Sugar, Rum, and Tobacco: Domestic Resource Mobilization for Low-Income Countries Through Excise Taxes

William Savedoff and Ruth Lopert

Abstract

When today's high-income countries were looking for revenues in the 18th and 19th centuries, "tobacco, rum and sugar" (as Adam Smith wrote) were considered perfect candidates for raising revenues. Over time, such excise taxes have played a smaller role in their total revenues and the focus on such "health taxes" has shifted toward their public health benefits. Nevertheless, today's low-income countries are having difficulty raising the resources they need for public programs. Health taxes could be a new revenue source that addresses this problem.

While excise taxes decrease consumption and create public health benefits, the central focus of this paper is on the revenue they generate. The paper provides a comprehensive overview of issues relevant to using health taxes to raise revenues in low-income countries. The paper argues that in low-income countries, health taxes can raise enough revenue to make them worthwhile and that health taxes may be better candidates for mobilizing domestic resources than some other taxes. It reviews some of the concerns about excise taxes, such as illicit trade, and shows how they tend to be exaggerated and that solutions are available. It explains how to design health taxes to be more effective and efficient; and concludes by discussing political strategies that have been used to successfully enact health taxes in many countries.

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Introduction

Taxing "bads" – the levying of taxes on tobacco, alcohol and sugary beverages—is a far from modern idea. The ancient Egyptians were subject to a beer tax, ostensibly to support wars against Rome, or, according to some, to deter public drunkenness (Mark 2011). More recently, in the 18th and 19th centuries the US and European countries levied taxes on tobacco, rum, and sugar to generate much needed revenues. In 1764, when Britain's coffers had been drained by wars in North America, Parliament began enforcing tariffs on sugar and molasses imported from the colonies. Later the US imposed taxes on whisky, first to pay off the revolutionary war debt, and later to retire its civil war debt.[1,2]

Governments tended to tax products that were easier to administer and enforce, such as levying customs duties in ports. In 1776, Adam Smith wrote in *The Wealth of Nations*: "Sugar, rum and tobacco are commodities which are nowhere necessaries of life, which are become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation."

Today, 188 countries tax tobacco, and more than 160 tax alcohol. Taxes on sugary beverages exist in one form or another in at least 39 countries and have even been described as 'the new normal' (Silver 2018). Only in the last 50 years, however, has the motivation for taxing these products shifted toward the goal of improving public health. Extensive evidence shows that taxing tobacco, alcohol and sugary beverages is a cost-effective way of discouraging consumption, and thereby reducing death and disease.

The first countries to significantly raise these taxes for health reasons were wealthier nations with effective tax administrations that relied primarily on income and broad-based consumption taxes for government revenue. Even so, the additional revenues were a welcome benefit of raising these taxes, and were significant in both absolute and relative terms in some jurisdictions. Later, public health goals became the primary driver of efforts to tax tobacco, alcohol and sugary beverages, with revenue tending to be a secondary objective.

In light of this focus on health, and with revenue a subsidiary concern, fiscal authorities have generally paid less attention to these taxes. Yet there are specific characteristics of low-income countries which we discuss later, that suggest excise taxes may be an ideal source of domestic revenue mobilization. This therefore prompts the question:

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[1] https://www.ttb.gov/about/history.shtml, accessed April 24, 2019.

[2] A century later, the repeal of Prohibition was prompted "…as much by the need for revenue as by the desire to eradicate the evils that grew out of that social experiment. …The economic depression made it impossible for either federal or local governments to derive enough funds from the already overburdened taxpayers". See Harrison LV, Laine E. *After Repeal: A Study Of Liquor Control Administration* (New York: Harper and Brothers, 1936)

Given the specific characteristics of low-income countries and the health benefits of excise taxes on "bads", should raising these taxes be supported and promoted more strongly in low-income countries?

While not an exhaustive treatment of this question, this paper aims to be comprehensive in canvassing the full range of issues relevant to the use of health taxes to raise revenues in low-income countries. While excise taxes decrease consumption and create public health benefits, the central focus of this paper is on the revenue they generate.

The following sections thus present a series of questions that need to be answered. Where the research literature offers relatively well-supported answers, the findings are summarized. For the remainder, hypotheses are suggested or questions are left unanswered, as prompts for further research. The various issues are grouped under five broad questions:

- *Can health taxes raise enough revenue to make them worthwhile?*
- *Do health taxes create more problems than they solve?*
- *How do health taxes compare with other forms of taxation?*
- *What designs make health taxes more effective and efficient?*
- *What are the required political contexts or strategies for collecting health taxes?*

Can health taxes raise enough revenue to make them worthwhile?

A common objection to putting both political capital and administrative effort toward raising health taxes is that they are unlikely to raise sufficient revenue. However, this only raises a further question: what determines whether revenue is "sufficient"? Is the appropriate standard the absolute amount of funds raised or relative to GDP, alternative sources of revenue, or the costs of administering and enforcing collection?

The amount of revenues from health taxes can be significant in absolute terms. In 2016 taxes on tobacco raised almost US$1 billion in South Africa, and around US$2 billion in both Mexico and the Philippines (see Table 1). Revenues from alcohol and sugary beverage taxes were also substantial. While these revenues are significant as a proportion of government spending on health, they are modest relative to total revenues. Health tax revenues range from about one-fifth of government health spending in South Africa and Mexico, to almost two-thirds in the Philippines. Yet, relative to total revenues, they represent about 2 percent in Mexico, 3 percent in South Africa, and 5 percent in the Philippines.

