7

Taxation of harmful products, including tobacco, alcohol and sugar-sweetened beverages (SSBs), and related topics

Guillermo Paraje [a], Prabhat Jha [b], William Savedoff [c], Alan Fuchs [d]

[a] Escuela de Negocios, Universidad Adolfo Ibáñez
[b] Centre for Global Health Research, Unity Health Toronto, University of Toronto
[c] Social Insight
[d] Poverty and Equity, Middle East and North Africa, World Bank

INTRODUCTION

THE CONSUMPTION OF UNHEALTHY PRODUCTS AND THE HEALTHY LONGEVITY AGENDA

Even as human beings are living longer and generally healthier lives, consumption of tobacco, alcohol, and processed foods with high sugar content are causing substantial death and disease. In recent decades, the magnitude of these health effects has become increasingly apparent in terms of cancers, cardiovascular disorders, diabetes, and other illnesses which are obstacles to healthy aging.

Consumption of tobacco, alcohol, and sugar-sweetened beverages (SSBs) have negative consequences on health for people of all ages. However, these negative effects are especially evident at older ages. The main contributors to the disease burden in people 60 years of age and older at the global level are cardiovascular diseases (30.3 percent), cancer (15.1 percent), and chronic respiratory diseases (9.5 percent), all causes closely associated with the consumption of tobacco, alcohol, and SSBs (Prince et al. 2015).

In a rapidly aging world, it is crucial to improve the health of older adults. 23 percent of the total burden of disease is attributable to illness in adults ages 60 and older (Prince et al. 2015). Suffering chronic illnesses is strongly associated with functional dependence. In Latin America, for instance, 14 percent of the over-65 population are care dependent, while functional dependence is negatively associated with socioeconomic status (Aranco et al. 2022). A recent study found that labor income received by members of households with older adults needing chronic care was substantially lower than in those households where such care was not needed. Household consumption was also about 12 percent lower and catastrophic health care costs about 64 percent more likely in households where older adults needed care (Guerchet et al. 2018).

Unless countries reduce smoking, alcohol use, and SSB consumption, people reaching old age in the coming decades will increasingly experience preventable chronic illnesses, with the burden that this implies for health systems and caregivers, especially women. Improving the health status of older adults can produce social benefits in the form of an extended productive life span (comprehensive longevity boost) and a reduced fertility rate (Heijdra and Reijnders 2016). Action toward these goals must unfold across the life course. The years gained through increased life expectancy need to be as healthy as possible to avoid burdening already-strained pension systems, health systems, and family members providing informal care for older people in poor health (Bloom et al. 2015). Fiscal tools (e.g., taxes) like the ones discussed in this document can play a fundamental role in preventing chronic diseases and improving people's lives.

This chapter discusses taxation as a proven method to discourage consumption of harmful products, improve population health, and contribute to healthy aging. It discusses the economic rationale for taxing these products and documents their health effects and costs to society. It presents evidence on the effectiveness of taxation in raising prices and reducing consumption. Taking account of health benefits as well as indirect financial effects, it also shows how taxation disproportionately benefits poorer households. The chapter considers the role of industries in opposing taxation and concludes with a discussion of how this topic relates to the broader agenda of healthy longevity.

For the purpose of this review, tobacco products are defined as those that contain tobacco that can be smoked, inhaled, or chewed. So-called "electronic cigarettes" (electronic nicotine delivery systems, or electronic non-nicotine delivery systems) raise additional issues beyond the scope of this study. With respect to sugar, this review will focus on SSBs. Because SSBs are a significant source of added sugars in people's diets and lack other nutritional benefits, many governments have initiated efforts to restrict sugar intake by focusing on these beverages. Researchers have been able to generate evidence about reducing sugar consumption by studying such policies. SSBs are defined as all types of beverages containing free sugars. These include carbonated and non-carbonated soft drinks, fruit/vegetable juices and drinks, liquid and powder concentrates, flavored water, energy and sports drinks, ready-to-drink tea, ready-to-drink coffee, and flavored milk drinks (WHO 2017b).

THE CONSUMPTION OF HARMFUL PRODUCTS AND THEIR EFFECTS

Tobacco, alcohol, and sugar have been around a long time. However, current consumption patterns – driven by rising incomes, falling prices, and easier access – have led to higher levels and more widespread use of these products. The effects on population health and economic activity are increasingly well documented.

Consumption patterns

Consumption of tobacco, alcohol, and SSBs is associated with negative health consequences. Scientific evidence of these impacts is consistent, significant, and growing.

It is estimated that tobacco kills between 5 to 8 million people in the world each year, mostly in low- and middle-income countries (LICs and MICs), along with a more uncertain but high number of second-hand (passive) smokers (WHO 2021; Jha and Peto 2014). Highly toxic and addictive, tobacco has posed one of the main public health challenges of the second half of the 20th century and of the 21st. Although tobacco consumption remains very high, it is falling, marking a reversal of the rising trends seen before the late 1990s (Jha 1999). Relying on direct surveys for some countries and model-based estimates for most others, the World Health Organization (WHO) estimates that global smoking prevalence in people aged 15 years and older fell by a third between 2000 and 2020, from about 33.3 percent to 22.8 percent (WHO 2019b). Differences by gender are notable. Current-smoking prevalence for men fell by a quarter (50 percent to 37.5 percent), while for women, it dropped by half (16.7 percent to 8 percent). In some countries, such as China, India, and Indonesia, cigarette smoking is largely concentrated among men, but in others, including many Latin American countries, smoking among women is common. Adopting United Nations (UN) population projections (United Nations 2019), these figures imply that the absolute number of current smokers worldwide fell almost 7 percent between 2000 and 2020, with a decrease of 35 percent for women, but an increase of 2 percent for men. Decreases in both prevalence and number of smokers are projected for both sexes and for all age groups through 2025 (WHO 2019b). It is estimated that one smoking death occurs for every 0.8 to 1.1 million cigarettes smoked (Jha 2020). Thus, the 7.4 trillion cigarettes consumed in 2019 alone will lead, eventually, to at least 7 million premature deaths.

For alcohol, the situation is quite different. Though the share of current drinkers among people aged 15 years and older decreased between 2000 and 2016 (from 47.6 percent to 43 percent percent), the per capita volume of pure alcohol consumed has increased from 5.7 liters to 6.4 liters and is projected to grow further to 7 liters by 2025 (WHO 2018; Manthey et al. 2019). If only drinkers are considered, pure alcohol consumption per capita reached 15.1 liters in 2016 (up from 11.1 liters in 2000) – (WHO 2018). Considering global population growth in the period 2000-2016, the number of drinkers worldwide increased by 16 percent, and the amount of pure alcohol consumed globally increased by 58 percent (an average annual increase of 3.1 percent versus a 1.7 percent average annual increase in global constant dollar per capita GDP) – (United Nations 2019; World Bank 2023). Consumption of spirits contributed the most to increasing consumption of pure alcohol at the global level (44.8 percent). Beer and wine followed, with increases of 34.3 percent and 11.7 percent, respectively (WHO 2018).

Global alcohol consumption prevalence was about 70 percent higher among men ages 15 years and older than among women in the same age group in 2016 (53.6 percent versus 32.3 percent, respectively), while the consumption of pure alcohol among drinkers ages 15 years and older is 180 percent higher among men than among women (19.4 versus 7 liters) – (WHO 2018). However, the gender gap in alcohol consumption has decreased significantly over the last century, and there are strong indications that the gap will continue to narrow, due to faster growth in consumption among women (Slade et al. 2016).

Patterns of alcohol consumption have also changed, but with greater regional variation and far less reliable survey data available than for cigarettes. The prevalence of heavy episodic drinking (HED)[1] among drinkers 15 years and older declined by only about 1 percent per year from 2010 to 2016, from 41.9 percent, to 39.5 (WHO 2018). HED is more prevalent among men (50.2 percent versus 19.9 percent for women in 2016), though this gap declined sharply, from 3.8 times higher in 2010 to 1.5 times

1 HED is defined as 60 or more grams of pure alcohol on at least one single occasion at least monthly.

higher in 2016 (WHO 2018; WHO 2014).

In the case of SSBs, consumption has been increasing, though there are few estimates of the evolution of consumption at the global level. Global consumption for carbonated soft drinks, excluding bottled still or carbonated water, fruit or vegetable juices, coffee, tea, or sports drinks, increased from 36 liters per person per year in 1997 to 43.1 liters in 2010 (Basu et al. 2013). Another study estimated that per capita SSB and fruit juice consumption in the population aged 20 years and older was 1.22 liters per week in 2010 (Singh et al. 2015). This was 30 percent higher than the weekly consumption of milk. Consumption was similar for men and women but higher among younger people. For example, people who were 20-39 years old consumed 139 percent more of these drinks than those ages 60 years and older. Upper-middle-income countries (UMICs) had the highest per capita consumption for persons 20 years and older at 1.7 liters per person per week, while high-income countries (HICs) ranked second with 1.4 liters per week. Lower-middle-income countries (LMICs) and LICs had 1.3 and 0.7 liters per week, respectively. In the case of LICs, consumption of SSBs and fruit juices was 27 percent higher than consumption of milk. Recent estimates suggest that consumption of SSBs in HICs will stabilize (or decrease slightly) by 2022, albeit at a very high consumption level (about 120 liters per capita per year). Per capita SSB consumption will also stabilize for UMICs (at about 50 liters per capita per year) but increase strongly for LICs and LMICs (World Bank 2020).

Price and affordability

Many variables affect consumption, including income and income distribution; advertising and product promotion; changes in social activities, religious practices, and cultural norms; along with prices and affordability. Governments have had success in discouraging consumption of health-damaging products through a range of policies. These include advertisement and marketing regulations; sales restrictions (e.g., prohibiting sales to minors or in certain places/ times); regulation of places for consumption (e.g., smoking bans in public spaces); and packaging requirements (e.g., graphic warnings, front-of-pack labeling). However, evidence shows that, for tobacco, alcohol, and SSBs, own-prices and consumers' incomes are among the main determinants of consumption (WHO 2017a). The relationship between product prices and consumers' incomes determines product affordability. If consumers' incomes increase faster than the prices of certain goods, then individuals would have to devote a lower proportion of their income to purchase these goods. Under most conditions (i.e., normal goods) this would lead to an increase in demand for these products.

Directly measuring the affordability of key health-damaging products is difficult and costly. One of the many measures of affordability often relied upon instead is the Relative Income Price (RIP). The RIP measures what proportion of per capita GDP would be required to buy 100 packs of cigarettes or 100 liters of beer or SSBs (Blecher and van Walbeek 2009; Blecher et al. 2017, 2018). Based on the RIP, the affordability of tobacco over the last three decades (1990-2006) has varied a great deal. In HICs, tobacco has generally become less affordable (though there are variations among these countries), while in LICs and MICs tobacco has generally become more affordable i.e., a smaller fraction of per capita GDP is needed to buy 100 packs of cigarettes (Blecher and van Walbeek 2009). Between 2008 and 2018, the RIP increased in 117 out of 168 countries, indicating that tobacco became less affordable in those countries. In 42 of those countries the tobacco RIP increased more than 50 percent, and in 26 countries it increased more than 100 percent (Paraje and Stoklosa 2017).

For alcohol, trends are clearer: alcohol has become significantly more affordable over the last few decades. Between 1990 and 2016, the RIP for beer fell in 30 out of 37 HICs, and in 42 out of 44 LICs and MICs (Blecher et al. 2018). In almost half of the countries, affordability increased both because of an increase in income and a decrease in beer prices. The same trend and pattern have been found for a sample of nine Latin American countries (Paraje and Pincheira 2018).

Affordability has also increased for SSBs in the 1990-2016 period. In 79 of 82 countries (40 of them HICs), the RIP significantly decreased (i.e., less income was needed to buy 100 liters of Coca-Cola, for example), mostly due to a higher rate of income growth, rather than a fall in the real prices of SSBs (Blecher et al. 2017). This evidence is consistent with findings in Latin America, where 7 of 12 countries studied showed an increase in the affordability of SSBs – in some countries by more than 6 percent per year – and a decline in affordability in only one country: Mexico (Paraje and Pincheira 2018).

Health impact of the consumption of tobacco, alcohol, and SSBs

Evidence on the health burden linked to the consumption of tobacco and alcohol is overwhelming, and it is solid and growing for SSBs. Direct epidemiological studies in several countries, paired with model-based estimates, have led the Global Burden of Disease (GBD) Project to estimate that, in 2020, tobacco smoking accounted for 7.7 million deaths globally, of which 87 percent were among current smokers and 80 percent among men (IHME 2020). In terms of disability-adjusted life years (DALYs), tobacco was responsible for 9 percent of DALYs at the global level in 2019 – more than 229 million DALYs (IHME 2020).

Alcohol caused an estimated 2.4 million deaths worldwide in 2019 or 4.3 percent of total risk-related deaths (IHME 2020). Almost 85 percent of those deaths were among men. DALYs due to alcohol represented 3.7 percent of total risk related DALYs. Alcohol was the main cause of death in the 10-24 year age group (22 percent of all risk-related deaths), and in some countries (e.g., the United States and Scotland) alcohol is identified as one of the leading causes of "deaths of despair"(Substance Abuse and Mental Health Services Administration (US) and Office of the Surgeon General (US) 2016; Case and Deaton 2021). Alcohol consumption is directly related to crime and domestic violence, which dramatically affect community life and wellbeing among minors and women.

Finally, diets high in SSBs were responsible for 242,000 deaths at the global level in 2019 (0.4 percent of total risk-related deaths) and for more than 6 million DALYs (0.25 percent of total risk-related DALYs) – (IHME 2020).

Tobacco consumption has been causally linked to "diseases of nearly all organs of the body, to diminished health status, and to harm to the fetus."(-Jha 2020; U.S. Department of Health and Human Services 2014). Main diseases caused by tobacco (especially manufactured cigarettes and bidis) are circulatory diseases (such as ischemic heart diseases and stroke); respiratory diseases (such as COPD and asthma); a wide array of cancers (lung, trachea, esophagus, bladder, colon, stomach, liver, kidney, and others); metabolic conditions (diabetes mellitus, impaired immune system, and others); infertility; and tuberculosis (Jha 2020; U.S. Department of Health and Human Services 2014). Tobacco is also the cause of permanent adverse consequences for brain development, if fetuses are exposed to nicotine, as well as other conditions with potentially serious lifelong health consequences, such as low birthweight. A recent meta-analysis finds that smoking is a significant contributor to hospitalization and death from COVID-19 infection (Reddy 2021). Though tobacco is one of the biggest killers among the elderly, at least half of tobacco deaths occur in middle age (30-69 years), leading to a loss of two or more decades of life. On average, smoking kills about half of regular smokers, with an average loss of life for these persons of about 20 years, or about 10 years for regular smokers overall (Jha and Peto 2014; Jha et al. 2013).

On the other hand, early cessation can reverse most of the harms of early tobacco use. It has been found that adults who quit smoking at 25 to 34, 35 to 44, or 45 to 54 years of age gained about 10, 9, and 6 years of life, respectively, as compared with those who continued to smoke until their (premature) death (Jha et al. 2013).

Alcohol consumption is associated with neuropsychiatric conditions; unintentional and intentional injuries; gastrointestinal diseases; several types of cancer; vascular diseases; maternal and perinatal conditions; and other negative health impacts (Rehm and Monteiro 2005; Rehm et al. 2009; Rehm et al. 2017; Griswald et al. 2018). Recent studies have shown that, contrary to what some earlier studies reported, there is no safe, "protective," or healthy consumption of alcohol (Griswald et al. 2018; Topiwala et al. 2021; Millwood et al. 2019).

Consumption of SSBs is also associated with negative health effects, especially because of the strong link between consumption of SSBs and overweight/obesity (Vartanian et al. 2007). Prominent experts in public health have signaled the consumption of SSBs in particular populations, most notably in the Americas, as "the single largest driver of the obesity epidemic"(Brownell and Frieden 2009). Evidence also shows a positive association between SSB consumption and cardiovascular diseases, type 2 diabetes mellitus, obesity-related cancer, dental caries, metabolic syndrome, and osteoporosis, among other diseases (Imamura et al. 2015; Wang et al. 2015; Yin et al. 2021; Narain et al. 2016; Hodge et al. 2018).

Overall, there is ample evidence that the consumption of tobacco, alcohol, and SSBs can severely affect health and wellbeing of people of all ages. Children and young adults exposed to these products can develop chronic illnesses and conditions that may permanently affect their future productive capabilities and increase the individual and social financial burden of treating those illnesses. Negative health consequences from consuming these products are present at all ages, even if not immediately observed. When manifested at early stages of life, they have long-lasting consequences, while, emerging in middle or old age, they harm people's prospects for healthy longevity.

Economic costs

The consumption of products with significant negative health impacts has economic implications. These consequences can be broadly separated into two groups of costs: (i) direct costs attributable to the treatment of diseases; and (ii) indirect costs that can be attributed to premature mortality, loss of productivity due to absenteeism and presenteeism (i.e., people going to their jobs but being less productive), and opportunity costs for caregivers, as well as pain and suffering. In the case of alcohol, for instance, indirect costs also include violence, crime, destruction of property, costs of policing, prosecution, incarceration, domestic violence, and various forms of suffering experienced by drinkers and others. Present economic costs and health costs may also have an impact on future economic costs and wellbeing, as present illnesses may condition future incomes. In the case of tobacco, smokers' households also face economic costs reflecting factors that include but extend beyond the many annual deaths from second-hand smoke. These indirect costs are considered below.

It has been estimated that the economic cost of tobacco consumption at the global level was equivalent to 1.8 percent of world GDP in 2012 - about US$ PPP 1.8 trillion (Goodchild, Nargis, and Tursan d'Espaignet 2017). Of that amount, direct costs (related to health care expenditures) totaled USD PPP 467 billion (equivalent to 5.7 percent of global health expenditures). In LICs and MICs, direct costs can be large when compared to total health care costs. For instance, in Bangladesh and Malaysia, direct care costs linked to tobacco-attributable diseases have been estimated at 19.8 percent and 16.8 percent of all health spending, respectively (U.S. National Cancer Institute and World Health Organization 2016). Total - direct and indirect - costs can also be high, reaching as much as 7.2 percent of GDP in the Philippines, though in most cases the costs range from 0.1 percent to 2 percent of GDP (U.S. National Cancer Institute and World Health Organization 2016). A recent study conducted in 12 Latin American countries found that health care costs for smoking-attributable diseases represent about 6.9 percent of government health budgets in these countries. Uruguay and Bolivia were among the most affected, spending 16.7 percent and 11.8 percent of their government health budgets, respectively, on tobacco-related costs (Pichon-Riviere 2020).

