Stralen MM, Olthof MR, Schoonmade LJ, Steenhuis IH, Renders CM. Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*. 2019; 16:1-19; Wright A, Smith KE, Hellowell M. Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health*. 2017; 17:583.

<sup>232</sup> Fuster M, Burrowes S, Cuadrado C, Velasco Bernal A, Lewis S, McCarthy B, et al. Understanding policy change for obesity prevention: learning from sugar-sweetened beverages taxes in Mexico and Chile. *Health Promotion International*. 2021; 36:155-64.

<sup>233</sup> Thow AM, Rippin HL, Mulcahy G, Duffey K, Wickramasinghe K. Sugar-sweetened beverage taxes in Europe: learning for the future. *European Journal of Public Health*. 2022; 32:273-80; Elliott LM, Dalgligh SL, Topp SM. Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: a scoping review of policy content, actors, process and context. *International Journal of Health Policy and Management*. 2022; 11:414-28; Wright A, Smith KE, Hellowell M. Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health*. 2017; 17:583.

<sup>234</sup> Le Bodo Y, Paquette M-C, De Wals P. Potential “signal” effects from sugar-sweetened beverage taxation. *Taxing Soda for Public Health: A Canadian Perspective*. Switzerland: Springer Nature; 2016. p. 151-60.

In contrast, the framing of SSB and HFSS food-related industries as an important source of employment as well as the potential for negative economic impacts on producers and other industries, can support resistance to the introduction of a tax.<sup>235</sup> Equity concerns regarding the affordability impacts of nutrition-targeted taxes can also reduce public acceptability. Careful tax communication that addresses these potential economic and equity concerns while also emphasising the benefits and complementary measures can help to enable public acceptability.<sup>236</sup>

#### **f) Revenue use**

The earmarking of nutrition-targeted tax revenue has been used to address social and health priorities. For example, in Hungary, revenue from the PHPT was used to support the health workforce.<sup>237</sup> Earmarking can be hard or soft and has included earmarking for complementary policy measures, such as improving the healthfulness of school food or funding public health campaigns, as well as for financing better access to healthy alternatives such as fruits and vegetables and safe drinking water.<sup>238</sup> Channeling earmarking through the annual budget can reinforce this commitment through improved accountability on the use of these resources, and also help gather public support, while improving governance and transparency. There is also potential for earmarking to be used for compensatory measures, for example, to address impacts on food systems actors such as supporting transitional packages for sugar producers.<sup>239</sup>

### **6. Proposed pathways for introducing or scaling up nutrition-targeted taxation**

There is wide variation in the extent to which countries have made use of nutrition-targeted taxes to date. There is also wide variation between countries in their nutrition challenges and priorities, food systems and market structures, capacities, and resources, as well as existing legal and tax frameworks. Approaches to introducing or scaling up nutrition-targeted taxation will therefore necessarily be country- and setting-specific. Governments considering nutrition-targeted taxes need a thorough understanding of these existing conditions.

The health objectives of nutrition-targeted taxes also need to be balanced alongside the standard tax policy principles of administrative simplicity, efficiency, and equity. The case for using a nutrition-targeted tax over or in addition to other public policy measures such as regulation to reduce the burden of unhealthy diets, will need to be clearly established. This includes quantifying the externalities and internalities associated with the consumption of unhealthy foods and beverages, which may be gauged by estimating the economic burden. Country-specific data on the health burden associated with consumption of specific food and beverage categories or nutrients, where available, can also inform the

<sup>235</sup> Elliott LM, Dalglish SL, Topp SM. Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: a scoping review of policy content, actors, process and context. *International Journal of Health Policy and Management*. 2022; 11:414-28.

<sup>236</sup> Elliott LM, Dalglish SL, Topp SM. Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: a scoping review of policy content, actors, process and context. *International Journal of Health Policy and Management*. 2022; 11:414-28; Eykelboom M, Van Stralen MM, Olthof MR, Schoonmade LJ, Steenhuis IH, Renders CM. Political and public acceptability of a sugar-sweetened beverages tax: a mixed-method systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*. 2019; 16:1-19; Wright A, Smith KE, Hellowell M. Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health*. 2017; 17:583.

<sup>237</sup> Thow AM, Rippin HL, Mulcahy G, Duffey K, Wickramasinghe K. Sugar-sweetened beverage taxes in Europe: learning for the future. *European Journal of Public Health*. 2022; 32:273-80.

<sup>238</sup> Thow AM, Rippin HL, Mulcahy G, Duffey K, Wickramasinghe K. Sugar-sweetened beverage taxes in Europe: learning for the future. *European Journal of Public Health*. 2022; 32:273-80; Elliott LM, Dalglish SL, Topp SM. Health taxes on tobacco, alcohol, food and drinks in low-and middle-income countries: a scoping review of policy content, actors, process and context. *International Journal of Health Policy and Management*. 2022; 11:414-28; Wright A, Smith KE, Hellowell M. Policy lessons from health taxes: a systematic review of empirical studies. *BMC Public Health*. 2017; 17:583.