Table 1: Health Tax Revenues in Selected Middle-Income Countries (circa 2016)

(2016 US$ millions)

	Mexico	South Africa	Philippines
Revenues from…			
Tobacco	2,030.3	934.27	1,884.5
Alcohol	2,462.31	1,772.75	n.d.
Sugary Beverages	1,244.57	163.42	793.33
Total health tax revenues	5,737.18	2,870.44	2,677.83
Total health tax revenues as share of (%):			
Public health spending	19	22	63
Total government revenue	2	3	5
GDP	1	1	1

Notes and sources: Mexican data for each product are from the Ministry of Finance. Tobacco data for South Africa and the Philippines are from the most recent year reported for each country in the WHO Report on the Global Tobacco Epidemic (2017). Alcohol data are from the WHO Global Health Observatory. South Africa's sugary beverage tax revenues are for 2018 as reported by the Ministry of Finance. The Philippines' sugary beverage revenues are based on a 2018 projection from WHO. Public health spending data are from WHO (GGHE-D, 2016); Total Government Revenue data are from the IMF Government Finance Statistics (2016) database; and GDP figures are from the IMF WEO (2016).

Of course, health tax rates could be increased in these countries; doubling these rates would significantly increase the health tax contribution to overall revenues. However, these are middle-income countries with significant tax bases and relatively robust institutional capacity, so the amounts generated are always likely to be small relative to the contribution of income and consumption taxes. That said, none of this discussion of revenue capacity detracts from the health benefits of these taxes, which have been significant (Chaloupka and Powell 2018).

But what would these figures look like in low-income countries? There the relative amounts of revenue that could be generated are likely to be much larger. Simulations from the William Davidson Institute (WDI) for 16 low-income countries (Table 2) provide some idea of the potential magnitude (Davis et al., 2019). These were developed to provide a rough guide to the scale of revenues that could be raised, and are not intended to represent precise projections for any individual country or product.

The simulations use demand elasticities for each country that are derived from the median rates among a group of peer countries. The estimates assume full pass-through of the taxes to prices, so in each case the impact should be interpreted as the result of the percentage increase in price, noting that achieving that price increase may actually require a proportionally larger tax hike. The estimates presented in Table 2 are arguably conservative, being based on a simulation that assumed no price would increase by more than 50 percent, and that only one-third of the revenues would be collected due to poor tax enforcement capacity. However, they are still only partial equilibrium estimates.

Table 2: Estimated Health Tax Revenues in Selected Low-Income Countries

(2016 US$ millions)

	Haiti	Myanmar	Papua New Guinea	Tanzania
Revenues from…				
Tobacco	14	109	259	50
Alcohol	595	1,431	137	369
Sugary Beverages	616	1,828	410	684
Total health tax revenues	1,135	3,368	806	1,103
Total health tax revenues as share of (%):				
Total health expenditure	113	58	55	24
Total government revenue	n.d.	45	15	12
GDP	7.7	2.9	2.2	1.4

Note: Values are additional tax revenue in 2016 in response to tax increases that raise prices by 50 percent, except for a few cases where the revenue-maximizing rate is lower than 50 percent, and assume only one-third of revenues are effectively collected. Estimates are based on price-demand response and do not incorporate general equilibrium effects.
Source: Davis et al., 2019.

The results for 16 low-income countries show that raising taxes that increase product prices by 50 percent, and are only effective at collecting one-third of the taxes due, could still generate revenues ranging from 9 percent of total health expenditure in Senegal to more than 100 percent in Haiti and Lao PDR.[3] This confirms that price-elasticity is not a limiting factor and that low-income countries could potentially raise significant funds from health taxes.

The potential to raise funds from health taxes is further constrained when the revenues become significant shares of national income (GDP). At this scale, income elasticities grow in importance relative to price elasticities. For example, at 1.4% of GDP, the revenue potential for Tanzania reported in Table 2 might be considered plausible. However, it is difficult to imagine Haiti collecting 7.7% of GDP through health taxes without substantial macroeconomic adjustment. Thus, while health taxes can clearly raise significant revenues in low-income countries, the experience of middle-income countries in Table 1 should be kept in mind when anticipating the actual amounts that might be raised relative to GDP.

Tax collection and administration are important constraints, especially in countries with conflicts or weak public institutions. Decisions about tax policy and design must account for existing administrative capacity. In doing so, countries can consider whether improvements in administrative capacity would be better deployed to collect taxes from widely dispersed retailers (in the case of VAT), public facilities (in the case of user fees), and households (in the case of income taxes), rather than from ports and factories (through excise taxes on tobacco, alcohol or sugary beverages). At a minimum, calculations of potential revenues should be adjusted for the estimated costs of implementation and enforcement.

Do health taxes create more problems than they solve?

Health taxes are consistently opposed by the industries that manufacture and distribute these products, using a variety of arguments that are at worst, factually wrong, and at best, misleading. Typically, these objections fail to justify opposing health taxes, though they do bring attention to the need for complementary policies to ensure they are effective at reducing consumption, raising revenues, *and* addressing equity. These objections also illustrate some of the key ways that industries marshal political opposition, by identifying and mobilizing groups that may be harmed by such taxes, and for whom compensatory policies might be in order. Some of the most common claims are that health taxes will:

- *reduce consumption so much that revenues will fall;*
- *reduce employment in agriculture, manufacturing, and distribution;*
- *lead to smuggling, which will cause revenues to fall, and encourage lawlessness;*
- *lead to substitution with other, and in some cases, more harmful or illicit products; and*
- *disproportionately harm the poor.*

Revenues

Health tax opponents regularly claim that raising taxes will reduce consumption so much that revenues will fall, but this is fundamentally a theoretical and not an empirical claim. For revenues to fall after a tax increase, the product of the price elasticity of demand and the tax increase must be large relative to the price.[3] However, the elasticities of demand for tobacco and alcohol are consistently low (-0.5 to -0.6 on average), which makes this a relatively unlikely scenario. Sugary beverages tend to have higher elasticities of demand and would presumably reach a point at which revenues started to decline, at a lower tax rate.