In the case of alcohol, fewer studies are available, but those that have been conducted for several countries all show high economic costs. Pooled results for 29 locations (countries, states/regions, cities) found that the total cost of alcohol consumption amounted to US$ PPP 817 per adult, equivalent to 1.5 percent of GDP (of which 68 percent were indirect costs) - (Manthey et al. 2021). Comparable studies for HICs show that total per capita economic costs related to alcohol range from US$ PPP 384 in France to US$ PPP 837 in the United States, with a weighted average for four countries (France, the United States, Canada, and Scotland) of US$ PPP 725 (Rehm et al. 2009). On average, 72 percent of those costs are due to lost productivity, while 13 percent are health care costs. In two MICs (South Korea and Thailand), the weighted average of total per capita costs was US$ PPP 293, with 79 percent of that amount attributable to lost productivity and 5.6 percent to health care costs (Rehm et al. 2009). In another study of 14 HICs, the weighted average of alcohol-related social costs was equivalent to 1.6 percent of GDP, with individual country values ranging from 0.6 percent in Spain to 2 percent in New Zealand (Mohapatra et al. 2010). In these countries, indirect costs represented 72 percent of total social costs. The few studies available for other low- and middle-income countries are consistent with these findings. In Chile, the social costs of alcohol consumption were equivalent to 0.9 percent of GDP in 2014, of which 30 percent were health care-related costs (Margozzini et al. 2018). In South Africa, a study estimated alcohol-related costs to be equivalent to between 10 and 12 percent of GDP (Matzopoulos et al. 2013).

We are unaware of studies estimating economic costs specifically for the consumption of SSBs. However, several studies have estimated the economic costs of conditions and illnesses strongly associated with SSB consumption, such as obesity. At the global level, it has been estimated that obesity costs US$2 trillion per year, or the equivalent of 2.8 percent of global GDP (Dobbs et al. 2014). Estimates for 42 countries in Asia and the Pacific put the economic costs of overweight and obesity at 0.8 percent of the group's GDP (Helble and Francisco 2017). Direct costs can reach up to 37 percent of total health costs (in Singapore), and indirect costs can reach up to 67 percent of total health costs (in Palau).

Apart from economic costs related to illnesses associated with consuming these products, other long-lasting economic effects have been demonstrated. In the case of tobacco, evidence from China (Wang et al. 2006), India (John 2008), Cambodia (John 2012), Zambia (Chelwa and van Walbeek 2014), Chile (Paraje and Araya 2017), Ghana (Masa-ud et al. 2020), and a study of 40 LICs and MICs (Do and Bautista 2015) shows that tobacco expenditures crowd out other items in household budgets, such as food, education, and medical care. In certain cases, a higher budget share devoted to tobacco is also associated with a higher budget share allocated to alcohol. Across six diverse LMICs, tobacco and alcohol use were associated with crowding-out spending on acute care and preventative health-related behaviors for children, including vaccination, and crowding-in of harmful behaviors (Wu et al. 2021). It has been argued that these effects on household spending patterns can harm the accumulation of human capital (especially through foregone education and lower health care expenditures) and, ultimately, households' future well-being and society's economic growth. Similar effects have been found in Jamaica in the case of SSBs (Paraje and Gomes 2021).

Of course, the costs incurred by society due to the consumption of tobacco, alcohol, and SSBs are not completely recovered if consumption of these products goes to zero. Reducing premature deaths and chronic illnesses related to consuming these products generates substantial savings. Some of these savings will be offset by an increase in spending on less preventable diseases that people will ultimately experience. However, helping people reduce harmful consumption postpones such spending and, fundamentally, ensures healthier longevity.

TAXATION: ECONOMIC RATIONALES AND EFFECTIVENESS

For persons concerned with public health, the social harms of tobacco, alcohol, and SSBs are an adequate justification for discouraging consumption of these products. Although diverse perspectives exist regarding the appropriateness of government intervention to influence individual consumption choices, there are important additional rationales that justify discouraging consumption of these products – especially by raising their prices. These rationales include economic concepts of externalities, internalities, optimal taxation, and cost-effectiveness.

Economic rationales for taxing tobacco, alcohol, and SSBs

The consumption of tobacco, alcohol, and SSBs is associated with negative externalities since such consumption negatively affects third parties' well-being. Externalities occur when one individual's action - consumption, production - affects the well-being of another individual. In the case of tobacco, for instance, second-hand smoke is related to several diseases (Dunbar et al. 2013; Banderali et al. 2015). In the case of alcohol, road accidents, domestic and street violence, arson, and other negative externalities are directly linked to alcohol consumption (Chaloupka et al. 2019). For all three types of harmful products considered here, the diseases associated with their consumption are treated in health systems that enjoy partial or total public funding, and these interventions crowd out the treatment of other diseases.

Diseases caused by the consumption of tobacco, alcohol, and SSBs often lead to premature mortality. In the case of tobacco, cardiovascular diseases and cancers of several organs are among the main resulting diseases with potentially fatal outcomes, though by no means, the only ones (Jha et al. 2015). Alcohol consumption causes liver diseases, cancers, cardiovascular diseases, traumatic injuries, and others (Gawryszewski and Monteiro 2014). In the case of SSBs, diabetes, cancers, and cardiovascular diseases are among the main diseases that may lead to premature mortality (Singh 2015). Premature deaths of productive adults, in whom society has previously invested through education, health care, welfare programs, and other channels, constitute a loss of valuable collective resources with a likely effect on economic development. At the household level, illnesses caused by the consumption of health-damaging products and the out-of-pocket expenditures associated with these ailments may lead to household impoverishment or financial hardship that can have long-lasting consequences and spur a vicious cycle of intergenerational impoverishment (Jha 1999; U.S. National Cancer Institute and World Health Organization 2016).

Not only are negative externalities present in the consumption of these products, but so are negative "internalities," which arise from individuals ignoring or not correctly considering harmful health effects to themselves (Allcott, Lockwood, and Taubinsky 2019). Internalities may be present when consumers have imperfect information on the negative effects on their own health of consuming these products and/or when consumers face problems of self-control and time-inconsistency i.e., underestimating their own future health care costs, relative to their future preferences regarding the significance of such costs (Allcott, Lockwood, and Taubinsky 2019). Educational campaigns, warning labels, restrictions on advertising and sponsorship, and similar measures correct for internalities, but they are not 100 percent effective. Thus, taxes still have a role to play (Allcott, Lockwood, and Taubinsky 2019).

The usual tool used to correct negative externalities are the so-called Pigouvian taxes that increase marginal (private) costs to the consumer by enough to offset the cost of present and future externalities. These externalities can be very large and often take a heavy toll on households where the consumption of tobacco, alcohol, and SSBs occur. They include, for example, lost household income and catastrophic health expenditure for the household (Jha 1999; U.S. National Cancer Institute and World Health Organization 2016). Taxes have been found to be the most cost-effective tool to curb consumption of tobacco and hence its externalities and internalities (Jha 1999; International Agency for Research on Cancer 2011); among the most cost-effective tools to decrease alcohol consumption; and cost-effective to reduce consumption of SSBs (WHO 2017a). Using taxes does not preclude or impede using other tools to decrease consumption of these products, such as marketing restrictions, prohibitions on selling to certain groups (minors, for instance), labeling of products with health warnings, and others.

A further economic rationale for taxing tobacco, alcohol, and SSBs is unrelated to their health effects. Rather, it focuses on identifying the best way to raise public revenues. Adam Smith discussed this point explicitly in *The Wealth of Nations*, when he identified tobacco, alcohol, and sugar as products which were better sources of government revenues than other goods or services. While this approach has received relatively little attention, one study explicitly explored the idea in relation to alcohol taxes (Parry et al. 2009). It found that a revenue-neutral policy of raising alcohol taxes to replace labor taxes would lead to substantial welfare gains. Adopting this revenue strategy would imply much higher rates of taxes on alcohol than those based purely on addressing externalities.

EFFECTIVENESS OF PRICE POLICIES

As noted earlier, affordability – the relationship between consumer income and product price – is the key variable affecting consumption of health-damaging products. Per capita incomes and product prices determine affordability – the first positively and the second negatively. Per capita incomes are obviously not a relevant policy instrument, but altering product prices can be. Taxation and/or minimum-price policies typically increase prices and, by doing so, decrease affordability and reduce consumption.

Studies have consistently shown that taxes on tobacco, alcohol, and SSBs do indeed raise prices and reduce consumption. This effectiveness is a consequence of how demand responds to increases in a product's price (own-price elasticity); to the availability of substitutes (cross-price elasticities); and to changes in income (income elasticity). Own-price elasticity measures the percentage by which consumption decreases when the product's price increases by 1 percent. High own-price elasticities imply that a small increase in price (e.g., due to a tax increase) produces a relatively large reduction in consumption. Cross-price elasticities measure the percentage change in consumption of a particular product when the price of an alternative product increases by 1 percent, thereby indicating whether these are substitute or complementary products; and income elasticities measure the percentage by which demand increases or decreases when income rises by 1 percent.

Own-price elasticities

There is a vast literature estimating the effect of tobacco prices on demand for entire populations and subgroups (e.g., youth, individuals with different income levels, genders). Less extensive, but still large, is a literature relating tobacco prices to smoking onset and cessation.

Studies have measured the own-price elasticities of tobacco and have centered around values of -0.4 for HICs and around -0.5 for LICs and MICs, though the difference may not be statistically significant (US National Cancer Institute and World Health Organization 2016; WHO 2011; Chaloupka and Powell 2019; Guidon et al. 2015). Overall, short-run elasticities are about half the absolute value of long-run elasticities (US National Cancer Institute and World Health Organization 2016; Becker et al 1994). About half of the own-price elasticity is due to a decrease in prevalence (i.e., due to people quitting), while the other half is due to a reduction in the number of cigarettes smoked by those who continue smoking (U.S. National Cancer Institute and World Health Organization 2016; Goodchild et al. 2016). Youth are substantially more price-responsive than adults in countries at all income levels (U.S. National Cancer Institute and World Health Organization 2016; Nikaj and Chaloupka 2013; Kostova et al. 2011), and young men are more price-responsive than young women (Chaloupka and Pacula 1999). In addition, higher prices delayed or even prevented the initiation of smoking in a variety of countries i.e., the own-price elasticity of smoking onset was negative and statistically significant (Guindon, Paraje and Chávez 2017; Guindon, Paraje and Chaloupka 2019; Kostova, Husain and Chaloupka 2017; Vellios and van Walbeek 2016; Shang et al. 2019). This is in large part because young people generally have lower discretionary incomes than they will when they are older. Finally, higher tobacco prices increase the likelihood of cessation, as demonstrated in both HICs and MICs (Gonzalez-Rozada and Montamat 2019; Forster and Jones 2001; DeCicca, Kenkel and Mathios 2008; Hyland et al. 2006; Shang, Chaloupka and Kostova 2013; Ross et al. 2013).

The evidence on own-price elasticity for alcohol is also compelling, with values of -0.5 for short-run elasticity and around -0.8 for long-run elasticity (Gallet 2007). However, not all types of alcoholic beverages show the same own-price elasticity. In general, beer demand is less price-responsive than wine and spirits (-0.3 vs. -0.6, respectively) – (Powell and Chaloupka 2019; Guindon et al. 2022). There is little evidence on gender differences in price-responsiveness (Gallet 2007). Studies show different results on own-price elasticities by age, finding no conclusive differences between young people and adults (Jackson et al. 2010; Stockings et al. 2016). In the United States, alcohol price elasticity among heavy drinkers is significantly negative (i.e., price increases decrease consumption) but lower (in absolute value) than for the entire population (-0.3 vs -0.5, respectively (Wagenaar, Salois and Komro 2009). Even binge drinkers are price-responsive (Burton et al. 2017) but tend to choose cheaper drinks in an effort to keep up their alcohol consumption. This implies that policies aimed at increasing the price of cheaper drinks (e.g., minimum unit price policies) can be effective at reducing binge and/or heavy drinking (Jackson et al. 2010; Booth et al. 2008; van Walbeek and Chelwa 2021). Finally, evidence on how prices affect alcohol initiation is scarce but suggests that higher prices delay and, to some extent, prevent initiation. This can have long-lasting effects on future drinking patterns; for example, individuals who initiate at older ages have a lower probability of having frequent heavy-drinking episodes (Sornpaisarn et al. 2015; Paraje, Guindon and Chaloupka 2020).

For SSBs, there is mounting evidence on relatively high (in absolute terms) and significantly negative own-price elasticities. The own-price elasticity for SSBs is around -1, i.e., a 1 percent increase in SSB prices decreases consumption by 1 percent (Teng et al. 2019). In some countries, higher price-responsiveness has been measured, for example in the United States (with an own-price elasticity of -1.2) (Powell et al. 2013); Mexico (-1.1 to -1.2) – (Powell et al. 2013); Chile (-1.3 to -1.4) – (Caro et al. 2018; Guerrero-López, Unar-Munguía and Colchero 2017); Ecuador (-1.2) – (Paraje 2016); Guatemala (-1.4) – (Chaon et al. 2018); and South Africa (-1.2) – (Stacey et al. 2017). A systematic review of studies in 164 countries found that price-responsiveness was higher in the lowest-income countries and for the youngest and oldest adults vis-à-vis middle-aged persons, probably reflecting life-cycle changes in incomes. The review found no differences in price-responsiveness between men and women (Muhammad et al. 2019).

Overall, there is vast and consistent evidence that people consume less tobacco, alcohol, and SSBs when faced with increases in prices. For tobacco and alcohol, raising prices decreases consumption less than proportionally, while in the case of SSBs the reductions in consumption tend to be proportional or more than proportional to the price change.

Cross-price and income elasticities

A rise in other products' prices can lead to increases in consumption if products are substitutes, or to consumption decreases if they are complements. The sign on the cross-price elasticity parameter indicates whether they are substitutes (positive sign) or complements (negative sign).

In the case of tobacco, for instance, there is evidence of substitution among tobacco products, such as manufactured cigarettes, roll-your-own tobacco, bidis, and small cigars, as well as between brands within the same product e.g., cigarettes (Nargis et al. 2019; Chaloupka and Powell 2018; Jawad et al. 2018; Guindon et al. 2011). In addition, there is evidence of electronic cigarettes being substitutes with manufactured cigarettes (Stoklosa, Drope and Chaloupka 2013). Less clear is the relationship between tobacco and alcohol (Pacula 1998), as some studies have found that they are substitutes (Dee 1999; Chen et al. 2016), others have found that they are complements, and still other studies have reported mixed results (Markowtiz and Tauras 2009).

In the case of alcohol, there is no consistent evidence on substitution between different alcoholic beverages (possibly due to methodological problems, sample sizes, and other factors) (Ornstein 1980; Edwards 1994), while there is strong evidence on substitution within beverage groups e.g., beers (Rojas and Peterson 2008; Gruenewald et al. 2006; Meng et al. 2014; Srivastava et al. 2015; Ruhm et al. 2012). Finally, there is only suggestive evidence on cross-price elasticities between alcohol and illicit drugs (Burton et al. 2017).

SSBs clearly have substitutes among other beverages, such as milk, coffee, tea, bottled water, and diet carbonated beverages, with higher degrees of substitution for milk and bottled water (Guerrero-López, Unar-Munguía and Colchero 2017; Paraje 2016; Smith, Lin and Lee 2010; Finkelstein et al. 2013). Some studies have estimated SSB price-responsiveness in food demand systems, including not only beverages but solid sugar-rich foods, such as cookies, candies, deserts, and snacks. Findings from these investigations have been mixed. Some products are substitutes, others are complements, and others are not related (Colchero et al. 2015; Caro et al. 2018). Such a pattern would imply that higher SSB prices could lead to an increase in consumption of other unhealthy food products (salty snacks, candies, cookies, and others), partially offsetting the expected reduction in sugar intake. While this may happen, it has been found that the net effect of SSB price increases is still an overall decrease in sugar intake (Finkelstein et al. 2013; Pell et al. 2021; Leider et al. 2021).

There are considerably fewer studies on income elasticities. Still, the evidence is consistent in showing that the main tobacco products (e.g., cigarettes), alcoholic beverages, and SSBs are normal goods: that is, their income elasticity is positive, meaning that an increase in income increases demand for the product. For tobacco, income elasticity is estimated at between 0.3 and 0.4, such that a 10 percent increase in income would lead to a 3 to 4 percent increase in tobacco demand (Gallet and List 2003; Nargis et al. 2021). In the case of alcohol, a large systematic review found estimated income elasticities to be in the vicinity of 0.7 (Gallet 2007). Finally, for SSBs there is evidence that income elasticities are between 0.8 and 1, though the number of studies estimating this parameter is still low (Paraje et al. 2016; Chacon et al. 2018; Stacey et al. 2017). Results to date on income elasticities for these products—suggesting that they are normal goods—indicate that increases in affordability lead to higher demand for these products irrespective of what occurs with own or other products' prices. This corroborates our earlier discussion of affordability.

Pass-through to prices

Given the strong evidence that demand for tobacco, alcohol, and SSBs is price-responsive, taxes can decrease consumption only if they can increase prices. Though it is common to assume that a tax increase automatically raises prices, in fact, the degree and speed with which prices rise will depend, among other things, on the market structure, the structure of the excise tax system, and the availability of non-taxed or differentially taxed substitutes (which affects the own-price demand elasticity). In particular, prices will typically rise more in response to a tax increase when the market is concentrated, the taxes are charged at the retail level, and when a product has few or no close substitutes (and, hence, a low own-price demand elasticity). Taxes can be fully passed to prices (pass-through equal to 1), can be under-shifted (pass-through less than 1), or can be over-shifted (pass-through greater than 1).