<sup>239</sup> Thow AM, Lencucha RA, Rooney K, Colagiuri S, Lenzen M. Implications for farmers of measures to reduce sugars consumption. *Bulletin of the World Health Organization*. 2021; 99:41.

identification of priority products and nutrients to target through taxation. While SSBs provide a relatively straightforward tax base, defining the scope of a nutrition-targeted food tax is more complex. When it comes to tax design, including structure, scope, rate and rate differentiation, trade-offs are likely to be needed between health objectives, equity, and administrative feasibility. Revenue from nutrition-targeted taxation should at least cover the administration costs of the tax.

Considerations regarding nutrition-targeted taxes would ideally include a full review of existing fiscal and other policies that influence the food system, and that may undermine the health benefits of a nutrition-targeted tax, either existing or proposed. As for health taxes applied on other unhealthy commodities, excise taxes represent the preferred instrument for introducing nutrition-targeted taxes. In countries with existing differentiated VAT or sales taxes rates, governments should consider removing any exemptions or reduced rates on unhealthy foods and beverages and applying reduced rates to healthier alternatives. Many approaches could be used to identify unhealthy foods and beverages, from a narrow single-nutrient or energy-dense approach to nutrient profile models or processing levels. While nutrient-based taxation could lead to higher health benefits, it may complicate tax administration. Finally, it is important to assess policy coherence and the alignment of incentives between nutrition-targeted taxation and other related pricing measures, including agricultural support measures, price control, and consumer subsidies.

Proposed pathways to introduce or scale up nutrition-targeted taxes could include:

1. If there is a differentiated VAT or sales tax system:
  - i. Review products currently exempt or subject to reduced rates to exclude all unhealthy food and beverage products, which should be taxed at the standard rate.
  - ii. Consider precisely defining a limited group of healthy substitutes, including among other fruits and vegetables, and applying VAT or sales tax exemption or reduced rates.
2. If there are other pricing measures applied to foods and beverages:
  - i. Review price controls and consumer subsidies to ensure these are coherent with nutrition-targeted taxes, i.e. exclude unhealthy foods and beverages and incentivize healthy alternatives such as fresh fruits and vegetables
  - ii. Review agricultural support measures such as market price support for sugar production
3. If there is an existing SSB tax:
  - i. If a comprehensive local nutrient profile model now exists, consider revising the tax to align to this framework
  - ii. If not, review products taxed to ensure all SSBs are included and healthy alternatives such as bottled water are excluded
  - iii. If the existing tax is an import tax, consider moving to an excise tax
  - iv. If the existing structure is not specific, consider moving to this structure
  - v. If the rate is uniform, consider adding tiers based on sugar content, if sufficient administrative capacity and nutrient label information
  - vi. If the rates are tiered on a basis other than sugar content, consider adjusting tiers to those based on sugar content, if sufficient administrative capacity and nutrient label information
  - vii. Review rates to ensure that the tax burden applied to SSBs is sufficiently high to disincentivize consumption
4. If there is an existing nutrition-targeted food tax:
  - i. If a comprehensive local nutrient profile model now exists, consider revising the tax base to align to this framework
  - ii. If not, review products taxed and/or nutrient thresholds applied to ensure these remain aligned with a healthy diet and if any products could be added
  - iii. If the existing tax is an import tax, consider moving to an excise tax

- iv. If the rates are tiered on a basis other than nutrient content, consider adjusting tiers to those based on nutrient content, if sufficient administrative capacity and nutrient label information
  - v. Review rates to ensure that the tax burden applied to unhealthy foods is sufficiently high to disincentivize consumption and consider increasing the affordability of healthier alternatives
5. If considering the introduction of an excise tax on SSBs or nutrition-targeted food tax:
  - i. Undertake an analysis to identify priorities for nutrition-targeted taxation, with reference to data on market structure and trends and existing consumption patterns (including by different socioeconomic groups)
  - ii. Assess current capacity to administer the tax, including cost and accuracy of product labelling, and estimate potential revenue
  - iii. If there is an existing local nutrient profile model, consider using this as a basis for taxation, if sufficient administrative capacity and nutrient label information
  - iv. If no nutrient profile model exists yet and/or sufficient tax administration capacity to base taxation on nutrient content, consider limiting the tax base to selected non-essential and well-defined unhealthy items as an initial step
  - v. Exclude healthy alternatives from taxation and consider subsidies to healthier alternatives such as fruits and vegetables to promote healthier diets and mitigate equity concerns
6. Review or consider other non-price-related policies such as front-of-pack nutrition labelling or marketing regulations to synergize the impact of nutrition-targeted taxes

## 7. Conclusions

Nutrition-targeted taxes represent a promising policy tool to tackle externalities and internalities linked with unhealthy diets. They also contribute to the broader sustainable development agenda and raise revenue. Given the obesity epidemic, there is a need to broaden the scope of nutrition-targeted taxes. More SSB taxes have been implemented than unhealthy food taxes, however, existing taxes are not optimized for health impact and tax rates are often low. Nevertheless, their positive impact in reducing the affordability and sales of taxed products has been evidenced. There are trade-offs in designing nutrition-targeted taxes in terms of scope, categorization, and food classification, as well as tax structure, in terms of maximising health benefits as well as balancing equity and administration. The goal should not only be to reduce the affordability of unhealthy foods and beverages but also to foster substitution for healthy alternatives. Health objectives need to be balanced alongside standard tax policy principles of administrative simplicity, efficiency, and equity. Approaches to introducing or scaling up nutrition-targeted taxation should be country- and setting-specific, as part of a broader policy framework to promote healthier diets.