While it can be difficult to estimate these parameters with precision, we can draw on past experience, which has consistently shown that raising taxes on tobacco, alcohol, and sugary beverages leads to higher revenues. Where middle-income countries have increased taxes on these products, they have also increased revenues (see Table 3). Although most of the research on this relationship is available for tobacco (NCI and WHO 2016), experience with alcohol and sugary beverage taxes has shown similar results (Chaloupka and Powell 2018).

[3] See Appendix 2 for a formal statement of this proposition.

Table 3: Health tax increases and resulting revenues in selected countries

Country/product	Years	Tax increase	Increase in Revenues (US$ millions)
Philippines (tobacco)	2012 to 2015	76% to 167%	1,280
South Africa (alcohol)	2006/07 to 2015/16	25% for wine 17% for beer 75% for spirits	780
Mexico (sugary beverages)	2014 to 2015	~10%	1,000
Colombia (tobacco)	2016 to 2017	200%	106

Note: The tax increase column may be the effect on prices after the introduction of the tax or the actual rate. Revenues are converted from domestic currency at the foreign exchange rate at the end of the period.
Sources: Figures or estimated from information in Task Force on Fiscal Policy for Health 2019b with the exception of the Colombian figures which are taken from Task Force on Fiscal Policy for Health 2019a.

Employment

If taxing tobacco, alcohol, and sugary beverages reduces consumption, then it is likely to impact employment in the affected sectors. However, when industries use these arguments to oppose tax increases, they exaggerate the scale of the impact, and ignore how shifting demand will increase employment in other sectors. They also deflect attention from the harmful effects of production that frequently involves child labor and damage to workers' health through exposure to nicotine, pesticides, and other toxic chemicals (Marquéz et al. 2017; Fuchs et al. 2019).

Studies find that aggregate employment is unlikely to decline when consumers shift spending to other products, and governments spend augmented revenues on goods and services. In response to tobacco taxes, overall employment is either unaffected or experiences modest gains when consumers reallocate their spending and demand other goods (NCI and WHO 2016; Marquéz et al. 2017). In the US and Mexico, studies have found similar conclusions for alcohol and sugary beverage taxes (Wada et al. 2017; Guerrero-Lopez et al. 2017; Powell et al. 2014).

However, focusing on aggregate employment ignores sectoral and distributional variations and neglects adjustment costs. While every country differs in this regard, depending on the nature and extent of domestic production, even local effects on employment and incomes may be relatively modest. China is the world's biggest tobacco leaf producer, yet only 2 percent of its farmers grow tobacco alongside other more remunerative crops (Hu, et al., 2007). The share of employment in tobacco growing regions is higher, but farmers can

adjust by growing other, often more remunerative, crops.[4] Declining employment in tobacco growing and cigarette manufacturing are mainly the result of mechanization and market changes, not taxes. In a country such as Malawi, which depends heavily on tobacco exports, raising domestic taxes on consumption is unlikely to affect employment because domestic consumption is only a small share of the market. Instead, tobacco taxes represent an effective policy for improving domestic health and mobilizing domestic revenue, with minimal impact on employment.

The appropriate policy response to these sectoral and distributional concerns is not to oppose taxes, but to provide compensation or support for workers affected by shifting production. Policies that address the substantive distributional impact of the taxes on workers can help mitigate political opposition to health taxes.

Poverty and regressivity

While health tax opponents argue that these taxes disproportionately harm the poor and are regressive, it is actually the health and financial consequences of consuming the products that are often regressive and most harmful to the poor. Poorer households tend to face more hardship from the diseases associated with consuming tobacco, alcohol, and sugary beverages than richer households. They also tend to be more responsive to price increases. Consequently, most studies find that poor households experience net benefits when health taxes are increased. In essence, the money spent on taxes is offset by savings from the reduced consumption of these toxic products, the avoidance of associated health care costs, and the loss of fewer working days (Gruber 2003; Sassi et al. 2018; Fuchs and Meneses 2017, 2018; Global Tobacco Economics Consortium 2018).

Nevertheless, the impact in individual countries or associated with particular products may diverge from this broader tendency of health taxes to differentially benefit the poor. The actual impact will depend upon several factors, including the relative prevalence of consumption by income group, responsiveness to price increases, and financing mechanisms for health care. While studies regularly find that poor households as a group tend to benefit disproportionately from health taxes, the distributional consequences within income classes may be significant. Households that reduce or eliminate consumption of these products benefit substantially, while households that continue to consume these products will face higher expenditures. As with employment, the appropriate policy response is not to oppose these taxes; rather it is to implement compensatory programs, such as cash grants, and

[4] A study in Sichuan Province calculated that tobacco had lower returns than vegetable oil, beans, or fruit and was comparable to grains. Another in Yunnan estimated returns to tobacco were lower than the other crops. Some reasons farmers may continue to grow tobacco: (1) local governments encourage cultivation because they derive substantial tax revenue from it; (2) the national tobacco monopoly provides fertilizer, seeds and other extensions services which are not available for other crops; and (3) it may diversify risk (Hu, et al., 2007). Regardless of the specific features of any particular market, it is likely (as in China's case) that the effects of reducing tobacco production are likely to be small or, if significant to particular populations, easily compensated if national governments were willing to put some portion of new tax revenue into such programs.