There is evidence, for instance, that in less competitive markets, firms tend to fully pass taxes to prices or even over-shift them. For example, in the United States, the 1983 increase in the Federal Cigarette Excise Tax was over-shifted by oligopolistic firms exploiting their market power (Harris 1987). Similar behavior was found in Europe (Delipalla and O'Donnell. 2001). In the European case, ad-valorem taxes (i.e., a percentage of the price) tend to produce lower pass-through rates for tobacco when compared to specific taxes (i.e., a tax per unit sold). Tax structure can also affect pass-through rates. In India (Jha et al. 2011) and Bangladesh (Nargis et al. 2020), a complex tiered tax system has given the tobacco industry room for passing taxes differentially according to price segments (i.e., taxes are under-shifted for cheaper cigarettes and over-shifted for premium cigarettes, thereby leading to downward substitution rather than reducing consumption). The same effect was also found in Mauritius (Berthet Valdois et al. 2019). The perspective of further regulations may also affect the pass-through rate, as producers facing a scenario of tightening restrictions in consumption, higher taxation, and other constraints may choose to maximize short-run profits by over-shifting taxes (Becker et al. 1994). There is evidence that the tobacco industry uses a number of strategies (e.g., stockpiling, that is, oversupplying the domestic market before a tax increase) to delay the change in prices after a tax increase, although prices eventually rise as a result of such an increase (Ross, Tesche and Vellios 2017; Marquez and Moreno-Dobson 2017).

For alcohol, taxes also seem to be fully passed or even over-shifted. A review found that taxes are generally over-shifted in the case of beer and fully shifted for wine and spirits (Nelson and Moran 2020). In the United States, state and federal alcohol taxes appear to be over-shifted, especially for beer and spirits. The price adjustment also seems to be quite rapid, within three months of the tax change (Young and Bielińska-Kwapisz 2002) Similar results were found in the case of beer in Alaska (Kenkel 2005). For the UK, the pass-through rate varies by price level of products. Producers of relatively cheaper alcohol beverages tend to under-shift taxes, while those of relatively more expensive beverages over-shift them (Ally et al. 2014). A similar finding was reported for the pass-through of alcohol taxes for 27 OECD countries (Shang, Ngo, and Chaloupka 2020). This study also reported under-shifting or fully shifting taxes in the case of wine and certain spirits (e.g., cognac) and over-shifting in the case of beer and Scotch whisky.

In the case of SSBs, the evidence is mixed. In Mexico, the SSB tax was mostly over-shifted for sodas and fully or mildly under-shifted for other SSBs (Grogger 2016; Colchero et al. 2015). In France, taxes were over-shifted for sodas and under-shifted for fruit juices and flavored waters (Berardi et al. 2016). In Denmark, three tax changes between 1998 and 2003 were either fully shifted or over-shifted (Bergman and Hansen 2019). However, in other cases, taxes have been under-shifted. This is the case of Barbados (Alvarado et al. 2017), Chile (Nakamur et al. 2018), and for some categories of SSBs in the UK e.g., those in the top tier of the tax (Scaborough et al. 2020). In the United States, studies of local taxes have found mixed results, depending on the location of the store – e,g., proximity to state borders led to under-shifting (Cawley et al. 2017), store types, and beverage types (Silver et al. 2017; Powell et al. 2020). A recent meta-analysis found that, on average, the pass-through was 70 percent of the tax, though with considerable variation across studies (Powell et al. 2021).

Evidence on price pass-throughs implies that large increases in specific taxes are a more effective strategy for reducing consumption than a series of smaller tax increases, particularly if they are ad-valorem taxes. A large specific excise tax is less easily manipulated by industry and, if applied uniformly to all products, it can narrow the differential between cheaper and more expensive brands. Incremental tax increases give the industry political room to blame the government for price increases they impose in order to maximize profits. A larger excise tax increase makes this "blame and pocket" strategy less feasible, as the public is more likely to be alerted to the larger expected tax increase (Marquez and Moreno-Dobson 2017). More importantly, behavioral research also find that people are more responsive to large salient changes in prices than to incremental ones because it changes the framing of their consumption decision and triggers a greater loss aversion response (Tversky and Kahneman 1981; Babor et al. 1978; Epstein et al. 2012; Kalyanaram and Winer 2022).

Minimum unit prices: cases, evidence, and implications

Minimum unit prices (MUP) are policies that raise the "floor" of prices without using taxes. MUPs raise average prices while reducing the possibility of down-trading (i.e., switching to cheaper brands). This measure has been used in the context of tobacco and alcohol control. Although it is effective when properly used, it has the disadvantage of not generating direct revenues (only indirect ones, via VAT for instance) and being more costly to enforce than, for instance, taxes at the producer level. In the case of tobacco, MUP policies might set a minimum price for 20-cigarette packages, while MUPs for alcohol have been based on alcohol content (e.g., Scotland's MUP is £0.50 per 8 grams of pure alcohol) or based on volume (e.g., £0.50 per liter of beer).

Some research suggests that, at least in countries with the institutional capacity to ensure enforcement, MUPs for alcohol may be even more effective than taxes for reducing consumption among certain groups. A study in Australia found that an MUP policy was more effective at reducing consumption among heavy drinkers of beer and wine than a volumetric excise tax i.e., a tax based on alcohol content (Shara et al. 2014). A systematic review found that modelling studies for England and Australia confirm that an MUP policy is highly effective at reducing consumption among heavy drinkers, though it would minimally affect moderate drinkers (Burton et al. 2017). The same effect was found in South Africa (van Walbeek and Chelwa 2021).

MUP policies are widely used for tobacco in the United States; at least 25 states have implemented them (Feighery et al. 2005). A study using data from 2007 to 2014 found that cigarette prices were significantly higher in states with MUP policies than those without, especially for cheaper products (Huang et al. 2016). Models predict that establishing a national MUP (at US$ 10) for cigarettes could significantly reduce sales of cigarettes and increase cessation (Doogan et al. 2018).

As MUP do not raise revenues (apart from those that can be generated from VAT) the political economy to implement them can be more complex. Ministries of Finance, for instance, may not have the incentives to push for MUP as they will not get any substantial extra revenues. High enforcement costs, especially important in poorer countries, can also be a deterrent to implement MUPs, as such costs may not be recovered with extra revenues.

RELATED TOPICS

Distribution of financial burden and averted health costs: extended cost-benefit analyses

The extended cost-benefit analysis (ECBA) methodology incorporates any short-term welfare losses from excise taxes into a framework that includes the medium- and long-term health benefits for those who quit consuming or who consume fewer harmful products. Among other aspects, ECBA accounts for differential behavioral responses across population groups—including different income groups—through the estimation of group-specific price elasticities. This kind of analysis tends to show that, because lower-income individuals tend to be more sensitive to cigarette, alcohol, and SSB pricing, they will benefit disproportionately from the resulting health improvements, health care expenditure reductions, and higher disposable income for purchasing non-toxic goods and services. Fiscal incidence analyses that do not consider behavioral responses and account only for the direct costs of taxing these products are partial or incomplete because they ignore these other effects. By accounting for both direct and indirect effects in the short and medium terms, ECBA provides a more complete picture of the costs and benefits that taxing tobacco, alcohol, and SSBs entails for household welfare. This contradicts industry claims that such taxes are hardest on the poor.

Tobacco, alcohol, and SSBs are unlike other taxable goods. Preventing health and economic harms associated with consumption of these products generates large benefits to current and potential consumers, governments, and societies. In general, most smokers are willing to quit but unable to do so. In the United States, for instance, about 68 percent of smokers were willing to quit, and 55 percent attempted to quit, but only about 7.5 percent of smokers successfully quit smoking (U.S. Department of Health and Human Services 2020). A US study that compares the value of statistical life for smokers with the costs of smoking found that “the economic value of the premature mortality due to smoking dwarfs the purchase price of cigarettes,” reaching a private cost of US$ 222 per pack for men and US$ 94 per pack for women in 2006 dollars (Viscusi and Hersch 2008). A study in Spain reached similar conclusions (Cobacho et al. 2010).

The ECBA methodology has been applied widely, including in a 13-country study (Global Tobacco Economics Consortium 2018). At least 13 country studies using ECBA highlight that the medium- and long-term benefits of reducing smoking can outweigh the short-term spending on taxes, resulting in net gains, particularly among poorer households (Del Carmen, Fuchs and Genoni 2018; Fuchs, Matytsin, and Obukhova 2018; Fuchs and Meneses 2018, 2017a, 2017b; Fuchs and Del Carmen 2018; Fuchs and Del Carmen and Mukong 2018; Fuchs and Gonzalez 2019; Fuchs, Orlic, and Cancho 2019; Fuchs, Mandeville, and Alonso-Soria 2020). Similar findings are reached by Fuchs, Paz, and Gonzalez Icaza who simulate tax policy changes in eight low-, middle- and high-income countries

(Fuchs, Paz, and Gonzalez 2019). The distribution of elasticities and resultant health and economic benefits from reduced medical expenses and lower 'years of working-life lost' (YWLL) generally more than offset the short-term negative effects of tobacco taxes on household budgets. For sufficiently high price shocks and elasticity scenarios, the tax incidence is progressive. Half the population in these countries could benefit from net positive income gains in the medium to long term if cigarette prices rose by 50 percent. In a similar study, Postolovska et al. find that increasing Armenia's cigarette excise tax rate to 75 percent of the retail price could deliver large health and financial benefits to households, with pro-poor impacts (Postolovska et al. 2017).

The reduction in medical bills tends to be the most significant component driving the net benefits under the ECBA. All income groups benefit from the reduction in medical expenses when taxes discourage smoking, but these benefits are disproportionately larger for poor households. In Moldova, where tobacco-related diseases are the leading cause of premature adult deaths, just accounting for reductions in medical expenses is enough to offset the initial negative price effect on household expenditures, with a clear progressive pattern (Fuchs and Meneses 2018). In Chile, Ukraine, and Russia, reducing medical expenses constitutes the largest long-term benefit of the tobacco price increase under the ECBA (Fuchs and Matytsin 2018; Fuchs and Meneses 2017a, 2017b). Similarly, tobacco price increases yield positive welfare gains from being able to work longer. In Bangladesh, for instance, the main gains of taxing tobacco under the ECBA model arise from extending people's working lives i.e., lowering YWLLs (Del Carmen and Fuchs 2018).

Despite these ECBA results, those lobbying against tax increases continue to cite studies which look exclusively at the direct short-term distributional costs. One such study in Chile showed that, if cigarette prices increased by 25 percent, the poorest 20 percent of the population would reduce consumption of other goods by 0.35 percent in the absence of any adjustments in cigarette consumption, while the wealthiest 10 percent would face a smaller reduction of 0.09 percent (Fuchs and Meneses 2017). Without considering the health benefits, avoided health care costs, and productivity gains, these partial studies are biased regarding the distributional consequences of taxing harmful products.

Complete studies on the distributional consequences of taxing alcohol and SSBs are less common but growing in number. For example, a study of excise taxes on SSBs in Ukraine found that the net effect is progressive though small in magnitude: raising SSB prices by 20 percent increases disposable income of the poorest quintile of the population by 0.03 percent (Fuchs and Gonzalez 2021). In Kazakhstan, where the average price elasticity of SSBs is estimated to be -0.70, lower income deciles benefit more than higher income deciles from the simulated introduction of a 20 percent price increase on SSBs (Fuchs, Mandeville, and Alonso-Soria 2020). Finally, a recent ECBA in Brazil shows that price increases on alcohol, tobacco, and SSBs have positive and progressive effects, when incorporating the impact of health taxes on prices, medical expenditures, and productive lives (Coelho 2020).

No ECBAs are currently available specifically for alcohol taxation. However, a recent report analyzed the distributional effect of alcohol taxes in the UK (Bhattacharya 2020). It found that there is no evidence to support the idea that alcohol taxes are regressive. Furthermore, once the use of alcohol tax revenues by the Government is considered, results can be strongly progressive, if revenues are used to finance increased health spending or other pro-poor programs. Note that "soft" earmarking (i.e., in which the recommended use of the new revenues is not legally required) has been found to be helpful for overcoming political opposition to higher tobacco excise taxes (Marquez and Moreno-Dobson 2017).

In the case of alcohol, the relative financial burden may be affected not only by income but also, crucially, by the intensity of drinking. In Australia, alcohol taxes represent a higher burden to heavy drinkers irrespective of their incomes and, because of that, one study suggests that MUP policies or taxes that increase the cost of the cheapest alcohol can be more effective in reducing alcohol consumption, without having highly regressive effects (Vandenberg and Sharma 2016). However, this is a partial study which does not consider the distributional effects on revenues and health care cost savings.

COMBINATION OF TAXES AND NON-PRICE INTERVENTIONS

Price interventions through taxation (and/or MUPs) are not the only policies for reducing consumption of tobacco, alcohol, and SSBs, although they are generally among the most cost-effective. Other policies that are effective at reducing consumption include: (1) marketing controls (e.g., on advertising, package labelling, promotion, or sponsorship); (2) sales regulations (e.g., licensing, store opening times, age restrictions); (3) consumption regulations (e.g., restrictions on smoking or drinking in public places, work spaces, or other specified locations); (4) consumer education (e.g. mass media campaign, package labelling); and (5) cessation programs and interventions (especially for tobacco, but also for alcohol).

WHO has reviewed the evidence on the cost-effectiveness of some of these policies with regard to reducing tobacco and alcohol consumption (WHO 2017a). WHO's study defines "best-buys" as measures that cost at most US$ PPP 100 per DALY averted in low- and middle-income countries.

For tobacco, five "best-buys" were identified. Tobacco taxation leading to price increases was the most cost-effective. Two marketing control measures were jointly ranked second: (a) the implementation of plain/standardized packaging and/or large graphic health warnings on all tobacco packages; and (b) enacting and enforcing comprehensive bans on tobacco advertising, promotion, and sponsorship. Finally, cost-effectiveness was demonstrated for two additional measures: effective mass media campaigns that educate the public about the harms of smoking/tobacco use; and eliminating exposure to second-hand smoke in indoor spaces and public transportation.

Although tobacco taxation was the most cost-effective intervention, the measures noted above are complementary. Public awareness of the hazards of smoking and the benefits of quitting, achieved through mass media campaigns, graphic warnings on packs, and the other measures cited all encourage wider public support for tax hikes, in addition to discouraging consumption (Jha and Peto 2014). Similarly, bans on smoking in public places and bans on advertising restrict social cues that encourage smoking and reduce the tobacco industry's social and political influence, further enabling tax increases. Bans on smoking in public places, particularly workplaces, require smokers to take time from work and to go outside even in unpleasant weather, in effect raising the "cost" of smoking. It has been widely shown that bans on smoking in public places almost immediately affect health, reducing the incidence of strokes, myocardial infarctions, and certain respiratory diseases (Bartecchi et al. 2006; Juster et al. 2007; Naiman et al. 2010; Sargent et al. 2004; Ferrante et al. 2012).

For alcohol, the WHO "best buys" are: (1) increase excise taxes on alcoholic beverages; (2) enact and enforce bans on exposure to alcohol advertising; and (3) enact and enforce restrictions on the physical availability of retailed alcohol such as through reduced hours of sales (WHO 2017a).

Finally, WHO assessed the cost-effectiveness of measures to reduce unhealthy diets in general, not interventions focused specifically on SSBs. However, WHO's analysis did cite evidence that taxes on SSBs are cost-effective, even though they did not meet the threshold of US$ PPP 100 per DALY averted. For this reason, WHO has actively promoted and encouraged the use of SSB taxes as part of a policy package to tackle the overweight/obesity pandemic (WHO 2017b; PAHO 2021; WHO 2022).

CHALLENGES FROM THE INDUSTRY

The tobacco industry has a long and well-researched history of concealing evidence on the toxicity of its products, deceiving the public on the harmful effects of tobacco consumption, and interfering in public policy. As early as the 1950s, tobacco companies concealed evidence on the harmfulness of their products and the addictive properties of nicotine. In the 1970s and 1980s, they denied links between smoking and cancers and the harmfulness of second-hand smoking (WHO 2019a; Brownell and Warner 2009). More recently, despite robust scientific evidence, they misled the public regarding the relative safety of "light" or "low-tar" cigarettes (WHO 2019a).

The tactics of the tobacco industry have been exposed through successful efforts to make the industry's own documents public (Tobacco Control 2002). These documents have demonstrated the large discrepancies between what the industry knew and the ideas it promoted. For example, the industry has consistently portrayed smokers as well-informed, rational individuals who choose to smoke (Brownell and

Warner 2009; Kyriakoudes 2016; Risi and Proctor 2020), even when tobacco firms know that their own marketing is effective precisely because individuals are *not* well-informed and unfailingly rational.

Thus, to market cigarettes, firms use strategies that appeal to individuals' non-rational behaviors. These approaches include branding, associating cigarettes with desirable images, and increasing nicotine content to make smoking even more addictive. Such marketing strategies are used while intentionally repressing extensive evidence regarding smokers' ignorance and reluctance to internalize the health risks from smoking (due to time inconsistency) and the addictive nature of nicotine (which undermines rational choice). Also notable are the industry's efforts to market to youths, whose brain development is known to be incomplete, especially with regard to evaluating long-term consequences and risk (UN National Cancer Institute and World Health Organization 2016; Villanti et al. 2019). The one intervention major actors in the tobacco industry are willing to promote is public education campaigns, the least cost-effective intervention in the WHO study reported above (WHO 2017a). Public education is indeed important, but only as a complement to taxation and other policies, not as a substitute for them.

Apart from concealing and distorting evidence, the tobacco industry has used several arguments to deter, impede, or delay increases in tobacco taxes. A systematic review of the tobacco industry's tobacco tax opposition found that the most common and consistent arguments were that tobacco taxes are: (a) regressive; (b) do not affect consumption; (c) lead to more illicit trade and foster organized crime; and (d) reduce employment and harm businesses (Smith et al. 2013). The empirical evidence on regressivity and impact on consumption have been reviewed in preceding sections. Results show that the tobacco industry's arguments are unfounded with regard to these two issues. Evidence also refutes industry arguments about illicit trade and employment, as the next subsections will show.