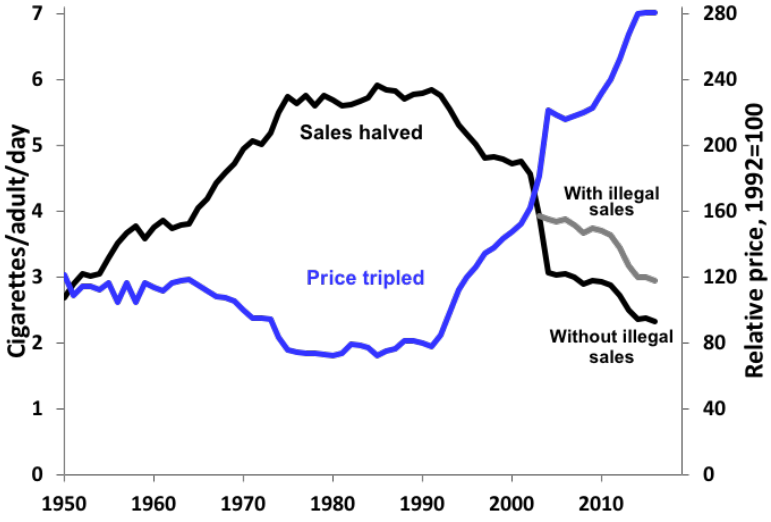
programs that help poor households to reduce consumption, such as assistance in smoking cessation, addressing alcoholism, and improving diet.

Substitution and illicit trade

Tax opponents argue that raising taxes will lead to tax evasion and illicit trade (including smuggling). Consumers may adjust their behavior to avoid paying health taxes by, for example, purchasing black market cigarettes, making 'home brew', or purchasing across borders (Allcott et al 2019).

This argument can only be verified empirically and research demonstrates that these objections are generally weak or wrong. For example, the major factor associated with differences across countries in illicit trade is not price differentials, but tax enforcement capacity (Dutta, ed. 2019). Second, in almost all situations where taxes have been increased, evasion and illicit trade have not been so extensive as to offset entirely declines in consumption and increases in revenues (see Fig. 1). Third, despite images of people bootlegging across borders, significant illicit trade typically requires complicity or self-interested ignorance on the part of large manufacturers. Cigarette companies paid billion-dollar damages to Canada, the UK, and the EU for their role in encouraging illicit trade during the late 1990s and early 2000s. Although smuggling has declined over the last 20 years,a variety of other illicit methods, such as parallel trade, are used to evade taxes (Joossens and Raw 2012). In sum, concerns about illicit trade do not justify opposing tax increases, but they do merit attention to improving tax enforcement, and coordinating tax policies between neighboring countries.

Figure 1: Higher Taxes in the 1990s Raised Prices and Reduced Sales in France, Despite Illegal Trade



Source: Provided by Prabhat Jha to the authors based on research he conducted with Catherine Hill, not yet published.

How do health taxes compare with other forms of taxation?

When considering whether a low-income country should introduce or raise health taxes, one of the questions is how raising revenue from these taxes differs from other sources of revenue such as VAT, income, import duties, or property taxes. There are at least four aspects to this question:

- *Are health taxes economically or fiscally more efficient than other taxes?*
- *Do health taxes require less government capacity than other taxes?*
- *Could the optimal path for developing tax capacity begin with health taxes?*
- *Is technical support available for health taxes, or only for other sources of revenue?*

Are health taxes economically or fiscally more efficient than other taxes?

Economic theory holds that taxes that lead to less market distortion are more economically efficient than others. Health taxes may therefore be more economically efficient than other taxes for at least two reasons. First, consumption of products like tobacco, alcohol, and sugary beverages leads to both negative externalities and "internalities" (Allcott et al., 2019; Chaloupka et al., 2019). By raising the price of these products, it encourages consumers to internalize the social costs of their consumption. Second, and perhaps more importantly, health taxes may be a more efficient source of additional revenues than other taxes that might otherwise discourage investment, production or healthy consumption. So, for example, an optimal tax on alcohol might be quite high, to the extent that it can substitute for, or forestall increases in labor taxes (Parry et al. 2009).

Do health taxes require less government capacity than other taxes?

The challenge of collecting taxes depends on the context, the characteristics of the goods or services being taxed, and the complexity of the tax. In low-income countries, large informal sectors make it difficult both to register taxpayers and to discourage evasion of income taxes and VAT. Property taxes are also difficult to collect where land registration is limited, and in many cases, where governments do not revalue assets over time. Customs duties are somewhat easier to collect, but where evasion of these taxes is high, it can be due to difficulty in limiting corrupt practices.

Like most excise taxes, health taxes are not necessarily *easy* to collect, but they do have some features that can make them less difficult to collect in low-income countries, depending on the structure of the market and the availability of locally produced substitutes. Tobacco and sugary beverages are typically highly concentrated industries, making it feasible to tax imports on entry, and at the factory for domestic production. The manufacture and

distribution of alcoholic beverages have undergone massive concentration in the past two decades and may also be taxed at ports and factories. Both the administrative and political feasibility of taxation will vary with market structure which is quite diverse; some of these markets are dominated by state-sanctioned monopolies, others by numerous small producers, and still others by multinational corporations.

Substitution also varies across countries. For example, countries with domestic tobacco production would have to enforce cigarette taxes, while simultaneously discouraging or regularizing informal production and sales. Sugary beverages already have many substitutes, so it is unlikely that informal production would thrive. Alcoholic beverages, however, are readily produced in small batches, and efforts to discourage and regulate such production would be an issue in most places.

Despite these difficulties, the potential for evasion does not justify opposition to health tax increases; it simply raises two other questions. First, will the evasion be significant enough to offset the additional revenues and positive health impacts? Second, are the costs and capacities required for the collection of health taxes greater than those required for taxing income, VAT, or property? The answers will vary across countries depending on a number of factors, including the market structure and the availability of substitutes for the taxed products on the one hand, and the level of informality on the other. Nevertheless, the historical record suggests that the answers to these questions are both negative.

Could the optimal path for developing tax capacity begin with health taxes?

A government's ability to raise revenues depends not only on the tax base itself, but also on factors such as respect for government institutions; the government's credibility in detecting and punishing evasion; and the capacity of government institutions to design, implement, monitor, evaluate, and enforce tax policies. The tax system forms one of the major interfaces between citizens and the state, thus the way in which taxes are administered can fundamentally influence public trust in government (Bird 2015). Most countries with effective tax systems have developed respect, credibility and capacity over long periods of time.

International support for low-income countries seeking to mobilize additional revenues appears to be focused on income taxes and VAT, on the reasonable justification that these are the taxes with the broadest bases and are therefore most likely to generate substantial revenues without generating large market distortions. In this case, health taxes are seen as a relatively modest source of revenues that merely complements the main sources.

However, if governments can only collect revenues effectively when public institutions attain a certain level of capacity, credibility and respect, it is possible that a dynamic approach could begin with taxes that are easier to collect. Then countries would learn by doing, and could progressively expand their capacity to collect more difficult-to-implement taxes. In cases where health taxes are easier to collect, this argument would suggest *beginning* with

health taxes, and using them as a learning process to build institutional capacity, which could then be applied to other taxes.

Designing an optimal path for developing tax capacity is likely to be subject to considerable judgment, but could be informed by the relative difficulties of raising different taxes. If the historical record is any guide, it is clear that today's wealthy countries relied more heavily on customs duties and taxes on tobacco, alcohol and sugar when they had income levels comparable to today's low-income countries. For example, Britain introduced steep tariffs on wine imports from France in the early 18th century, which protected domestic brewers. It then levied high excise taxes on the breweries, using its ability to withdraw protection as a lever to ensure compliance (Nye 2007).

Is technical support available for health taxes or only for other sources of revenue?

Low-income countries rely a great deal on external actors, both public and private, for assistance in improving their capacity to raise taxes. The World Bank and IMF play a prominent role in tax policy debates through policy dialogue and lending programs. They also collaborate with other institutions through initiatives such as the Platform for Collaboration on Tax and tools such as the Tax Policy Assessment Framework. The OECD and many OECD countries provide direct assistance to countries, either through bilateral programs or technical assistance from their Finance Ministries. UN Agencies, philanthropies, and non-profit organizations are also involved in providing such technical assistance.

Based on OECD-DAC data for 2016, low- and middle-income countries received a total of $301 million in overseas development aid for domestic revenue mobilization, most of which went to Asian and African countries. The top donors were the UK ($40.8 million), US ($36.8 million), Germany ($29.8 million), IDA ($14.4 million), and Norway ($13.7 million) (D'Alelio 2019). We were unable to find summary information about the nature of this technical assistance disaggregated by particular forms of taxation. If such data were available, it might be possible to determine the focus of most technical support and assess whether additional resources should be applied to introducing or improving health tax policies.

What designs make health taxes more effective and efficient?

In *The Wealth of Nations*, Adam Smith argued that taxation should adhere to the four principles of fairness, certainty, convenience and efficiency. Efficiency pertains to the collection of taxes: put simply, tax collection should not adversely affect the allocation and use of resources in the economy, and (naturally) should not cost more than the revenue generated. A great deal of research and analysis, frameworks and tools are available to guide countries in designing efficient tax systems in general, and efficient health taxes in particular (Chaloupka and Powell 2018; WHO 2010). This section focuses on best practices in designing health taxes, with the qualification that countries need to consider the context in

which the health taxes are being implemented and how these taxes will interact with and affect other sources of revenue.

Simplicity

Simpler health taxes are easier to administer and enforce. They are therefore more likely to reduce consumption and raise revenues. Experience with tobacco taxes shows that a single, large, specific tax per pack or per cigarette is generally more effective than an *ad valorem* tax or a tax with multiple tiers.

When manufacturers are unable to forestall health taxes, they often argue for *ad valorem* taxes on the basis that they are more equitable than specific taxes, as the absolute amount of the tax will be greater on higher-priced products. Ad valorem taxes do have the benefit of keeping pace with inflation. However, they also give rise to larger price differentials between brands, creating more scope for consumers to substitute downward as prices increase (Chaloupka and Powell LM 2018). By contrast, the use of a single, large, specific tax tends to narrow price gaps between brands, thereby reducing the tendency for smokers to "trade down" (NCI and WHO 2016). For this reason, specific taxes are strongly recommended for health taxes because they are likely to reduce consumption more than a comparable ad valorem tax.

A strong argument can be made for taxing alcohol on the basis of ethanol content, and sugary beverages based on sugar content, since ethanol and sugar are the toxic components of those beverages. South Africa's experience with taxing beer bears this out (Blecher 2015). However, from a tax administration perspective, it may be easier to collect taxes based on total volume—like Mexico's peso per liter sugary beverage tax—rather than content. (Francis 2017). This is an empirical question that could be investigated for low-income countries (Grummon et al., 2019).

Indexation

For countries that apply specific taxes, indexation is critical to maintaining the real value of the tax over time, yet few countries actually build automatic inflation adjustments into their legislation. In low- and middle-income countries, rapid income growth has made tobacco, alcohol and sugary beverages more affordable over time, even in the presence of significant tax increases. South Africa has indexed its alcohol taxes to inflation since 1994 (Task Force on Fiscal Policy for Health 2019b), while Australia currently indexes tobacco taxes at a rate

in excess of both inflation and wages growth[5], thereby ensuring that cigarettes do not become more affordable over time. (Hirono 2017).