In addition to disseminating these false arguments, the tobacco industry has developed a range of tactics to oppose, delay, or water down public health policies aimed at reducing smoking. The abovementioned review identifies 21 tactics, including: (a) using front groups and friendly "independent" experts to give their arguments credibility; (b) directly lobbying policy makers; (c) using media resources (including op-ed pieces and letters to newspapers) and other publicity campaigns to encourage public opposition to proposed taxes; (d) commissioning research that is biased toward supporting industry campaigns; (e) deliberately confusing debates about tobacco tax increases with broader tax debates; (f) undermining the credibility of tobacco control experts; and (g) stimulating and even participating in smuggling (see below) in the event of tax increases (Smith et al. 2013).

The tactics of the alcohol and SSB (or, more accurately, food) industries to oppose taxes and regulations are remarkably similar to those used by the tobacco industry. Alcohol, SSB, and food companies also shift blame for unhealthy eating or drinking away from themselves as purveyors of products and onto the individuals who are intentionally influenced by their marketing campaigns (Brownell and Warner 2009). The alcohol and processed-food industries have also linked regulations and taxes to the loss of personal freedoms and the notion that public health policies create "food police" or "food fascism." (Brownell and Warner 2009; Larrain 2016). Self-regulation is often proposed as an effective and more efficient alternative to state regulation, even when this has been shown to be ineffective. Like the tobacco industry, the producers of alcohol and SSBs lobby governments and the public by arguing that taxes do not reduce consumption; that they are regressive; and that they are "discriminatory" as they are levied on a specific group of products, or even unconstitutional (Hattersley et al. 2020).

Alcohol and SSB manufacturers promote two additional key ideas which are also common in tobacco industry strategies. They stress that: (a) the etiology of the problem is complex, and therefore no individual product can be blamed; and (b) population health measures (such as taxes) are too simple to address complex public health problems (Petticrew et al. 2017). Often, the solutions proposed by these industries are simplistic, disregarding their own diagnosis of complexity. Their recommended approaches largely focus on providing more information, consumer education, and relying on individual responsibility (Petticrew et al. 2017). The dismissal of independent scientific evidence contrary to their interests as "junk science" is also common.

In the case of alcohol, there is less evidence on the strategies used to influence alcohol taxes. Nevertheless, some authors have documented how the industry uses national and international front groups (for example, the International Centre for Alcohol Policy, ICAP, or the International Alliance for Responsible Drinking, IARD) to influence public policy (Collin and Hill 2019). These front groups engage in activities to distort evidence on taxation, claiming taxes are a "blunt tool" that do not reduce consumption, are regressive, increase illicit trade, and reduce government revenues. They also use strategies to meddle in political processes, by presenting alternative policies (not related to taxes) and lobbying policy makers and officials (Collin and Hill 2019). In the case of the SSB industry, the strategies and actions are similar, as the discussion of Mexico's SSB taxes has demonstrated (Pedroza-Tobias 2021).

Taxes and illicit trade

Once the tobacco industry lost its ability to deny the addictiveness and harmfulness of smoking, it sought other ways to confuse public policy debates, delay action, and stop or limit tax increases. One of the most common arguments the tobacco industry uses to challenge tobacco taxes is to claim that these policies will be ineffective and counterproductive because they will encourage illicit trade, an argument also used regularly by the alcohol industry. While the argument is plausible, it is empirically false. Indeed, investigations have found that the transnational tobacco industry is itself responsible for the production of about two-thirds of illicitly traded cigarettes (Gilmore et al. 2017). Quite often, tobacco companies are directly involved in smuggling, as shown by formal investigations and settlements, first with Canada (CBC News 2008) and later with the European Union, among others (NBC News 2004).

Evidence against the tobacco industry's claims on illicit trade is strong. First, illicit trade has not increased in the last decade, despite increasing tobacco taxes (Paraje and Stoklosa 2021; Joossens and Raw 2012; Goodchild 2020). In fact, illicit tobacco products, mostly cigarettes, constitute a stable share in a shrinking market. As mentioned above, affordability of cigarettes has decreased (as measured by the RIP) in 117 out of 168 countries between 2008 and 2018 (Paraje and Stoklosa 2021), and this decrease came mostly from higher tobacco taxes. Based on WHO data, the unweighted average of the total tax share (as proportion of final retail price) for the most-sold brand of cigarettes went from 46.6 percent in 2008 to 52.4 percent in 2018 (WHO 2019c). Out of 174 countries with complete data for this period, 118 increased the total tax share, with 48 countries raising it by more than 10 percentage points and 22 by more than 20 percentage points. There is no significant difference on this between the richest 40 and the poorest 40 countries, though the former had an initially higher total tax burden (66.5 percent versus 37.6 percent in 2008) (WHO 2019c). Out of 179 countries, 91 increased the tax burden of specific taxes, 58 raising this figure by more than 10 percentage points and 33 by more than 20 percentage points. A recent exercise in scoring changes in tobacco taxes found that, out of 170 countries, 51 increased tobacco taxes between 2014 and 2018 (Chaloupka et al. 2021b). The global situation of rising taxes and decreasing consumption does not fit the tobacco industry's narrative nor the evidence on illicit trade.

Second, the evidence cited by tobacco companies to link tobacco tax increases with illicit trade is weak and generally based on studies financed by the tobacco industry itself. These studies rarely make their methods and data publicly available for peer review and scrutiny. By contrast, independent studies have used cross-country evidence to show that countries with higher taxes have a lower penetration of illicit trade than those with lower taxes (US National Cancer Institute and World Health Organization 2016; Joossens et al. 2010). The recent cases of the UK, the Philippines, and Botswana provide an example (Blecher 2020; Diosana and Sta. Ana 2020; World Bank 2019). It is likely that illicit trade is driven less by price increases on tobacco than by the general capacity of tax administration authorities to enforce taxation – and this is true not only for tobacco (US National Cancer Institute and World Health Organization 2016). Lack of controls, corruption, and weak administrative capacities may foster illicit trade, though countries with middling administrative capacities, such as the Philippines and Botswana (among others), have succeeded in restraining illicit trade. Strengthening excise tax laws (e.g., through harsher penalties, strong governance and control processes, and other measures) helps to curb illicit tobacco trade (as illicit trade in any other product).

Furthermore, small-scale smuggling cannot have a significant effect on sales or smoking. Widespread smuggling requires active or tacit support from the tobacco industry. A comparison of France and Canada is informative. Both countries markedly raised taxes, tripling them from the 1990s to 2004. During these years, however, the tobacco industry in Canada led a well-orchestrated scheme to export tax-free Canadian brand cigarettes into the United States and then smuggle them back into Canada. The industry then used the evidence of smuggling (without admitting its own role) to lobby the Canadian government to lower taxes and to argue against higher taxes in other countries. The excess consumption that resulted from the reduced excises spurred by this scheme, as well as directly from the smuggled (and cheaper) cigarettes, was approximately 30-40 billion sticks in the early 1990s. Hence, the failed Canadian response to smuggling would eventually cause some 30,000 to 40,000 tobacco-attributed deaths due to the tobacco industry's orchestration of smuggling during the 1990s (CBC News 2008; Jha et al. 2020).

Third, profit-maximizing smugglers increase illicit cigarette prices along with the increases in licit cigarette prices (Joossens and Raw 2012). This implies that, even when increased taxes divert some demand to the illicit market, they also push prices up in the illicit market, discouraging consumption (Goodchild et al. 2020). Recent evidence shows that illicit cigarette prices generally follow the prices of legal cigarettes (correlation coefficient: 0.87) (Paraje and Stoklosa 2021; Drope et al. 2021).

In the case of alcohol, there is less evidence on the relationship between taxation and illicit, unrecorded alcohol consumption. Alcohol is less susceptible to smuggling than tobacco, because it is heavier and more difficult to transport relative to its value. On the other hand, opportunities for artisanal, informal production are more widespread (Reuter et al. 2015). The same can be said for SSB illicit trade, where there is no evidence relating higher SSB taxes to increased illicit trade in SSBs (Hattersley et al. 2020). SSBs' low price relative to volume is, probably, a "natural" hurdle for illicit trading.

WHO estimates show that the global share of unrecorded alcohol consumption fell from 28.6 percent for 2005 to 25.5 percent for 2016 (WHO 2011; WHO 2018). Estimates of such a share for LICs and LMICs are around 43 percent for 2016, while for UMICs and HICs, they are around 17.5 percent (WHO 2018). Large variations also exist by region.

Taxes, economic activity, and employment

The tobacco, alcohol, and SSB industries routinely assert that excise taxes on these products reduce economic activity and employment as people purchase less of the taxed goods. This argument, which contradicts their claims that taxes do not have an impact on consumption (Petticrew et al. 2017) is also simplistic and untrue. When taxes reduce consumption of these products, it can affect sales and employment in those sectors. However, consumer spending on other products will increase and raise sales and employment in those other sectors (Chaloupka and Powell 2018). Furthermore, when governments spend the excise tax revenues, they also generate employment. Studies have found that shifting demand from the tobacco industry, which is relatively capital-intensive, to industries which are more labor-intensive can actually increase employment (Marquez and Moreno-Dobson 2017).

A relatively large body of evidence exists on this for SSB taxes (Hattersley et al. 2020). Though the SSB industry fought against a tax increase in Mexico in 2014 by claiming that it would reduce employment, subsequent evidence showed that the policy did not have any impact in terms of employment in the manufacturing sectors affected by the tax (Guerrero-López et al. 2017). Employment in the retail sector was also unaffected (it even showed a moderate increase). The same is shown for several cities in the United States that have implemented such a tax. In the case of San Francisco, a recent study shows that, two years after the implementation of the SSB tax, there was no discernible effect on employment for the overall economy, private sector, supermarkets and other grocery stores, convenience stores, limited-service restaurants, and beverage manufacturing, when compared to a suitable synthetic group (Marinello et al. 2021). Similar results are obtained in studies simulating the impact of a statewide SSB tax in California and Illinois (Powell et al. 2014)

In the case of alcohol, a study simulated the effect on employment of an alcohol tax increase in six US states and found that such a tax would have a positive impact on employment, mostly because the resulting fiscal expenditures would spur greater economic activity (Wada et al. 2017).

Finally, in the case of tobacco, there is ample evidence that tax and non-tax policies (such as smoke-free policies) do not have a discernible effect on aggregate employment. Studies on this topic have been conducted for Scotland, the UK, the United States and some of its individual states (Michigan, Indiana), Canada, South Africa, Zimbabwe, Bangladesh, Bulgaria, Egypt, and Indonesia (US National Cancer Institute and WHO 2016). In most cases, studies found a net gain of jobs under normal circumstances after a tobacco tax increase.

Though aggregate employment is not affected by tobacco taxes, members of some specific groups (e.g., small-scale tobacco farmers) may lose income or even go out of business. In most cases, farmers have long-established practices of shifting among crops in response to demand and market prices (Marquez and Moreno-Dobson 2017). In other cases, crop substitution programs can be implemented. Alternatives to tobacco farming are present in countries as diverse as Indonesia, Malawi, Kenya, Brazil, Canada (US National Cancer Institute and World Health Organization 2016) and China (Li and Tang 2018). Compensatory programs can also be financed with the tax revenues. For example, the Philippines earmarked a significant proportion (15 percent) of incremental revenues from tobacco taxes to help tobacco farmers shift to other crops (Chavez et al. 2016). The benefits of reducing illnesses and deaths associated with tobacco consumption, and sparing the environmental costs associated with tobacco growing, are substantially higher than the costs of implementing these crop substitution programs (Lencucha et al. 2022; Lecours et al. 2012).

Non-tax measures, such as smoke-free policies, have also been cited as hurting businesses (e.g., bars, restaurants, pubs). However, studies conducted in several countries have shown little effect on sales, employment, number of establishments, business value, or gaming revenue (US National Cancer Institute and WHO 2016; Guerrero López 2011).

CONCLUSIONS

In 1776, Adam Smith stated that "sugar, rum, and tobacco are commodities which are nowhere necessaries of life, which have become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation" (Smith 1776). Much time has passed since then, and evidence on the negative effects of the consumption of tobacco, alcohol, and SSBs is overwhelming (something unknown when Smith wrote). In addition, economic theory has demonstrated that taxing products that generate negative externalities not only raises revenues but increases economic efficiency.

Evidence collected over the past decades shows that tobacco taxation is the single most effective intervention to curb tobacco use (Jha 1999; International Agency for Research on Cancer 2011). Recently, WHO has included tobacco taxes as a "best buy" (interventions with the highest cost-effectiveness) to reduce consumption and the burden of diseases associated with tobacco use (WHO 2017a). Similar arguments can be made for alcohol taxation. In the case of SSB taxes, though they have not been included in the "best buy" list, they have been singled out as a cost-effective intervention for reducing SSB consumption.

Reducing consumption of alcohol, tobacco, and SSBs and the burden of disease associated with these products is not only about reducing health care costs, which can be significant and put substantial pressure on health systems, it is also about increasing the social return on human capital. Chronic illnesses and conditions associated with the consumption of these products hinder individuals' productive performance due to absenteeism and presenteeism (the reduction of productivity at work due to illness). Meanwhile, in addition to the personal tragedy of lives lost, premature mortality linked to these products implies that the social resources devoted to education and health care for the deceased individuals are also prematurely lost and do not deliver their full yields. Recall that, in the case of tobacco, smokers lose on average a decade of life when compared to non-smokers (Jha 2020). Loss of income due to illness and mortality may affect households' present and future wellbeing, creating a vicious cycle of lower human capital investment and poverty.

Contrary to the simplistic arguments advanced by affected industries, higher taxes on these harmful products are highly progressive (i.e., pro-poor). Because poorer individuals are more price-responsive, they have a higher propensity to reduce consumption or quit altogether when taxes increase. Consequently, they benefit disproportionately from longer and healthier lives, reduced spending on health care, fewer lost days of work, and longer working lives (Verguet et al. 2015). Evidence on this for countries at different income levels is significant and consistent.

There is also evidence, especially for tobacco and alcohol, that the best tax structure to decrease consumption relies on enacting high specific excise taxes and raising them to keep pace with inflation. In the case of tobacco, specific excises on cigarette "sticks" or grams of other tobacco are preferrable, as they discourage substitution to cheaper products, which are just as harmful as more expensive ones. In addition, specific taxes limit the industry's capacity to manipulate the pass-through to prices in ways that undermine the tax's effect on consumption and profits (International Agency for Research on Cancer 2011). In the case of alcohol, specific excises on alcohol content are also recommended as the best tool to decrease consumption and associated costs (WHO 2020). In the case of SSBs, specific taxes on sugar content have also been recommended as the best way to achieve the public health goal of reducing consumption of sugars (Popkin and Ng 2021).

Taxes are an important element of broader efforts to reduce consumption of tobacco, alcohol, and SSBs. They are not a cure-all, however. They should be used along with other cost-effective measures. These other measures include mass media education campaigns; prominent product labelling showing adverse health effects (especially for tobacco and alcohol); restrictions on opening times (particularly for establishments selling alcohol); restrictions on smoking and drinking alcoholic beverages in public spaces; labelling of products with health warnings (for tobacco, alcohol, and SSBs); and others. There is enough evidence on the effectiveness of these measures to amply justify their implementation, with adaptation and prioritization depending on individual country circumstances. Combinations of price and non-price measures have been highly effective at reducing consumption, as recent assessments of the WHO Framework Convention on Tobacco Control have shown (Muñoz 2021).

Unfortunately, in too many countries the use of these taxes is still far from optimal. Most governments have only enacted modest tax increases instead of the large excise hikes paired with non-price strategies which will be most effective in reducing consumption. A global assessment of tobacco taxes documented significant progress but noted that it has been slow and remains inadequate (Chaloupka et al. 2021a).

A key factor for successfully designing and adopting measures to reduce consumption of tobacco, alcohol, and SSBs is to exclude the targeted industries from all stages of decision making (technical and political). The industries involved, especially the tobacco industry, have a well-documented record of concealing evidence, misleading policymakers and the public, and interfering in public policy to oppose, delay, or undermine public health measures.

Without reducing the consumption of these harmful products, society will not be able to promote healthy longevity. Chronic conditions such as hypertension and diabetes are already major sources of ill health among today's older adults. These conditions are often correlated with functional dependence and with other illnesses in such a way that people cannot enjoy a healthy old age. Reducing consumption of these products at any age improves the chances of healthier living in the future. For this reason, taxing harmful products is one of the most cost-effective ways to reach a future with healthy longevity.

REFERENCES

1. Allcott, Hunt, Benjamin B. Lockwood, and Dmitry Taubinsky. 2019. "Should We Tax Sugar-Sweetened Beverages? An Overview of Theory and Evidence." *Journal of Economic Perspectives* 33 (3): 202–27. https://doi.org/10.1257/jep.33.3.202.
2. Ally, Abdallah K., Yang Meng, Ratula Chakraborty, Paul W. Dobson, Jonathan S. Seaton, John Holmes, Colin Angus, et al. 2014. "Alcohol Tax Pass-through across the Product and Price Range: Do Retailers Treat Cheap Alcohol Differently?" *Addiction* 109 (12): 1994–2002. https://doi.org/10.1111/add.12590.
3. Alvarado, Miriam, Deliana Kostova, Marc Suhrcke, Ian Hambleton, Trevor Hassell, T. Alafia Samuels, Jean Adams, and Nigel Unwin. 2017. "Trends in Beverage Prices Following the Introduction of a Tax on Sugar-Sweetened Beverages in Barbados." *Preventive Medicine* 105 (December): S23–25. https://doi.org/10.1016/j.ypmed.2017.07.013.
4. Aranco, Natalia, Mariano Bosch, Marco Stampini, Oliver Azuara Herrera, Laura Goyeneche, Pablo Ibarrarán, Déborah Oliveira, Maria Reyes Retana Torre, William D. Savedoff, and Eric Torres Ramirez. 2022. "Aging in Latin America and the Caribbean: Social Protection and Quality of Life of Older Persons." Inter-American Development Bank. https://doi.org/10.18235/0004287.
5. Babor, Thomas F., Jack H. Mendelson, Isaac Greenberg, and John Kuehnle. 1978. "Experimental Analysis of the 'Happy Hour': Effects of Purchase Price on Alcohol Consumption." *Psychopharmacology* 58 (1): 35–41. https://doi.org/10.1007/bf00426787.
6. Banderali, G., A. Martelli, M. Landi, F. Moretti, F. Betti, G. Radaelli, C. Lassandro, and E. Verduci. 2015. "Short and Long Term Health Effects of Parental Tobacco Smoking during Pregnancy and Lactation: A Descriptive Review." *Journal of Translational Medicine* 13 (1). https://doi.org/10.1186/s12967-015-0690-y.
7. Bartecchi, Carl, Robert N. Alsever, Christine Nevin-Woods, William M. Thomas, Raymond O. Estacio, Becki Bucher Bartelson, and Mori J. Krantz. 2006. "Reduction in the Incidence of Acute Myocardial Infarction Associated with a Citywide Smoking Ordinance." *Circulation* 114 (14): 1490–96. https://doi.org/10.1161/circulationaha.106.615245.
8. Basu, Sanjay, Martin McKee, Gauden Galea, and David Stuckler.