The health-revenue trade-off

A tax designed to maximize health impact will seek to reduce consumption, while a tax designed to maximize revenues will seek to minimize the impact on consumption. In practice, tax policy is determined by so many competing political and institutional factors that no tax is designed optimally for either health or revenue. Analyses of countries that have introduced or raised health taxes demonstrate that they regularly reduce consumption *and* raise revenues. Nevertheless, this trade-off should be kept in mind when supporting low-income countries attempting to increase revenues from these excises—the health costs of the associated diseases are enormous, and it would be unwise for countries to enact such taxes solely as a source of revenue.

Regional coordination

Regional coordination of excise tax policies can lower the average costs of administration, encourage coordinated enforcement, and discourage evasion. However, such coordination requires more than just setting common tax rates. It also includes key design questions such as defining what is taxed (e.g., volume of sugary beverage or amount of added sugar, Francis 2017). Also, a potential risk of coordination is that countries might accept lower rates in an effort to gain consensus. Regional coordination will be of particular importance for smaller countries, and for those with weakly enforced borders.

Hypothecation and Earmarking

Fiscal policy experts frown on hypothecating taxes for particular purposes because it limits flexibility in spending policy, and can reduce the accountability of institutions that automatically receive the funds. However, they tend to accept the practicality of 'soft' earmarking—policies that may involve public pledges to apply new taxes to particular programs or initiatives, without legally requiring that funds be managed separately and dedicated to a specific end. Eighty countries use some degree of earmarking and do so for a variety of reasons, and with varying degrees of constraint (See Cashin et al. 2017; and Appendix 1).

Many of those who have advocated raising health taxes in recent years have argued that some linkage between higher taxes and their uses is essential for garnering both public and political support and assuring the passage of legislation. Countries such as Ghana, the

[5] In May 2016, the Australian Government announced its intention to impose annual increases in tobacco excise of 12.5%, up to and including 2020, eventually raising the cost of a pack of cigarettes to AUD 40 (approximately USD 27) making Australian cigarettes the world's most expensive.

Philippines, and Vietnam have explicitly earmarked funds for health spending as part of their political strategies (see, for example, Kaiser et al. 2016). It therefore appears that the argument over earmarking health taxes for particular uses faces two competing practical questions:

- *To what extent do demands for earmarking health taxes alienate finance ministries and those concerned with economic policy?*

- *To what extent does earmarking health taxes generate political support for these taxes?*

It also appears that proposing soft earmarking may reduce some resistance among those charged with fiscal policy, prompting questions about the nature of soft earmarking, how countries have designed and implemented it, and how it has been communicated to the public (Cashin et al. 2017).

As a minor digression, many low-income countries charge user fees in health facilities, which can present barriers to access for the poor. The idea of replacing this out-of-pocket spending with funds from health taxes is attractive as a way to reduce demand-side barriers to provision. However, the distribution of funds from a central ministry through the intermediation of the health system may not be as effective at supporting the provision of services in health facilities as in cases where user fees are directly controlled and managed by the facilities. Thus, any linkage between raising health taxes and reducing user fees must address the resulting changes in the institutions, incentives, and funding flows in the health system more broadly, in order to ensure that local provision is not impaired.

Monitoring and Evaluation

Building processes for monitoring and evaluation into the implementation framework for new or increased excise taxes should ideally be part of the initial design. Health taxes are controversial; collecting and disseminating good data on the effects of the taxation changes and the disbursement of funds can help dissipate pushback and build public support (Brumby 2014).

What kinds of political contexts or strategies are required for raising health taxes?

Even with clarity about all the preceding issues, raising taxes is fundamentally a political challenge. This means that, at best, research and sharing experiences can inform the policymakers who need to make judgments about what they can and cannot enact in their own countries. The following are some considerations that would factor into these judgments and which might benefit from further research.

In the many contexts where these product markets are concentrated, proposals for raising health taxes are most likely to succeed when the industry concerned can be politically isolated, and the substantial health benefits are made strongly visible in the debates. In some cases, linking health taxes to particular public expenditures—such as health care services or

compensation for growers of tobacco, sugar and the crops used to make alcohol—may assist politicians in mobilizing support from the broader public.

On the other hand, taxes levied on a specific industry will certainly generate stronger and more coordinated opposition. The tobacco, alcohol and sugary beverage industries have a long history of opposing taxes on their products, and they are skilled at manipulating popular opinion through front groups, as well as influencing policymakers through direct lobbying. Some of the industries' tactics include disseminating biased research, contributing funds to influence election campaigns, meeting privately with public officials in violation of the Framework Convention on Tobacco Control, and threatening costly lawsuits (Brownell and Warner 2009; WHO 2009; Saloojee and Dagli 2000; Bond et al. 2010; Moodie et al. 2013; Smith et al. 2013; Gilmore et al. 2015; Tobacco Control Research Group 2017; Granheim et al. 2017; Ross et al. 2017; Du et al. 2018; Schaller and Mons 2018; Roache 2018, Gornall 2019). During Colombia's debate over sugary beverage taxes, individuals in a public interest group were subjected to death threats, and a beverage company successfully convinced the government to stop the group from airing its advertisements—an action that was later overturned by the courts (Jacobs and Richtel 2017).

Responding to such trenchant opposition requires public action on many levels, and will be more effective with international support. Policymakers need credible research to contest false or misleading claims regarding the effects on revenues and employment, on regressivity and illicit trade; they need credible responses for groups such as farmers or factory workers, who may face hardship; and they need to foresee benefits from the health taxes that justify spending their political capital to obtain passage and assure implementation.

Health taxes are not the only form of taxation that faces these difficulties. Hence, if the goal is more revenues, then the question is whether the challenges of raising health taxes exceed those of other forms of taxation. The answer clearly depends on context, but also on the kinds of international support available. Political strategies are often best informed by real experiences. When a country considers raising health taxes, it can benefit by direct contact with authorities that have raised these taxes in their own countries, hearing what strategies they used and the lessons they learned.[6]

Conclusions and next steps

Strengthening tax systems has emerged as a key development priority, being a core element of the Sustainable Development Goals (SDGs) framework and the Addis Ababa Action Agenda for enhancing domestic resource mobilization. The UN Conference on Trade and Development (UNCTAD) estimates that globally the level of investment needed to achieve the SDGs will well exceed the levels of both official development assistance (ODA) and

6. The Philippines' sin tax reform was a major policy change, generated significant revenues that were earmarked for the national health insurance scheme, and is one of the best documented cases. It is worth noting that despite strong domestic public support and support from the international community (including the World Bank, IMF, and WHO), the bill was strongly contested. See Kaiser et al. 2016.

foreign direct investment in many low-income countries, and that greater reliance on taxes will be essential (Araki and Nakabayashi 2018).

While there is evidence that health taxes can raise enough revenue to make them worthwhile, the amounts that can be generated and their relative importance will vary across countries. Still, initial simulations demonstrate that in 8 out of 16 low-income countries that were analyzed, perfectly-implemented tax hikes sufficient to increase prices by 50 percent could generate revenues equal to more than 50 percent of total health expenditures in most cases. With more realistic estimates, this still suggests that countries could generate additional revenues equivalent to 10 or 20 percent of total health expenditure.

Health taxes may also be less costly and require less institutional capacity to implement than other forms of taxation. In fact, it is possible that they represent the first step in an optimal path toward building effective tax-collecting institutions. However, these points are essentially hypotheses to be tested in specific contexts, and for comparison among particular forms of taxation in each country.

While health taxes do have some negative effects, these are generally outweighed by the benefits in improved health, reduced economic costs, and higher revenues. Further, policies tailored to address negative effects in the form of compensatory programs for employees or particular consumers are likely to be justified both ethically and politically, while costing less than the amount of revenues raised.

Health taxes are likely to be more effective when they are designed to be simple, to rise automatically with inflation and wage growth, to coordinate with neighboring countries, and to connect in the public's view to important expenditure, whether through political statements or soft earmarking. They are also likely to be more effective when they are designed with attention to the potential trade-offs between improving health and increasing revenues. The design of good tax policy has to be consistent with a country's overall context—economic, social, and political—as well as its existing tax system and strategy for the future. Research in this area might yield some generalizable conclusions about the relative costs and benefits of different designs, but there will always be a need to assess such generalizations in the light of context-specific factors.

Political strategies for introducing or increasing health taxes are of great importance. The kinds of coalitions that are required to enact and implement health taxes are different from those related to other forms of taxation. A great deal of research is available to understand and counter opposition by industries associated with these products. Documenting the experiences of countries that have tried to raise health taxes and facilitating the direct exchange of experiences between countries could support more effective action. International support could also play a key role in debunking disinformation and providing credibility to government plans.

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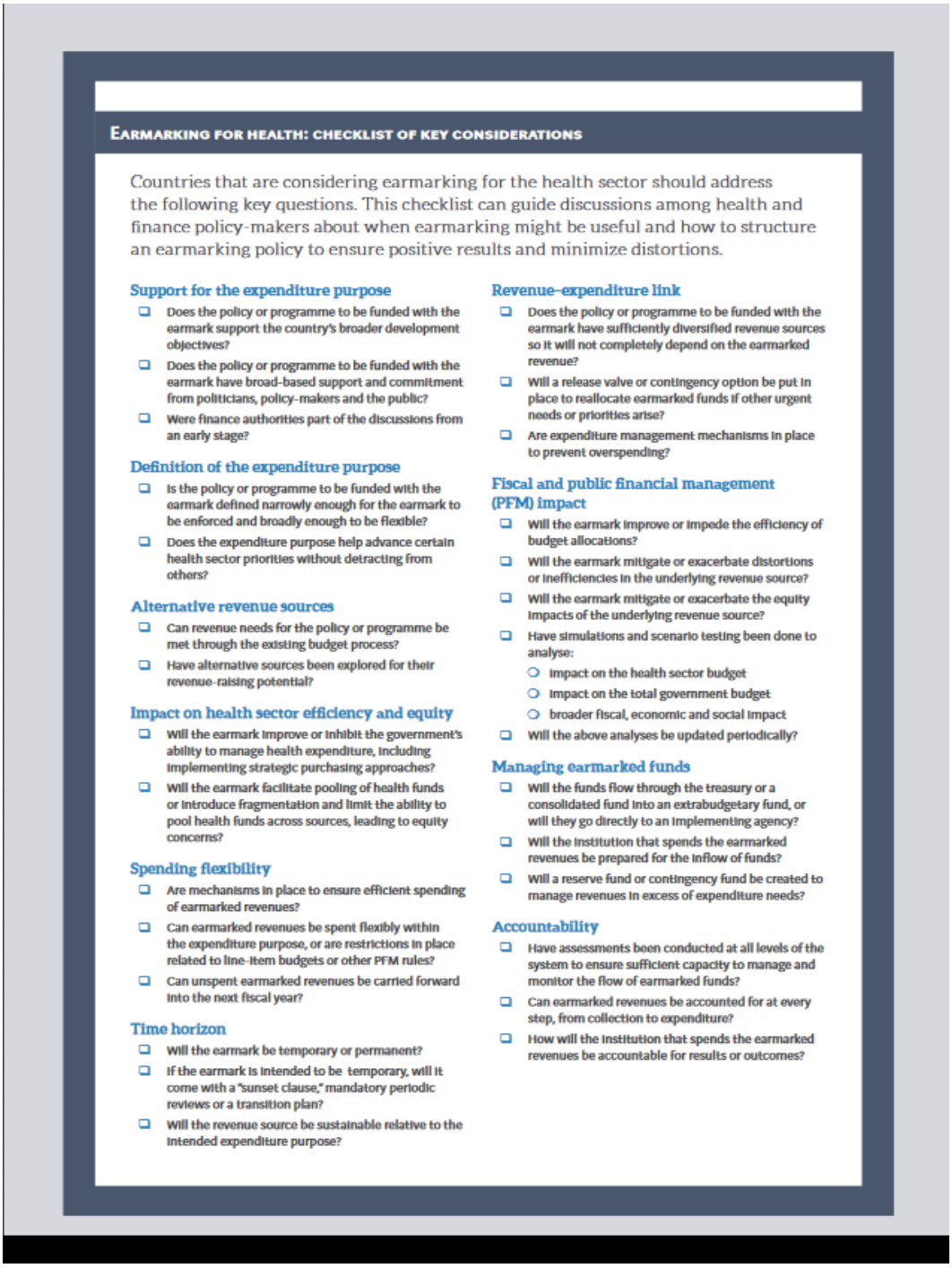
Appendix 1