2013. "Relationship of Soft Drink Consumption to Global Overweight, Obesity, and Diabetes: A Cross-National Analysis of 75 Countries." *American Journal of Public Health* 103 (11): 2071–77. https://doi.org/10.2105/ajph.2012.300974.

9. Becker, Gary S., Michael Grossman, and Kevin M. Murphy. 1994. "An Empirical Analysis of Cigarette Addiction." *The American Economic Review* 84 (3): 396–418. https://www.jstor.org/stable/2118059.
10. Berardi, Nicoletta, Patrick Sevestre, Marine Tepaut, and Alexandre Vigneron. 2012. "The Impact of a `Soda Tax' on Prices. Evidence from French Micro Data." *Applied Economics* 48 (41): 3976–94. https://econpapers.repec.org/paper/bfrbanfra/415.htm.
11. Bergman, U. Michael, and Niels Lynggård Hansen. 2019. "Are Excise Taxes on Beverages Fully Passed through to Prices? The Danish Evidence." *FinanzArchiv* 75 (4): 323. https://doi.org/10.1628/fa-2019-0010.
12. Berthet Valdois, Julie, Cornelis Van Walbeek, Hana Ross, Hema Soondram, Bhavish Jugurnath, Marie Chan Sun, and Deowan Mohee. 2019. "Tobacco Industry Tactics in Response to Cigarette Excise Tax Increases in Mauritius." *Tobacco Control* 29 (e1): tobaccocontrol-2019-055196. https://doi.org/10.1136/tobaccocontrol-2019-055196.
13. Bhattacharya, Aveek. 2020. "Who Pays the Tab? The Distributional Effects of UK Alcohol Taxes." London, UK: Institute of Alcohol Studies. https://www.ias.org.uk/uploads/pdf/IAS%20reports/rp40022020.pdf.
14. Blecher, Evan, Alex Liber, Jeffrey Drope, Binh Nguyen, and Michal Stoklosa. 2017. "Global Trends in the Affordability of Sugar-Sweetened Beverages, 1990–2016." *Preventing Chronic Disease* 14 (May). https://doi.org/10.5888/pcd14.160406.
15. Blecher, Evan, Alex Liber, Corné Van Walbeek, and Laura Rossouw. 2018. "An International Analysis of the Price and Affordability of Beer." Edited by Isabel Novo-Cortí. *PLOS ONE* 13 (12): e0208831. https://doi.org/10.1371/journal.pone.0208831.
16. Blecher, Evan, and Corné van Walbeek. 2009. "Cigarette Affordability Trends: An Update and Some Methodological Comments." *Tobacco Control* 18 (3): 167–75. https://doi.org/10.1136/tc.2008.026682.
17. Bloom, David E, Somnath Chatterji, Paul Kowal, Peter Lloyd-Sherlock, Martin McKee, Bernd Rechel, Larry Rosenberg, and James P Smith. 2015. "Macroeconomic Implications of Population Ageing and Selected Policy Responses." *The Lancet* 385 (9968): 649–57. https://doi.org/10.1016/s0140-6736(14)61464-1.
18. BMJ. 2002. "How to Access Tobacco Industry Documents." *Tobacco Control* 11 (Supplement 1): i39–39. https://doi.org/10.1136/tc.11.suppl_1.i39.
19. Booth, Andrew, Petra Meier,Tim Stockwell, Anthea Sutton, Anna Wilkinson, Ruth Wong et al. 2008. "IndependentReview of the Effects of Alcohol Pricing and Promotion. Part A: SystematicReviews." Sheffield, UK: University of Sheffield.
20. Brownell, Kelly D., and Thomas R. Frieden. 2009. "Ounces of Prevention — the Public Policy Case for Taxes on Sugared Beverages." *New England Journal of Medicine* 360 (18): 1805–8. https://doi.org/10.1056/nejmp0902392.
21. Brownell, Kelly D., and Kenneth E. Warner. 2009. "The Perils of Ignoring History: Big Tobacco Played Dirty and Millions Died. How Similar Is Big Food?" *Milbank Quarterly* 87 (1): 259–94. https://doi.org/10.1111/j.1468-0009.2009.00555.x.
22. Burton, Robyn, Clive Henn, Don Lavoie, Rosanna O'Connor, Clare Perkins, Kate Sweeney, Felix Greaves, et al. 2017. "A Rapid Evidence Review of the Effectiveness and Cost-Effectiveness of Alcohol Control Policies: An English Perspective." *The Lancet* 389 (10078): 1558–80. https://doi.org/10.1016/s0140-6736(16)32420-5.
23. Caro, Juan Carlos, Camila Corvalán, Marcela Reyes, Andres Silva, Barry Popkin, and Lindsey Smith Taillie. 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." Edited by Claudia Langenberg. *PLOS Medicine* 15 (7): e1002597. https://doi.org/10.1371/journal.pmed.1002597.
24. Case, Anne, and Angus Deaton. 2021. *Deaths of Despair and the Future of Capitalism*. NED - New edition. Princeton University Press. https://www.jstor.org/stable/j.ctv161f3f8.
25. Cawley, John, and David E. Frisvold. 2016. "The Pass-through of Taxes on Sugar-Sweetened Beverages to Retail Prices: The Case of Berkeley, California." *Journal of Policy Analysis and Management* 36 (2): 303–26. https://doi.org/10.1002/pam.21960.
26. CBC News. 2008. "Tobacco Giants to Pay up to $1.15B over Contraband Sales." *CBC News*, July 31, 2008. https://www.cbc.ca/news/canada/tobacco-giants-to-pay-up-to-1-15b-over-contraband-sales-1.701089.
27. Chacon, Violeta, Guillermo Paraje, Joaquin Barnoya, and Frank J. Chaloupka. 2018. "Own-Price, Cross-Price, and Expenditure Elasticities on Sugar-Sweetened Beverages in Guatemala." Edited by Rachel A. Nugent. *PLOS ONE* 13 (10): e0205931. https://doi.org/10.1371/journal.pone.0205931.
28. Chaloupka, Frank, Jeff Drope, Erika Siu, Violeta Vulovic, Maryam Mirza, Germán Rodriguez-Iglesias, Anh Ngo, et al. 2021a. Tobacconomics: Cigarette Tax Scorecard . 2nd ed. Chicago, IL: Health Policy Center, Institute for Health Research and Policy, University of Illinois Chicago. www.tobacconomics.org.
29. Chaloupka, Frank, and Rosalie L. Pacula. 1999. "Sex and Race Differences in Young People's Responsiveness to Price and Tobacco Control Policies." *Tobacco Control* 8 (4): 373–77. https://doi.org/10.1136/tc.8.4.373.
30. Chaloupka, Frank, and Lisa Powell. 2018. "Using Fiscal Policy to Promote Health: Taxing Tobacco, Alcohol, and Sugary Beverages." Background Paper Prepared for the Task Force on Fiscal Policy for Health. New York: Bloomberg Philanthropies.
31. Chaloupka, Frank J., Lisa M. Powell, and Kenneth E. Warner. 2019. "The Use of Excise Taxes to Reduce Tobacco, Alcohol, and Sugary Beverage Consumption." *Annual Review of*

Public Health 40 (1): 187–201. https://doi.org/10.1146/annurev-publhealth-040218-043816.

32. Chaloupka, Frank, Jeff Drope, Erika Siu, Violeta Vulovic, Michal Stoklosa, Maryam Mirza, Germán Rodriguez-Iglesias, and Hye Myung Lee. 2021b. "Tobacconomics Cigarette Tax Scorecard: Scoring Component Policy Note – Cigarette Price." Chicago, IL: Health Policy Center, Institute for Health Research and Policy, University of Illinois Chicago. https://tobacconomics.org/files/research/695/uic-tobacco-scorecard-component-policy-note-cigarette-price-v4.0.pdf.
33. Chaloupke, Frank, and Lisa Powell. 2019. "Health Taxes to Save Lives - Background Materials: Case Studies." *Bloomberg Philanthropies Task Force on Fiscal Policy for Health*. Chicago, IL: Tobaconomics. https://tobacconomics.org/research/health-taxes-to-save-lives-background-materials-case-studies/.
34. Chavez, Jenina J, Jeff Drope, Qing Li, and Madeiline J Aloria. 2016. "The Economics of Tobacco Farming in the Philippines." Quezon City: Action for Economic Reforms and Atlanta: American Cancer Society. https://www.cancer.org/content/dam/cancer-org/research/economic-and-healthy-policy/the-economics-of-tobacco-farming-in-the-philippines.pdf.
35. Chelwa, Grieve, and Cornelis van Walbeek. 2014. "Assessing the Causal Impact of Tobacco Expenditure on Household Spending Patterns in Zambia." *ERSA Working Paper 453*. Cape Town, South Africa: Economic Research Southern Africa. https://econrsa.org/wp-content/uploads/2022/06/working_paper_453.pdf.
36. Chen, Danhong, David Abler, De Zhou, Xiaohua Yu, and Wyatt Thompson. 2015. "A Meta-Analysis of Food Demand Elasticities for China." *Applied Economic Perspectives and Policy* 38 (1): 50–72. https://doi.org/10.1093/aepp/ppv006.
37. Cobacho Tornel, Mª Belén, Ángel López Nicolás, and José María Ramos Parreño. 2010. "El Coste de Mortalidad Asociado al Consumo de Tabaco En España" [The cost of mortality associated with tobacco consumption in Spain]. *Revista Española de Salud Pública* 84 (3): 271–80. https://scielo.isciii.es/scielo.php?pid=S1135-57272010000300005&script=sci_abstract.
38. Coelho, Daniel. 2020. "Distributive Impactof Health Taxes in Brazil." Unpublishedreport, World Bank, Washington, DC.
39. Colchero, M. Arantxa, Juan Carlos Salgado, Mishel Unar-Munguía, Mauricio Hernández-Ávila, and Juan Angel Rivera-Dommarco. 2015. "Price Elasticity of the Demand for Sugar Sweetened Beverages and Soft Drinks in Mexico." *Economics & Human Biology* 19 (December): 129–37. https://doi.org/10.1016/j.ehb.2015.08.007.
40. Colchero, M. Arantxa, Juan Carlos Salgado, Mishel Unar-Munguía, Mariana Molina, Shuwen Ng, and Juan Angel Rivera-Dommarco. 2015. "Changes in Prices after an Excise Tax to Sweetened Sugar Beverages Was Implemented in Mexico: Evidence from Urban Areas." Edited by Rachel A. Nugent. *PLOS ONE* 10 (12): e0144408. https://doi.org/10.1371/journal.pone.0144408.
41. Collin, Jeff, and Sarah Hill. 2019. "Structure and Tactics of the Tobacco, Alcohol, and Sugary Beverage Industries." *Background Paper for the Task Force on Fiscal Policy for Health*. University of Edinburgh. https://data.bloomberglp.com/dotorg/sites/2/2019/04/Structure-and-Tactics-of-the-Tobacco-Alcohol-and-Sugary-Beverage-Industries.pdf.
42. DeCicca, Philip, Don Kenkel, and Alan Mathios. 2008. "Cigarette Taxes and the Transition from Youth to Adult Smoking: Smoking Initiation, Cessation, and Participation." *Journal of Health Economics* 27 (4): 904–17. https://doi.org/10.1016/j.jhealeco.2008.02.008.
43. Dee, Thomas S. 1999. "The Complementarity of Teen Smoking and Drinking." *Journal of Health Economics* 18 (6): 769–93. https://doi.org/10.1016/s0167-6296(99)00018-1.
44. Del Carmen, Giselle, Alan Fuchs, and Maria Eugenia Genoni. 2018. "The Distributional Impacts of Cigarette Taxation in Bangladesh." *Policy Research Working Paper No. 8580*. Washington, D.C.: World Bank. https://doi.org/10.1596/1813-9450-8580.
45. Delipalla, Sophia, and Owen O'Donnell. 2001. "Estimating Tax Incidence, Market Power and Market Conduct: The European Cigarette Industry." *International Journal of Industrial Organization* 19 (6): 885–908. https://econpapers.repec.org/article/eeeindorg/v_3a19_3ay_3a2001_3ai_3a6_3ap_3a885-908.htm.
46. Diosana, Jo-Ann L., and Filomeno S. Sta. Ana III. 2020. "Case Studies in Illicit Tobacco Trade: The Philippines." Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois, Chicago. https://portal-uat.who.int/fctcapps/sites/default/files/kh-media/e-library-doc/2020/07/case-studies-in-illicit-tobacco-trade-the-Philippines.pdf.
47. Do, Young Kyung, and Mary Ann Bautista. 2015. "Tobacco Use and Household Expenditures on Food, Education, and Healthcare in Low- and Middle-Income Countries: A Multilevel Analysis." *BMC Public Health* 15 (1). https://doi.org/10.1186/s12889-015-2423-9.
48. Dobbs, Richard, Corrine Sawers, Fraser Thompson, James Manyika, Jonathan Woetzel, Peter Child, Sorcha McKenna, and Angela Spatharou. 2014. "Overcoming Obesity: An Initial Economic Analysis." *Discussion Paper*. McKinsey Global Institute.
49. Doogan, Nathan J, Mary Ellen Wewers, and Micah Berman. 2017. "The Impact of a Federal Cigarette Minimum Pack Price Policy on Cigarette Use in the USA." *Tobacco Control* 27 (2): 203–8. https://doi.org/10.1136/tobaccocontrol-2016-053457.
50. Drope, Jeffrey, Roberto Iglesias, Valeska Carvalho Figueiredo, SzkloAndré Salem, Paulo Borges, Michal Stoklosa, Kevin Welding, Hannah Nascimento, and Caroline Cortes. 2022. "Consumo de Cigarros Ilegais Em Cinco Cidades Brasileiras." Centro de Estudos sobre Tabaco e Saúde (Cetab). Escola Nacional de Saúde Pública Sérgio Arouca, Fiocruz. Rio de Janeiro: Outras Letras.
51. Dunbar, Andrew, William Gotsis, and William Frishman. 2013. "Second-Hand Tobacco Smoke and Cardiovascular Disease Risk." *Cardiology in Review* 21 (2): 94–100. https://doi.org/10.1097/crd.0b013e31827362e4.
52. Edwards, Griffith. 1997. "Alcohol Policy and the Public Good."

Addiction (Abingdon, England) 92 Suppl 1 (March): S73-79. https://pubmed.ncbi.nlm.nih.gov/9167291/.