Earmarking for Health: Checklist of Key Considerations



EARMARKING FOR HEALTH: CHECKLIST OF KEY CONSIDERATIONS

Countries that are considering earmarking for the health sector should address the following key questions. This checklist can guide discussions among health and finance policy-makers about when earmarking might be useful and how to structure an earmarking policy to ensure positive results and minimize distortions.

Support for the expenditure purpose

- ❑ Does the policy or programme to be funded with the earmark support the country's broader development objectives?
- ❑ Does the policy or programme to be funded with the earmark have broad-based support and commitment from politicians, policy-makers and the public?
- ❑ Were finance authorities part of the discussions from an early stage?

Definition of the expenditure purpose

- ❑ Is the policy or programme to be funded with the earmark defined narrowly enough for the earmark to be enforced and broadly enough to be flexible?
- ❑ Does the expenditure purpose help advance certain health sector priorities without detracting from others?

Alternative revenue sources

- ❑ Can revenue needs for the policy or programme be met through the existing budget process?
- ❑ Have alternative sources been explored for their revenue-raising potential?

Impact on health sector efficiency and equity

- ❑ Will the earmark improve or inhibit the government's ability to manage health expenditure, including implementing strategic purchasing approaches?
- ❑ Will the earmark facilitate pooling of health funds or introduce fragmentation and limit the ability to pool health funds across sources, leading to equity concerns?

Spending flexibility

- ❑ Are mechanisms in place to ensure efficient spending of earmarked revenues?
- ❑ Can earmarked revenues be spent flexibly within the expenditure purpose, or are restrictions in place related to line-item budgets or other PFM rules?
- ❑ Can unspent earmarked revenues be carried forward into the next fiscal year?

Time horizon

- ❑ Will the earmark be temporary or permanent?
- ❑ If the earmark is intended to be temporary, will it come with a "sunset clause," mandatory periodic reviews or a transition plan?
- ❑ Will the revenue source be sustainable relative to the intended expenditure purpose?

Revenue–expenditure link

- ❑ Does the policy or programme to be funded with the earmark have sufficiently diversified revenue sources so it will not completely depend on the earmarked revenue?
- ❑ Will a release valve or contingency option be put in place to reallocate earmarked funds if other urgent needs or priorities arise?
- ❑ Are expenditure management mechanisms in place to prevent overspending?

Fiscal and public financial management (PFM) impact

- ❑ Will the earmark improve or impede the efficiency of budget allocations?
- ❑ Will the earmark mitigate or exacerbate distortions or inefficiencies in the underlying revenue source?
- ❑ Will the earmark mitigate or exacerbate the equity impacts of the underlying revenue source?
- ❑ Have simulations and scenario testing been done to analyse:
  - ○ Impact on the health sector budget
  - ○ Impact on the total government budget
  - ○ broader fiscal, economic and social impact
- ❑ Will the above analyses be updated periodically?

Managing earmarked funds

- ❑ Will the funds flow through the treasury or a consolidated fund into an extrabudgetary fund, or will they go directly to an implementing agency?
- ❑ Will the institution that spends the earmarked revenues be prepared for the inflow of funds?
- ❑ Will a reserve fund or contingency fund be created to manage revenues in excess of expenditure needs?

Accountability

- ❑ Have assessments been conducted at all levels of the system to ensure sufficient capacity to manage and monitor the flow of earmarked funds?
- ❑ Can earmarked revenues be accounted for at every step, from collection to expenditure?
- ❑ How will the institution that spends the earmarked revenues be accountable for results or outcomes?

Source: Reproduced from Cashin et al. 2017.

Appendix 2

Derivation of conditions required before tax increases would reduce revenues

$R = t P Q$ Revenues = tax rate x price x quantity

Take first derivative with respect to the tax rate, assuming that only Quantity is affected by the tax hike. This implies that the *ad valorem* tax is passed on 100 percent to consumers, and that manufacturers and retailers do not change the base price in response to the change in policy.

$dR/dt = PQ + t P dQ/dt$

Assuming that $dt = dP$ (i.e. 100 percent pass through) yields

$dR/dt = PQ + t P dQ/dP$

Revenue will decline if $dR/dt < 0$ or when

$PQ + t P dQ/dP < 0$

Dividing both sides by Q yields:

$P + t [P/Q dQ/dP] < 0$

The quantity in brackets is the price elasticity of demand (η) so revenues will decline if and only if

$P + t \eta < 0$

For example, if an average pack of cigarettes costs $2 and the elasticity is -0.5, then the tax rate would have to be 400 percent before revenues would start to decline – assuming constant elasticity, no further response in price by wholesalers or retailers, and full pass-through of the tax to consumers.