53. Epstein, Leonard H, Noelle Jankowiak, Chantal Nederkoorn, Hollie A Raynor, Simone A French, and Eric Finkelstein. 2012. "Experimental Research on the Relation between Food Price Changes and Food-Purchasing Patterns: A Targeted Review." *The American Journal of Clinical Nutrition* 95 (4): 789–809. https://doi.org/10.3945/ajcn.111.024380.
54. Feighery, Ellen, Kurt Ribisl, NC Schleicher, Leslie Zellers, and N Wellington. 2005. "How Do Minimum Cigarette Price Laws Affect Cigarette Prices at the Retail Level?" *Tobacco Control* 14 (2): 80–85. https://www.jstor.org/stable/20747779.
55. Ferrante, Daniel, Bruno Linetzky, Mario Virgolini, Veronica Schoj, and B Apelberg. 2011. "Reduction in Hospital Admissions for Acute Coronary Syndrome after the Successful Implementation of 100% Smoke-Free Legislation in Argentina: A Comparison with Partial Smoking Restrictions." *Tobacco Control* 21 (4): 402–6. https://doi.org/10.1136/tc.2010.042325.
56. Finkelstein, Eric A., Chen Zhen, Marcel Bilger, James Nonnemaker, Assad M. Farooqui, and Jessica E. Todd. 2013. "Implications of a Sugar-Sweetened Beverage (SSB) Tax When Substitutions to Non-Beverage Items Are Considered." *Journal of Health Economics* 32 (1): 219–39. https://doi.org/10.1016/j.jhealeco.2012.10.005.
57. Forster, Martin, and Andrew M. Jones. 2001. "The Role of Tobacco Taxes in Starting and Quitting Smoking: Duration Analysis of British Data." *Journal of the Royal Statistical Society: Series a (Statistics in Society)* 164 (3): 517–47. https://doi.org/10.1111/1467-985x.00217.
58. Fuchs, Alan, and María FernandaGonzález Icaza. 2021. "The Welfareand Distributional Effects of TaxingSSB to Reduce the Risks of Obesity inUkraine." Unpublished report, World Bank,Washington, DC.
59. Fuchs Tarlovsky, Alan, and Fernanda Gonzalez Icaza. 2019. "The Welfare and Distributional Effects of Increasing Taxes on Tobacco in Viet Nam." Washington, D.C.: World Bank. https://doi. org/10.1596/32062.
60. Fuchs, Alan, and Giselle Del Carmen. 2018. "The Distributional Effects of Tobacco Taxation: The Evidence of White and Clove Cigarettes in Indonesia." *Policy Research Working Paper No. 8558*. Washington, D.C.: World Bank. https://doi.org/10.1596/1813-9450-8558.
61. Fuchs, Alan, Giselle Del Carmen, and Alfred Kechia Mukong. 2018. "Long-Run Impacts of Increasing Tobacco Taxes." *Policy Research Working Paper No. 8369*. Washington, D.C.: World Bank. https://doi.org/10.1596/1813-9450-8369.
62. Fuchs, Alan, Fernanda Gonzalez Icaza, and Daniela Paula Paz. 2019. "Distributional Effects of Tobacco Taxation: A Comparative Analysis." *Policy Research Working Paper No. 8805*. Washington, D.C.: World Bank. https://doi.org/10.1596/1813-9450-8805.
63. Fuchs, Alan, Kate Mandeville, and Ana Cristina Alonso-Soria. 2020. "Health and Distributional Effects Taxing Sugar-Sweetened Beverages: The Case of Kazakhstan." *Poverty and Equity Notes No. 24*. Washington, D.C.: World Bank. https://doi.org/10.1596/33859.
64. Fuchs, Alan, Mikhail Matytsin, and Olga Obukhova. 2018. "Tobacco Taxation Incidence: Evidence from the Russian Federation." *Policy Research Working Paper No. 8626*. Washington, D.C.: World Bank. https://doi.org/10.1596/1813-9450-8626.
65. Fuchs, Alan, and Francisco Meneses. 2017a. "Regressive or Progressive ? The Effect of Tobacco Taxes in Ukraine." *Policy Research Working Paper No. 8227*. Washington, D.C.: World Bank. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/934621509107306525/regressive-or-progressive-the-effect-of-tobacco-taxes-in-ukraine.
66. Jha P, Guindon E, Joseph RA,Nandi A, John R, Rao K, et al. A rational taxation system of bidis andcigarettes to reduce smoking deaths in India. Economic and Political Weekly.2011;46:44-51.
67. Muñoz M. 2021. "Relación entre Consumo de Tabaco y el FrameworkConvention on Tobacco Control: Un Análisis Before-After" [Relationship between Tobacco Consumption and the Framework Convention on Tobacco Control: A Before-After Analysis]. Santiago, Chile: Universidad Adolfo Ibáñez.
68. ———. 2017b. "Are Tobacco Taxes Really Regressive?: Evidence from Chile." Washington, D.C.: World Bank. https://doi.org/10.1596/25969.
69. ———. 2018. "Tobacco Price Elasticity and Tax Progressivity in Moldova." *Policy Research Working Paper No. 8327*. Washington, D.C.: World Bank. https://doi.org/10.1596/1813-9450-8327.
70. Fuchs, Alan, Edvard Orlic, and Cesar Cancho. 2019. "Time to Quit: The Tobacco Tax Increase and Household Welfare in Bosnia and Herzegovina." Washington, D.C.: World Bank. https://doi.org/10.1596/31249.
71. Gallet, Craig A. 2007. "The Demand for Alcohol: A Meta-Analysis of Elasticities." *The Australian Journal of Agricultural and Resource Economics* 51 (2): 121–35. https://doi.org/10.1111/j.1467-8489.2007.00365.x.
72. Gallet, Craig A., and John A. List. 2003. "Cigarette Demand: A Meta-Analysis of Elasticities." *Health Economics* 12 (10): 821–35. https://doi.org/10.1002/hec.765.
73. Gawryszewski, Vilma Pinheiro, and Maristela G. Monteiro. 2014. "Mortality from Diseases, Conditions and Injuries Where Alcohol Is a Necessary Cause in the Americas, 2007-09." *Addiction* 109 (4): 570–77. https://doi.org/10.1111/add.12418.
74. Gilmore, Anna B, Allen W A Gallagher, and Andy Rowell. 2018. "Tobacco Industry's Elaborate Attempts to Control a Global Track and Trace System and Fundamentally Undermine the Illicit Trade Protocol." *Tobacco Control* 28 (2): 127–40. https://doi.org/10.1136/tobaccocontrol-2017-054191.
75. Global Tobacco Economic Consortium. 2018. "The Health, Poverty, and Financial Consequences of a Cigarette Price Increase among 500 Million Male Smokers in 13 Middle Income Countries: Compartmental Model Study." *BMJ* 361 (April): k1162. https://doi.org/10.1136/bmj.k1162.

76. Gonzalez-Rozada, Martin, and Giselle Montamat. 2019. "How Raising Tobacco Prices Affects the Decision to Start and Quit Smoking: Evidence from Argentina." *International Journal of Environmental Research and Public Health* 16 (19): 3622. https://doi.org/10.3390/ijerph16193622.
77. Goodchild, Mark, Nigar Nargis, and Edouard Tursan d'Espaignet. 2017. "Global Economic Cost of Smoking-Attributable Diseases." *Tobacco Control* 27 (1): 58–64. https://doi.org/10.1136/tobaccocontrol-2016-053305.
78. Goodchild, Mark, Jeremias Paul, Roberto Iglesias, Annerie Bouw, and Anne-Marie Perucic. 2020. "Potential Impact of Eliminating Illicit Trade in Cigarettes: A Demand-Side Perspective." *Tobacco Control* Published Online First: (November 3, 2020). https://doi.org/10.1136/tobaccocontrol-2020-055980.
79. Goodchild, Mark, Anne-Marie Perucic, and Nigar Nargis. 2016. "Modelling the Impact of Raising Tobacco Taxes on Public Health and Finance." *Bulletin of the World Health Organization* 94 (4): 250–57. https://doi.org/10.2471/blt.15.164707.
80. Griswold, Max G, Nancy Fullman, Caitlin Hawley, Nicholas Arian, Stephanie R M Zimsen, Hayley D Tymeson, Vidhya Venkateswaran, et al. 2018. "Alcohol Use and Burden for 195 Countries and Territories, 1990–2016: A Systematic Analysis for the Global Burden of Disease Study 2016." *The Lancet* 392 (10152): 1015–35. https://doi.org/10.1016/s0140-6736(18)31310-2.
81. Grogger, Jeffrey T. 2016. "Soda Taxes and the Prices of Sodas and Other Drinks: Evidence from Mexico." *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2725043.
82. Gruenewald, Paul J., William R. Ponicki, Harold D. Holder, and Anders Romelsjo. 2006. "Alcohol Prices, Beverage Quality, and the Demand for Alcohol: Quality Substitutions and Price Elasticities." *Alcoholism: Clinical and Experimental Research* 30 (1): 96–105. https://doi.org/10.1111/j.1530-0277.2006.00011.x.
83. Guerchet, Maëlenn M., Mariella Guerra, Yueqin Huang, Peter Lloyd-Sherlock, Ana Luisa Sosa, Richard Uwakwe, Isaac Acosta, et al. 2018. "A Cohort Study of the Effects of Older Adult Care Dependence upon Household Economic Functioning, in Peru, Mexico and China." Edited by Stefano Federici. *PLOS ONE* 13 (4): e0195567. https://doi.org/10.1371/journal.pone.0195567.
84. Guerrero Lopez, C. M., J. A. Jimenez Ruiz, L. M. Reynales Shigematsu, and H. R. Waters. 2011. "The Economic Impact of Mexico City's Smoke-Free Law." *Tobacco Control* 20 (4): 273–78. https://doi.org/10.1136/tc.2010.036467.
85. Guerrero-López, Carlos M., Mariana Molina, and M. Arantxa Colchero. 2017. "Employment Changes Associated with the Introduction of Taxes on Sugar-Sweetened Beverages and Nonessential Energy-Dense Food in Mexico." *Preventive Medicine* 105 (December): S43–49. https://doi.org/10.1016/j.ypmed.2017.09.001.
86. Guerrero-López, Carlos M., Mishel Unar-Munguía, and M. Arantxa Colchero. 2017. "Price Elasticity of the Demand for Soft Drinks, Other Sugar-Sweetened Beverages and Energy Dense Food in Chile." *BMC Public Health* 17 (1). https://doi.org/10.1186/s12889-017-4098-x.
87. Guindon, G. Emmanuel, Arindam Nandi, Frank J. Chaloupka, and Prabhat Jha. 2011. "Socioeconomic Differences in the Impact of Smoking Tobacco and Alcohol Prices on Smoking in India." Social Science Research Network. Rochester, NY. November 1, 2011. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1954506.
88. Guindon, G. Emmanuel, Guillermo R. Paraje, and Frank J. Chaloupka. 2018. "The Impact of Prices and Taxes on the Use of Tobacco Products in Latin America and the Caribbean." *American Journal of Public Health* 108 (S6): S492–502. https://doi.org/10.2105/ajph.2014.302396r.
89. ———. 2019. "Association of Tobacco Control Policies with Youth Smoking Onset in Chile." *JAMA Pediatrics* 173 (8): 754. https://doi.org/10.1001/jamapediatrics.2019.1500.
90. Guindon, G. Emmanuel, Guillermo R. Paraje, and Ricardo Chávez. 2017. "Prices, Inflation, and Smoking Onset: The Case of Argentina." *Economic Inquiry* 56 (1): 424–45. https://doi.org/10.1111/ecin.12490.
91. Guindon, G. Emmanuel, Kevin Zhao, Tooba Fatima, Sophiya Garasia, Nicholas Quinn, N. Bruce Baskerville, and Guillermo Paraje. 2022. "Prices, Taxes and Alcohol Use: A Systematic Umbrella Review." *Addiction* 117 (12): 3004–23. https://doi.org/10.1111/add.15966.
92. Harris, Jeffrey E. 1987. "The 1983 Increase in the Federal Cigarette Excise Tax." *Tax Policy and the Economy* 1 (January): 87–111. https://doi.org/10.1086/tpe.1.20061764.
93. Hattersley , Libby, Alan Fuchs, Alberto Gonima , Lynn Silver, and Kate Mandeville . 2020. "Evidence Summary: Business, Employment, and Productivity Impacts of Sugar-Sweetened Beverages Taxes 1." Washington, D.C.: World Bank. https://documents1.worldbank.org/curated/zh/972421592559284445/pdf/Business-Employment-and-Productivity-Impacts-of-Sugar-Sweetened-Beverages-Taxes-Evidence-Summary.pdf.
94. Hattersley, Libby, Alessia Thiebaud, Lynn Silver, and Kate Mandeville. 2020. "Countering Common Arguments against Taxes on Sugary Drinks." *Health, Nutrition and Population Knowledge Brief*. Washington, D.C.: World Bank. https://openknowledge.worldbank.org/handle/10986/34361.
95. Heijdra, Ben J., and Laurie S. M. Reijnders. 2016. "Human Capital Accumulation and the Macroeconomy in an Ageing Society." *De Economist* 164 (3): 297–334. https://doi.org/10.1007/s10645-016-9283-2.
96. Helble, Matthias, and Kris Francisco. 2017. "The Imminent Obesity Crisis in Asia and the Pacific: First Cost Estimates." *Working Paper No. 743.* Manilla, The Philippines: Asian Development Bank. https://www.adb.org/publications/imminent-obesity-crisis-asia-and-pacific-first-cost-estimates.
97. Hodge, Allison M, Julie K Bassett, Roger L Milne, Dallas R English, and Graham G Giles. 2018. "Consumption of Sugar-Sweetened and Artificially Sweetened Soft Drinks and Risk of Obesity-Related Cancers." *Public Health Nutrition* 21 (9): 1618–26. https://

doi.org/10.1017/s1368980017002555.

98. Huang, Jidong, Jamie F Chriqui, Hillary DeLong, Maryam Mirza, Megan C Diaz, and Frank J Chaloupka. 2016. "Do State Minimum Markup/Price Laws Work? Evidence from Retail Scanner Data and TUS-CPS." *Tobacco Control* 25 (Suppl 1): i52–59. https://doi.org/10.1136/tobaccocontrol-2016-053093.

99. Hyland, A, FL Laux, C Higbee, G Hastings, H Ross, FJ Chaloupka, GT Fong, and KM Cummings. 2006. "Cigarette Purchase Patterns in Four Countries and the Relationship with Cessation: Findings from the International Tobacco Control (ITC) Four Country Survey." *Tobacco Control* 15 (suppl_3): iii59–64. https://doi.org/10.1136/tc.2005.012203.

100. Imamura, Fumiaki, Laura O'Connor, Zheng Ye, Jaakko Mursu, Yasuaki Hayashino, Shilpa N Bhupathiraju, and Nita G Forouhi. 2015. "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* 351 (July): h3576. https://doi.org/10.1136/bmj.h3576.

101. Institute of Health Metrics and Evaluation (IHME). 2020. "Global Burden of Disease Study 2019 (GBD 2019) Results." Institute for Health Metrics and Evaluation (IHME). Seattle, United States. 2020. http://ghdx.healthdata.org/gbd-results-tool.

102. International Agency for Research on Cancer (IARC). 2011. "Effectiveness of Tax and Price Policies for Tobacco Control." *IARC Handbooks of Cancer Prevention Volume 14*. Lyon, France: International Agency for Research on Cancer. https://publications.iarc.fr/Book-And-Report-Series/Iarc-Handbooks-Of-Cancer-Prevention/Effectiveness-Of-Tax-And-Price-Policies-For-Tobacco-Control-2011.

103. Jackson, Rachel, Maxine Jackson, Fiona Campbell, Josie Messina, Louise Guillaume, Petra Meier, Elizabeth Goyder, Jim Chilcott, and Nick Payne. 2010. "Interventions on Control of Alcohol Price, Promotion and Availability for Prevention of Alcohol Use Disorders in Adults and Young People." ScHARR Public Health Collaborating Centre, University of Sheffield. https://www.nice.org.uk/guidance/ph24/evidence/interventions-on-control-of-alcohol-price-promotion-and-availability-for-prevention-of-alcohol-use-disorders-371568349.

104. Jawad, Mohammed, John Tayu Lee, Stanton Glantz, and Christopher Millett. 2018. "Price Elasticity of Demand of Non-Cigarette Tobacco Products: A Systematic Review and Meta-Analysis." *Tobacco Control* 27 (6): 689–95. https://doi.org/10.1136/tobaccocontrol-2017-054056.

105. Jha, Prabhat. 2020. "The Hazards of Smoking and the Benefits of Cessation: A Critical Summation of the Epidemiological Evidence in High-Income Countries." *ELife* 9 (1). https://doi.org/10.7554/elife.49979.

106. Jha, Prabhat, Emmanuel Guindon, Renu Joseph, Arindam Nandi, Rijo John, Kavita Rao, Frank Chaloupka, Jagdish Kaur, Prakash C Gupta, and M Govinda Rao. 2011. "A Rational Taxation System of Bidis and Cigarettes to Reduce Smoking Deaths in India." *Economic and Political Weekly* XLVI (42). https://www.tobacconomics.org/files/research/73/A-rational-taxation-system-of-bidis-and-cigarettes-to-reduce...India-2011.pdf.

107. Jha, Prabhat, Catherine Hill, Daphne C N Wu, and Richard Peto. 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.

108. Jha, Prabhat, Mary MacLennan, Frank. J. Chaloupka, Ayda Yurekli, Chintanie Ramasundarahettige, Krishna Palipudi, Witold Zatonksi, Samira Asma, and Prakash C. Gupta. 2015. "Global Hazards of Tobacco and the Benefits of Smoking Cessation and Tobacco Taxes." *Disease Control Priorities, Third Edition (Volume 3): Cancer*. https://doi.org/10.1596/978-1-4648-0349-9_ch10.

109. Jha, Prabhat, and Richard Peto. 2014. "Global Effects of Smoking, of Quitting, and of Taxing Tobacco." *New England Journal of Medicine* 370 (1): 60–68. https://doi.org/10.1056/nejmra1308383.

110. Jha, Prabhat, Chinthanie Ramasundarahettige, Victoria Landsman, Brian Rostron, Michael Thun, Robert N Anderson, Tim McAfee, and Richard Peto. 2013. "21st-Century Hazards of Smoking and Benefits of Cessation in the United States." *The New England Journal of Medicine* 368 (4): 341–50. https://doi.org/10.1056/NEJMsa1211128.

111. Jha, Prahbat, and Frank J Chaloupka. 1999. "Curbing the Epidemic: Governments and the Economics of Tobacco Control." Washington, D.C.: World Bank. https://documents1.worldbank.org/curated/en/914041468176678949/pdf/multi-page.pdf.

112. John, Rijo M, Hana Ross, and Evan Blecher. 2011. "Tobacco Expenditure and Its Implications for Household Resource Allocation in Cambodia." *Tobacco Control* 21 (3): 341–46. https://doi.org/10.1136/tc.2010.042598.

113. John, Rijo M. 2008. "Crowding out Effect of Tobacco Expenditure and Its Implications on Household Resource Allocation in India." *Social Science & Medicine* 66 (6): 1356–67. https://doi.org/10.1016/j.socscimed.2007.11.020.

114. Joossens, Luk, David Merriman, Hana Ross, and Martin Raw. 2010. "The Impact of Eliminating the Global Illicit Cigarette Trade on Health and Revenue." *Addiction* 105 (9): 1640–49. https://doi.org/10.1111/j.1360-0443.2010.03018.x.

115. Joossens, Luk, and Martin Raw. 2012. "From Cigarette Smuggling to Illicit Tobacco Trade." *Tobacco Control* 21 (2): 230–34. https://doi.org/10.1136/tobaccocontrol-2011-050205.

116. Juster, Harlan R., Brett R. Loomis, Theresa M. Hinman, Matthew C. Farrelly, Andrew Hyland, Ursula E. Bauer, and Guthrie S. Birkhead. 2007. "Declines in Hospital Admissions for Acute Myocardial Infarction in New York State after Implementation of a Comprehensive Smoking Ban." *American Journal of Public Health* 97 (11): 2035–39. https://doi.org/10.2105/ajph.2006.099994.

117. Kalyanaram, Gurumurthy, and Russell S. Winer. 2022. "Behavioral Response to Price: Data-Based Insights and Future Research for Retailing." *Journal of Retailing* 98 (1): 46–70. https://ideas.

repec.org/a/eee/jouret/v98y2022i1p46-70.html.

118. Kenkel, Donald S. 2005. "Are Alcohol Tax Hikes Fully Passed through to Prices? Evidence from Alaska." *American Economic Review* 95 (2): 273–77. https://doi.org/10.1257/000282805774670284.

119. Kostova, Deliana, Muhammad J Husain, and Frank J Chaloupka. 2016. "Effect of Cigarette Prices on Smoking Initiation and Cessation in China: A Duration Analysis." *Tobacco Control* 26 (5): 569–74. https://doi.org/10.1136/tobaccocontrol-2016-053338.

120. Kostova, Delliana, Hana Ross, Evan Blecher, and Sara Markowitz. 2011. "Is Youth Smoking Responsive to Cigarette Prices? Evidence from Low- and Middle-Income Countries." *Tobacco Control* 20 (6): 419–24. https://doi.org/10.1136/tc.2010.038786.

121. Kyriakoudes, Louis M. 2016. "The Tobacco Industry's Deadly Distortions of History." *Tobacco Control* 25 (5): 491–91. https://doi.org/10.1136/tobaccocontrol-2015-052712.

122. Larrain, Luis. 2017. "Fascismo, Alimentos Y Libertad de Expresión [Facism, Food, and Freedom of Expression]." *Libertad Y Desarrollo*, January 5, 2017. https://lyd.org/opinion/2017/01/columna-luis-larrain-diario-financiero-fascismo-alimentos-libertad-expresion/.

123. Lecours, Natacha, Guilherme E G Almeida, Jumanne M Abdallah, and Thomas E Novotny. 2012. "Environmental Health Impacts of Tobacco Farming: A Review of the Literature: Table 1." *Tobacco Control* 21 (2): 191–96. https://doi.org/10.1136/tobaccocontrol-2011-050318.

124. Leider, Julien, Vanessa Oddo, and Lisa Powell. 2021. "A Review of the Effects of U.S. Local Sugar- Sweetened Beverage Taxes on Substitution to Untaxed Beverages and Food Items." *P3RC Research Brief No. 123*. Chicago, IL: Policy, Practice, and Prevention Research Center (P3RC), University of Illinois, Chicago. https://p3rc.uic.edu/wp-content/uploads/sites/561/2021/12/Rvw-Effcts-US-SSB-Taxes-Sbsttn-to-Untxd-Bev-Foods_Rsrch-Brf-No.-123_Nov-2021.pdf.

125. Lencucha, Raphael, Jeffrey Drope, Peter Magati, and Gumilang Aryo Sahadewo. 2022. "Tobacco Farming: Overcoming an Understated Impediment to Comprehensive Tobacco Control." *Tobacco Control* 31 (2): 308–12. https://doi.org/10.1136/tobaccocontrol-2021-056564.

126. Li, Virginia C., and Songyuan Tang. 2018. "China's New Road for Tobacco Control: Tobacco Crop Substitution." *American Journal of Public Health* 108 (10): 1316–17. https://doi.org/10.2105/ajph.2018.304620.

127. Manthey, Jakob, Syed Ahmed Hassan, Sinclair Carr, Carolin Kilian, Sören Kuitunen-Paul, and Jürgen Rehm. 2021. "What Are the Economic Costs to Society Attributable to Alcohol Use? A Systematic Review and Modelling Study." *PharmacoEconomics* 39 (7): 809–22. https://doi.org/10.1007/s40273-021-01031-8.

128. Manthey, Jakob, Kevin D Shield, Margaret Rylett, Omer S M Hasan, Charlotte Probst, and Jürgen Rehm. 2019. "Global Alcohol Exposure between 1990 and 2017 and Forecasts until 2030: A Modelling Study." *The Lancet* 393 (10190): 2493–2502. https://doi.org/10.1016/s0140-6736(18)32744-2.

129. Margozzini, Paula, Guillermo Paraje, Pedro Zitko, Manuel Espinoza, Rubén Rojas, Carlos Balmaceda, Tomas Abbot, Paula Bedregal, and Patricia Berrios. 2017. "Estudio Del Costo Económico Y Social Del Consumo de Alcohol En Chile [Study on the Economic and Social Cost of Consuming Alcohol in Chile]." Santiago, Chile: Departamento de Salud Pública, Facultad de Medicina, Pontificia Universidad Católica de Chile. https://medicina.uc.cl/wp-content/uploads/2019/03/COSTO-ALCOHOL_Actualizacio%CC%81n-2018_Informe.pdf.

130. Marinello, Samantha, Julien Leider, and Lisa M. Powell. 2021. "Employment Impacts of the San Francisco Sugar-Sweetened Beverage Tax 2 Years after Implementation." Edited by Guillermo Paraje. *PLOS ONE* 16 (6): e0252094. https://doi.org/10.1371/journal.pone.0252094.

131. Marquez, Patricio V., and Blanca Moreno-Dodson. 2017. "Tobacco Tax Reform at the Crossroads of Health and Development: A Multisectoral Perspective ." Washington, D.C.: World Bank. https://doi.org/10.1596/28494.

132. Masa-ud, Abdul Gafar, Grieve Chelwa, and Corné van Walbeek. 2020. "Does Tobacco Expenditure Influence Household Spending Patterns in Ghana?: Evidence from the Ghana 2012/2013 Living Standards Survey." *Tobacco Induced Diseases* 18 (June). https://doi.org/10.18332/tid/120936.

133. Matzopoulos, Richard G, Sarah Truen, Brett Bowman, and Joanne Corrigall. 2014. "The Cost of Harmful Alcohol Use in South Africa." *South African Medical Journal* 104 (2): 127–32. https://doi.org/10.7196/samj.7644.

134. Matzopoulos, Richard Gregory, Sarah Truen, Brett Bowman, and Joanne Corrigall. 2013. "The Cost of Harmful Alcohol Use in South Africa." *South African Medical Journal* 104 (2): 127. https://doi.org/10.7196/samj.7644.

135. Meng, Yang, Alan Brennan, Robin Purshouse, Daniel Hill-McManus, Colin Angus, John Holmes, and Petra Sylvia Meier. 2014. "Estimation of Own and Cross Price Elasticities of Alcohol Demand in the UK—a Pseudo-Panel Approach Using the Living Costs and Food Survey 2001–2009." *Journal of Health Economics* 34 (March): 96–103. https://doi.org/10.1016/j.jhealeco.2013.12.006.

136. Millwood, Iona Y., Robin G. Walters, Xue W. Mei, Yu Guo, Ling Yang, Zheng Bian, Derrick A. Bennett, et al. 2019. "Conventional and Genetic Evidence on Alcohol and Vascular Disease Aetiology: A Prospective Study of 500 000 Men and Women in China." *The Lancet* 393 (10183): 1831–42. https://doi.org/10.1016/S0140-6736(18)31772-0.

137. Mohapatra, Satya, Jayadeep Patra, Svetlana Popova, Amy Duhig, and Jürgen Rehm. 2009. "Social Cost of Heavy Drinking and Alcohol Dependence in High-Income Countries." *International Journal of Public Health* 55 (3): 149–57. https://doi.org/10.1007/s00038-009-0108-9.

138. Muhammad, Andrew, Birgit Meade, David R Marquardt, and

Dariush Mozaffarian. 2019. "Global Patterns in Price Elasticities of Sugar-Sweetened Beverage Intake and Potential Effectiveness of Tax Policy: A Cross-Sectional Study of 164 Countries by Sex, Age and Global-Income Decile." *BMJ Open* 9 (8): e026390. https://doi.org/10.1136/bmjopen-2018-026390.

139. Naiman, A., R. H. Glazier, and R. Moineddin. 2010. "Association of Anti-Smoking Legislation with Rates of Hospital Admission for Cardiovascular and Respiratory Conditions." *Canadian Medical Association Journal* 182 (8): 761–67. https://doi.org/10.1503/cmaj.091130.

140. Nakamura, Ryota, Andrew J. Mirelman, Cristóbal Cuadrado, Nicolas Silva-Illanes, Jocelyn Dunstan, and Marc Suhrcke. 2018. "Evaluating the 2014 Sugar-Sweetened Beverage Tax in Chile: An Observational Study in Urban Areas." Edited by Claudia Langenberg. *PLOS Medicine* 15 (7): e1002596. https://doi.org/10.1371/journal.pmed.1002596.

141. Narain, A., C. S. Kwok, and M. A. Mamas. 2016. "Soft Drinks and Sweetened Beverages and the Risk of Cardiovascular Disease and Mortality: A Systematic Review and Meta-Analysis." *International Journal of Clinical Practice* 70 (10): 791–805. https://doi.org/10.1111/ijcp.12841.

142. Nargis, Nigar, A.K.M. Ghulam Hussain, Mark Goodchild, Anne C.K. Quah, and Geoffrey T. Fong. 2020. "Tobacco Industry Pricing Undermines Tobacco Tax Policy: A Tale from Bangladesh." *Preventive Medicine* 132 (March): 105991. https://doi.org/10.1016/j.ypmed.2020.105991.

143. Nargis, Nigar, AKM Ghulam Hussain, Mark Goodchild, Anne CK Quah, and Geoffrey T Fong. 2019. "A Decade of Cigarette Taxation in Bangladesh: Lessons Learnt for Tobacco Control." *Bulletin of the World Health Organization* 97 (3): 221–29. https://doi.org/10.2471/BLT.18.216135.

144. Nargis, Nigar, Michal Stoklosa, Ce Shang, and Jeffrey Drope. 2020. "Price, Income, and Affordability as the Determinants of Tobacco Consumption: A Practitioner's Guide to Tobacco Taxation." *Nicotine & Tobacco Research*, July. https://doi.org/10.1093/ntr/ntaa134.

145. National Research Council. 2015. "Understanding the U.S. Illicit Tobacco Market: Characteristics, Policy Context, and Lessons from International Experiences." Washington, D.C.: The National Academies Press. https://doi.org/10.17226/19016.

146. NBC News. 2004. "Philip Morris, EU Resolve Smuggling Charges." *NBC News*, July 9, 2004. https://www.nbcnews.com/id/wbna5402238.

147. Nelson, Jon P., and John R. Moran. 2019. "Effects of Alcohol Taxation on Prices: A Systematic Review and Meta-Analysis of Pass-through Rates." *The B.E. Journal of Economic Analysis & Policy* 20 (1). https://doi.org/10.1515/bejeap-2019-0134.

148. Nikaj, Silda, and Frank J. Chaloupka. 2013. "The Effect of Prices on Cigarette Use among Youths in the Global Youth Tobacco Survey." *Nicotine & Tobacco Research* 16 (Suppl 1): S16–23. https://doi.org/10.1093/ntr/ntt019.

149. Ornstein, SI. 1980. "Control of Alcohol Consumption through Price Increase." *Journal of Studies on Alcohol* 41 (9): 807–18. https://doi.org/10.15288/jsa.1980.41.807.

150. Pacula, Rosalie Liccardo. 1998. "Adolescent Alcohol and Marijuana Consumption: Is There Really a Gateway Effect?" *NBER Working Paper No. 6348*. Cambridge, MA: National Bureau of Economic Research (NBER). https://www.nber.org/papers/w6348.

151. Pan American Health Organization (PAHO). 2021. "Sugar-Sweetened Beverage Taxation in the Region of the Americas." Washington, D.C.: Pan American Health Organization. https://doi.org/10.37774/9789275122990.

152. Paraje, Guillermo. 2016. "The Effect of Price and Socio-Economic Level on the Consumption of Sugar-Sweetened Beverages (SSB): The Case of Ecuador." Edited by Aurora García-Gallego. *PLOS ONE* 11 (3): e0152260. https://doi.org/10.1371/journal.pone.0152260.

153. Paraje, Guillermo R., G. Emmanuel Guindon, and Frank J. Chaloupka. 2020. "Prices, Alcohol Use Initiation and Heavy Episodic Drinking among Chilean Youth." *Addiction*, July. https://doi.org/10.1111/add.15167.

154. Paraje, Guillermo, and Daniel Araya. 2018. "Relationship between Smoking and Health and Education Spending in Chile." *Tobacco Control* 27 (5): 560–67. https://doi.org/10.1136/tobaccocontrol-2017-053857.

155. Paraje, Guillermo, and Fabio S. Gomes. 2022a. "Expenditures on Sugar-Sweetened Beverages in Jamaica and Its Association with Household Budget Allocation." *BMC Public Health* 22 (1). https://doi.org/10.1186/s12889-022-12959-7.

156. ———. 2022b. "Expenditures on Sugar-Sweetened Beverages in Jamaica and Its Association with Household Budget Allocation." *BMC Public Health* 22 (1). https://doi.org/10.1186/s12889-022-12959-7.

157. Paraje, Guillermo, and Pablo Pincheira. 2018. "Asequibilidad de Cerveza Y Bebidas Azucaradas Para 15 Países de América Latina." *Revista Panamericana de Salud Pública* 42. https://doi.org/10.26633/rpsp.2018.49.

158. Paraje, Guillermo, Michal Stoklosa, and Evan Blecher. 2022. "Illicit Trade in Tobacco Products: Recent Trends and Coming Challenges." *Tobacco Control* 31 (2): 257–62. https://doi.org/10.1136/tobaccocontrol-2021-056557.

159. Parry, Ian, Sarah West, and Ramanan Laxminarayan. 2009. "Fiscal and Externality Rationales for Alcohol Policies." *The B.E. Journal of Economic Analysis & Policy* 9 (1): 1–48. https://econpapers.repec.org/article/bpjbejeap/v_3a9_3ay_3a2009_3ai_3a1_3an_3a29.htm.

160. Pedroza-Tobias, Andrea, Eric Crosbie, Melissa Mialon, Angela Carriedo, and Laura A Schmidt. 2021. "Food and Beverage Industry Interference in Science and Policy: Efforts to Block Soda Tax Implementation in Mexico and Prevent International Diffusion." *BMJ Global Health* 6 (8): e005662. https://doi.org/10.1136/bmjgh-2021-005662.

161. Pell, David, Oliver Mytton, Tarra L. Penney, Adam Briggs, Steven Cummins, Catrin Penn-Jones, Mike Rayner, 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 (372). https://doi.org/10.1136/bmj.n254.

162. Petticrew, Mark, Srinivasa Vittal Katikireddi, Cécile Knai, Rebecca Cassidy, Nason Maani Hessari, James Thomas, and Heide Weishaar. 2017. "'Nothing Can Be Done until Everything Is Done': The Use of Complexity Arguments by Food, Beverage, Alcohol and Gambling Industries." *Journal of Epidemiology and Community Health* 71 (11): 1078–83. https://doi.org/10.1136/jech-2017-209710.

163. Pichon-Riviere, A, A Alcaraz, A Palacios, B Rodríguez , L M Reynales-Shigematsu , and M Pinto. 2020. "The Health and Economic Burden of Smoking in 12 Latin American Countries and the Potential Effect of Increasing Tobacco Taxes: An Economic Modelling Study." *The Lancet Global Health* 8 (10): e1282–94. https://doi.org/10.1016/S2214-109X(20)30311-9.

164. Popkin, Barry M., and Shu Wen Ng. 2021. "Sugar-Sweetened Beverage Taxes: Lessons to Date and the Future of Taxation." *PLOS Medicine* 18 (1): e1003412. https://doi.org/10.1371/journal.pmed.1003412.

165. Postolovska, Iryna, Rouselle F. Lavado, Gillian Tarr, and Stephane Verguet. 2017. "Estimating the Distributional Impact of Increasing Taxes on Tobacco Products in Armenia: Results from an Extended Cost-Effectiveness Analysis." Washington, D.C.: World Bank. https://doi.org/10.1596/26386.

166. Powell, Lisa M, JF Chriqui, T Khan, Roy Wada, and Frank J Chaloupka. 2012. "Assessing the Potential Effectiveness of Food and Beverage Taxes and Subsidies for Improving Public Health: A Systematic Review of Prices, Demand and Body Weight Outcomes." *Obesity Reviews* 14 (2): 110–28. https://doi.org/10.1111/obr.12002.

167. Powell, Lisa M., Julien Leider, and Pierre Thomas Léger. 2020. "The Impact of the Cook County, IL, Sweetened Beverage Tax on Beverage Prices." *Economics & Human Biology* 37 (May): 100855. https://doi.org/10.1016/j.ehb.2020.100855.

168. Powell, Lisa M., Roy Wada, Joseph J. Persky, and Frank J. Chaloupka. 2014. "Employment Impact of Sugar-Sweetened Beverage Taxes." *American Journal of Public Health* 104 (4): 672–77. https://doi.org/10.2105/ajph.2013.301630.

169. Powell, Lisa, Samantha Marinello, and Julien Leider. 2021. "A Review and Meta-Analysis of Tax Pass-through of Local Sugar-Sweetened Beverage Taxes in the United States." *P3RC Research Brief No. 120*. Chicago, IL: Policy, Practice, and Prevention Research Center (P3RC), University of Illinois, Chicago. https://p3rc.uic.edu/wp-content/uploads/sites/561/2021/09/Rvw-Meta-Anal-Tax-PssThrgh-SSB-Taxes_Rsrch-Brf-No.-120_Jul-2021.pdf.

170. Prince, Martin J, Fan Wu, Yanfei Guo, Luis M Gutierrez Robledo, Martin O'Donnell, Richard Sullivan, and Salim Yusuf. 2015. "The Burden of Disease in Older People and Implications for Health Policy and Practice." *The Lancet* 385 (9967): 549–62. https://doi.org/10.1016/s0140-6736(14)61347-7.

171. Reddy, Rohin K., Walton N. Charles, Alexandros Sklavounos, Atul Dutt, Paul T. Seed, and Ankur Khajuria. 2020. "The Effect of Smoking on COVID-19 Severity: A Systematic Review and Meta-Analysis." *Journal of Medical Virology* 93 (2). https://doi.org/10.1002/jmv.26389.

172. Rehm, Jürgen, Gerhard E. Gmel, Gerrit Gmel, Omer S. M. Hasan, Sameer Imtiaz, Svetlana Popova, Charlotte Probst, et al. 2017. "The Relationship between Different Dimensions of Alcohol Use and the Burden of Disease-an Update." *Addiction* 112 (6): 968–1001. https://doi.org/10.1111/add.13757.

173. Rehm, Jürgen, Colin Mathers, Svetlana Popova, Montarat Thavorncharoensap, Yot Teerawattananon, and Jayadeep Patra. 2009. "Global Burden of Disease and Injury and Economic Cost Attributable to Alcohol Use and Alcohol-Use Disorders." *Lancet (London, England)* 373 (9682): 2223–33. https://doi.org/10.1016/S0140-6736(09)60746-7.

174. Rehm, Jürgen, and Maristela Monteiro. 2005. "Alcohol Consumption and Burden of Disease in the Americas: Implications for Alcohol Policy." *Revista Panamericana de Salud Pública* 18 (4-5): 241–48. https://doi.org/10.1590/s1020-49892005000900003.

175. Rhum, Christopher J., Alison Snow Jones, Kerry Anne McGeary, William C. Kerr, Joseph V. Terza, Thomas K. Greenfield, and Ravi S. Pandian. 2012. "What U.S. Data Should Be Used to Measure the Price Elasticity of Demand for Alcohol?" *Journal of Health Economics* 31 (6): 851–62. https://doi.org/10.1016/j.jhealeco.2012.08.002.

176. Risi, Stephan, and Robert N Proctor. 2019. "Big Tobacco Focuses on the Facts to Hide the Truth: An Algorithmic Exploration of Courtroom Tropes and Taboos." *Tobacco Control*, September, tobaccocontrol-2019-054953. https://doi.org/10.1136/tobaccocontrol-2019-054953.

177. Rojas, Christian, and Everett B. Peterson. 2008. "Demand for Differentiated Products: Price and Advertising Evidence from the U.S. Beer Market." *International Journal of Industrial Organization* 26 (1): 288–307. https://doi.org/10.1016/j.ijindorg.2006.12.003.

178. Ross, Hana, Deliana Kostova, Michal Stoklosa, and Maria Leon. 2013. "The Impact of Cigarette Excise Taxes on Smoking Cessation Rates from 1994 to 2010 in Poland, Russia, and Ukraine." *Nicotine & Tobacco Research* 16 (Suppl 1): S37–43. https://doi.org/10.1093/ntr/ntt024.

179. Ross, Hana, Jean Tesche, and Nicole Vellios. 2017. "Undermining Government Tax Policies: Common Legal Strategies Employed by the Tobacco Industry in Response to Tobacco Tax Increases." *Preventive Medicine* 105 (December): S19–22. https://doi.org/10.1016/j.ypmed.2017.06.012.

180. Sargent, Richard P, Robert M Shepard, and Stanton A Glantz. 2004. "Reduced Incidence of Admissions for Myocardial Infarction Associated with Public Smoking Ban: Before and after Study." *BMJ : British Medical Journal* 328 (7446): 977–80. https://doi.org/10.1136/bmj.38055.715683.55.

181. Scarborough, Peter, Vyas Adhikari, Richard A. Harrington, Ahmed Elhussein, Adam Briggs, Mike Rayner, Jean Adams, Steven Cummins, Tarra Penney, and Martin White. 2020. "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* 17 (2): e1003025. https://doi.org/10.1371/journal.pmed.1003025.

182. Shang, Ce, Frank J. Chaloupka, Prakash C. Gupta, Mangesh S. Pednekar, and Geoffrey T. Fong. 2019. "Association between Tobacco Prices and Smoking Onset: Evidence from the TCP India Survey." *Tobacco Control* 28 (Suppl 1): s3–8. https://doi.org/10.1136/tobaccocontrol-2017-054178.

183. Shang, Ce, Frank J. Chaloupka, and Deliana Kostova. 2013. "Who Quits? An Overview of Quitters in Low- and Middle-Income Countries." *Nicotine & Tobacco Research* 16 (Suppl 1): S44–55. https://doi.org/10.1093/ntr/ntt179.

184. Shang, Ce, Anh Ngo, and Frank J. Chaloupka. 2020. "The Pass-through of Alcohol Excise Taxes to Prices in OECD Countries." *The European Journal of Health Economics* 21 (6): 855–67. https://doi.org/10.1007/s10198-020-01177-w.

185. Sharma, Anurag, Brian Vandenberg, and Bruce Hollingsworth. 2014. "Minimum Pricing of Alcohol versus Volumetric Taxation: Which Policy Will Reduce Heavy Consumption without Adversely Affecting Light and Moderate Consumers?" *PLoS ONE* 9 (1): e80936. https://doi.org/10.1371/journal.pone.0080936.

186. Silver, Lynn D, Shu Wen Ng, Suzanne Ryan-Ibarra, Lindsey Smith Taillie, Marta Induni, Donna R Miles, Jennifer M Poti, and Barry M Popkin. 2017. "Changes in Prices, Sales, Consumer Spending, and Beverage Consumption One Year after a Tax on Sugar-Sweetened Beverages in Berkeley, California, US: A Before-And-after Study." *PLoS Medicine* 14 (4): e1002283. https://doi.org/10.1371/journal.pmed.1002283.

187. Singh, Gitanjali M., Renata Micha, Shahab Khatibzadeh, Stephen Lim, Majid Ezzati, and Dariush Mozaffarian. 2015. "Estimated Global, Regional, and National Disease Burdens Related to Sugar-Sweetened Beverage Consumption in 2010." *Circulation* 132 (8): 639–66. https://doi.org/10.1161/circulationaha.114.010636.

188. Singh, Gitanjali M., Renata Micha, Shahab Khatibzadeh, Peilin Shi, Stephen Lim, Kathryn G. Andrews, Rebecca E. Engell, Majid Ezzati, and Dariush Mozaffarian. 2015. "Global, Regional, and National Consumption of Sugar-Sweetened Beverages, Fruit Juices, and Milk: A Systematic Assessment of Beverage Intake in 187 Countries." Edited by Michael Müller. *PLOS ONE* 10 (8): e0124845. https://doi.org/10.1371/journal.pone.0124845.

189. Slade, Tim, Cath Chapman, Wendy Swift, Katherine Keyes, Zoe Tonks, and Maree Teesson. 2016. "Birth Cohort Trends in the Global Epidemiology of Alcohol Use and Alcohol-Related Harms in Men and Women: Systematic Review and Metaregression." *BMJ Open* 6 (10): e011827. https://doi.org/10.1136/bmjopen-2016-011827.

190. Smith, Adam. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. McMaster University Archive for the History of Economic Thought, number smith 1776. https://ideas.repec.org/b/hay/hetboo/smith1776.html.

191. Smith, Katherine E., Emily Savell, and Anna B. Gilmore. 2013. "What Is Known about Tobacco Industry Efforts to Influence Tobacco Tax? A Systematic Review of Empirical Studies." *Tobacco Control* 22 (2): e1–1. https://doi.org/10.1136/tobaccocontrol-2011-050098.

192. Smith, Travis A., Biing-Hwan Lin, and Jong-Ying Lee. 2010. "Taxing Caloric Sweetened Beverages: Potential Effects on Beverage Consumption, Calorie Intake, and Obesity." *USDA-ERS Economic Research Report No. 100*. Washington, D.C.: United States Department of Agriculture (USDA). https://doi.org/10.2139/ssrn.2118636.

193. Sornpaisarn, Bundit, Kevin D. Shield, Joanna E. Cohen, Robert Schwartz, and Jürgen Rehm. 2015. "Can Pricing Deter Adolescents and Young Adults from Starting to Drink: An Analysis of the Effect of Alcohol Taxation on Drinking Initiation among Thai Adolescents and Young Adults." *Journal of Epidemiology and Global Health* 5 (4): S45–57. https://doi.org/10.1016/j.jegh.2015.05.004.

194. Srivastava, Preety, Keith R. McLaren, Michael Wohlgenant, and Xueyan Zhao. 2015. "Disaggregated Econometric Estimation of Consumer Demand Response by Alcoholic Beverage Types." *Australian Journal of Agricultural and Resource Economics* 59 (3). https://ideas.repec.org/a/ags/aareaj/283211.html.

195. Stacey, Nicholas, Aviva Tugendhaft, and Karen Hofman. 2017. "Sugary Beverage Taxation in South Africa: Household Expenditure, Demand System Elasticities, and Policy Implications." *Preventive Medicine* 105 (December): S26–31. https://doi.org/10.1016/j.ypmed.2017.05.026.

196. Stockings, Emily, Wayne D Hall, Michael Lynskey, Katherine I Morley, Nicola Reavley, John Strang, George Patton, and Louisa Degenhardt. 2016. "Prevention, Early Intervention, Harm Reduction, and Treatment of Substance Use in Young People." *The Lancet Psychiatry* 3 (3): 280–96. https://doi.org/10.1016/s2215-0366(16)00002-x.

197. Stoklosa, Michal, Jeffrey Drope, and Frank J. Chaloupka. 2016. "Prices and E-Cigarette Demand: Evidence from the European Union." *Nicotine & Tobacco Research: Official Journal of the Society for Research on Nicotine and Tobacco* 18 (10): 1973–80. https://doi.org/10.1093/ntr/ntw109.

198. Substance Abuse and Mental Health Services Administration (US), and Office of the Surgeon General (US). 2016. *Facing Addiction in America: The Surgeon General's Report on Alcohol, Drugs, and Health*. Washington, D.C.: US Department of Health and Human Services. https://pubmed.ncbi.nlm.nih.gov/28252892/.

199. Teng, Andrea M., Amanda C. Jones, Anja Mizdrak, Louise Signal, Murat Genç, and Nick Wilson. 2019. "Impact of Sugar-Sweetened Beverage Taxes on Purchases and Dietary Intake: Systematic Review and Meta-Analysis." *Obesity Reviews* 20 (9): 1187–1204. https://doi.org/10.1111/obr.12868.

200. Topiwala, Anya, Klaus P. Ebmeier, Thomas Maullin-Sapey, and Thomas E. Nichols. 2021. "No Safe Level of Alcohol Consumption for Brain Health: Observational Cohort Study of 25,378

UK Biobank Participants." MedRxiv Pre-print (May 12, 2021). https://doi.org/10.1101/2021.05.10.21256931.

201. ———. 2022. "Alcohol Consumption and MRI Markers of Brain Structure and Function: Cohort Study of 25,378 UK Biobank Participants." *NeuroImage: Clinical* 35 (January): 103066. https://doi.org/10.1016/j.nicl.2022.103066.

202. Tversky, Amos, and Daniel Kahneman. 1981. "The Framing of Decisions and the Psychology of Choice." *Science* 211 (4481): 453–58.

203. U.S. Department of Health and Human Services. 2014. "The Health Consequences of Smoking: 50 Years of Progress. A Report of the Surgeon General." Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. https://www.ncbi.nlm.nih.gov/books/NBK179276/.

204. U.S. National Cancer Institute, and World Health Organization. 2016. "The Economics of Tobacco and Tobacco Control." *National Cancer Institute Tobacco Control Monograph 21. NIH Publication No. 16-CA-8029A*. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; and Geneva, Switzerland: World Health Organization. http://cancercontrol.cancer.gov/brp/tcrb/monographs/21/index.html.

205. United Nations. 2022. "Population - Standard Projections." World Population Prospects 2022. United Nations Department of Economic and Social Affairs (UNDESA). 2022. https://population.un.org/wpp/Download/Standard/Population/.

206. United States Public Health Service Office of the Surgeon General, and National Center for Chronic Disease Prevention and Health Promotion (US) Office on Smoking and Health. 2020. "Smoking Cessation: A Report of the Surgeon General." Washington (DC): US Department of Health and Human Services. https://pubmed.ncbi.nlm.nih.gov/32255575/.

207. Van Walbeek, Cornelis, and Grieve Chelwa. 2021. "The Case for Minimum Unit Prices on Alcohol in South Africa." *South African Medical Journal* 111 (7): 680. https://doi.org/10.7196/samj.2021.v111i7.15430.

208. Vandenberg, Brian, and Anurag Sharma. 2015. "Are Alcohol Taxation and Pricing Policies Regressive? Product-Level Effects of a Specific Tax and a Minimum Unit Price for Alcohol." *Alcohol and Alcoholism* 51 (4): 493–502. https://doi.org/10.1093/alcalc/agv133.

209. Vartanian, Lenny R., Marlene B. Schwartz, and Kelly D. Brownell. 2007. "Effects of Soft Drink Consumption on Nutrition and Health: A Systematic Review and Meta-Analysis." *American Journal of Public Health* 97 (4): 667–75. https://doi.org/10.2105/ajph.2005.083782.

210. Vellios, Nicole, and Corné van Walbeek. 2016. "Determinants of Regular Smoking Onset in South Africa Using Duration Analysis." *BMJ Open* 6 (7): e011076. https://doi.org/10.1136/bmjopen-2016-011076.

211. Verguet, Stéphane, Cindy L Gauvreau, Sujata Mishra, Mary MacLennan, Shane M Murphy, Elizabeth D Brouwer, Rachel A Nugent, Kun Zhao, Prabhat Jha, and Dean T Jamison. 2015. "The Consequences of Tobacco Tax on Household Health and Finances in Rich and Poor Smokers in China: An Extended Cost-Effectiveness Analysis." *The Lancet Global Health* 3 (4): e206–16. https://doi.org/10.1016/s2214-109x(15)70095-1.

212. Villanti, Andrea C., Shelly Naud, Julia C. West, Jennifer L. Pearson, Olivia A. Wackowski, Raymond S. Niaura, Elizabeth Hair, and Jessica M. Rath. 2019. "Prevalence and Correlates of Nicotine and Nicotine Product Perceptions in U.S. Young Adults, 2016." *Addictive Behaviors* 98 (November): 106020. https://doi.org/10.1016/j.addbeh.2019.06.009.

213. Viscusi, W. Kip, and Joni Hersch. 2008. "The Mortality Cost to Smokers." *Journal of Health Economics* 27 (4): 943–58. https://doi.org/10.1016/j.jhealeco.2008.01.001.

214. Wada, Roy, Frank J. Chaloupka, Lisa M. Powell, and David H. Jernigan. 2017. "Employment Impacts of Alcohol Taxes." *Preventive Medicine* 105 (December): S50–55. https://doi.org/10.1016/j.ypmed.2017.08.013.

215. Wagenaar, Alexander C, Matthew J Salois, and Kelli A Komro. 2009. "Effects of Beverage Alcohol Price and Tax Levels on Drinking: A Meta-Analysis of 1003 Estimates from 112 Studies." *Addiction (Abingdon, England)* 104 (2): 179–90. https://doi.org/10.1111/j.1360-0443.2008.02438.x.

216. Wang, Hong, Jody L. Sindelar, and Susan H. Busch. 2006. "The Impact of Tobacco Expenditure on Household Consumption Patterns in Rural China." *Social Science & Medicine* 62 (6): 1414–26. https://doi.org/10.1016/j.socscimed.2005.07.032.

217. Wang, Meng, Min Yu, Le Fang, and Ru-Ying Hu. 2014. "Association between Sugar-Sweetened Beverages and Type 2 Diabetes: A Meta-Analysis." *Journal of Diabetes Investigation* 6 (3): 360–66. https://doi.org/10.1111/jdi.12309.

218. World Bank. 2019. "Confronting Illicit Tobacco Trade : A Global Review of Country Experiences." *World Bank Group Global Tobacco Control Program*. Washington, D.C.: World Bank. https://documents1.worldbank.org/curated/en/677451548260528135/pdf/133959-REPL-PUBLIC-6-2-2019-19-59-24-WBGTobaccoIllicitTradeFINALvweb.pdf.

219. ———. 2020. "Taxes on Sugar-Sweetened Beverages: International Evidence and Experiences." Washington, D.C.: World Bank. https://thedocs.worldbank.org/en/doc/d9612c-480991c5408edca33d54e2028a-0390062021/original/World-Bank-2020-SSB-Taxes-Evidence-and-Experiences.pdf.

220. ———. 2023. "World Development Indicators." World Bank Open Data. World Bank. 2023. https://data.worldbank.org/.

221. World Health Organization (WHO). 2014. "Global Status Report on Alcohol and Health 2014." Geneva: Switzerland: World Health Organization. https://www.who.int/publications/i/item/global-status-report-on-alcohol-and-health-2014.

222. ———. 2017a. "Tackling NCDs: 'Best Buys' and Other Recommended Interventions for the Prevention and Control of Noncommunicable Diseases." Geneva: Switzerland: World Health

Organization. https://www.who.int/publications-detail-redirect/WHO-NMH-NVI-17.9.

223. ———. 2017b. "Taxes on Sugary Drinks: Why Do It?" Geneva: Switzerland: World Health Organization. https://iris.who.int/bitstream/handle/10665/260253/WHO-NMH-PND-16.5Rev.1-eng.pdf.

224. ———. 2018. *Global Status Report on Alcohol and Health 2018*. Geneva: Switzerland: World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/274603/9789241565639-eng.pdf.

225. ———. 2019a. "Tobacco Industry: Decades of Deception and Duplicity." Geneva, Switzerland: World Health Organization. https://applications.emro.who.int/docs/FS-TFI-198-2019-EN.pdf?ua=1.

226. ———. 2019b. *WHO Global Report on Trends in Prevalence of Tobacco Use 2000-2025*. Third Edition. Geneva, Switzerland: World Health Organization. https://www.who.int/publications/i/item/who-global-report-on-trends-in-prevalence-of-tobacco-use-2000-2025-third-edition.

227. ———. 2019c. "WHO Report on the Global Tobacco Epidemic, 2019 : Offer Help to Quit Tobacco Use." Geneva, Switzerland: World Health Organization.

228. ———. 2020. "Alcohol Pricing in the WHO European Region: Update Report on the Evidence and Recommended Policy Options." Geneva, Switzerland: World Health Organization.

229. ———. 2021. "WHO Report on the Global Tobacco Epidemic 2021: Addressing New and Emerging Products." Geneva: Switzerland: World Health Organization. https://www.who.int/publications/i/item/9789240032095.

230. ———. 2022. "Sugar-Sweetened Beverage Taxes in the WHO European Region: Success through Lessons Learned and Challenges Faced." Geneva: Switzerland: World Health Organization. https://www.who.int/europe/publications/i/item/WHO-EURO-2022-4781-44544-63081.

231. Wu, Daphne C., Geordan Shannon, Luz Myriam Reynales-Shigematsu, Belen Saenz de Miera, Blanca Llorente, and Prabhat Jha. 2021. "Implications of Household Tobacco and Alcohol Use on Child Health and Women's Welfare in Six Low and Middle-Income Countries: An Analysis from a Gender Perspective." *Social Science & Medicine* 281 (July): 114102. https://doi.org/10.1016/j.socscimed.2021.114102.

232. Yin, Jiawei, Yalun Zhu, Vasanti Malik, Xiaoqin Li, Xiaolin Peng, Fang Fang Zhang, Zhilei Shan, and Liegang Liu. 2021. "Intake of Sugar-Sweetened and Low-Calorie Sweetened Beverages and Risk of Cardiovascular Disease: A Meta-Analysis and Systematic Review." *Advances in Nutrition* 12 (1): 89–101. https://pubmed.ncbi.nlm.nih.gov/32696948/.

233. Young, Douglas J., and Agnieszka Bielińska-Kwapisz. 2002. "Alcohol Taxes and Beverage Prices." *National Tax Journal* 55 (1): 57–73. https://doi.org/10.17310/ntj.2002.1.04.