# Global Market and Taxation of Heated Tobacco Products and Cigarettes

Challenges & Mapping Tool to Advance Policy that Protects Public Health

**DEC 2021** 

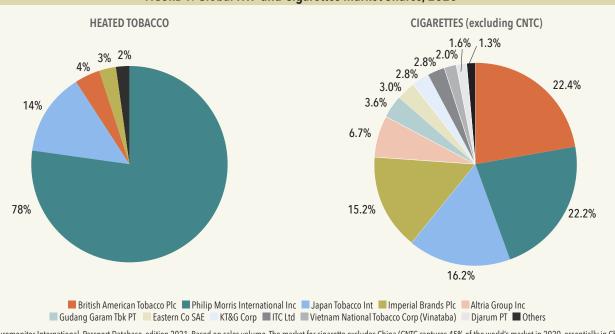
## Heated Tobacco Products (HTPs): Definition, Key Players, Global Market **Growth and Demand**

Heated tobacco products (HTPs) are tobacco products that require the use of an electronic device to heat a stick or pod of compressed tobacco. The stick (by definition, a cigarette) or the tobacco pod is heated to a temperature high enough to produce an inhalable aerosol, but the temperature is below that which is required for full combustion. HTP systems are fully integrated so that the heating device and cigarettes or pods for each system must be used together, and they are exclusive to each manufacturer in that the components are not interchangeable. Cigarettes and pods come in different flavors, including menthol and a variety of fruit flavors.

The same multinational tobacco companies that produce conventional cigarettes produce and sell HTPs. This stands in contrast to the manufacturers of electronic cigarettes which are highly dispersed and the e-cigarette market which is highly competitive. The three largest HTP brands are IQOS manufactured by Philip Morris International (PMI), glo produced by British American Tobacco (BAT), and Ploom TECH from JT Group and marketed globally by Japan Tobacco International (JTI). These three companies exercise strong market power globally. Other tobacco companies with HTPs include KT&G, manufacturer of *IiI*, China National Tobacco with *Mok*, and Imperial Brands with Pulze.

PMI launched IQOS in 2014 in Japan and Italy, enabling the company to assume HTP market leadership from that time. BAT's entry to market in 2017 and its subsequent expansion has encroached somewhat into PMI's share, but PMI remains the clear market leader (FIGURE 1). This is in major contrast with the market for cigarettes where the main tobacco multinationals share the world's market more evenly. It also differs considerably from the market for e-cigarettes, where smaller manufacturers also factor in a highly competitive market.

#### FIGURE 1: Global HTP and Cigarettes Market Shares, 2020



HTP manufacturers aggressively promote HTPs. With *IQOS* available in 67 markets as of October 2021<sup>1</sup>, the rapid growth of HTP sales primarily reflects PMI's growing investments in *IQOS*. The exponential growth of HTPs is especially striking when considered against the decline of conventional cigarette sales. In 2020, 94.5 billion heated tobacco sticks were sold globally, up from 0.02 billion in 2014. In contrast, volume sales of conventional cigarettes fell from 4,612 billion in 2014 to 4,049 billion in 2020. (FIGURE 2)

For PMI only, HTP shipment volume grew at an average annual rate of more than 180% since 2015, fueling an annual revenue growth of more than 150%. By contrast during the same period, cigarettes sales volume and value fell at an annual rate of -5.8% and -3.9%, respectively. (TABLE 1)

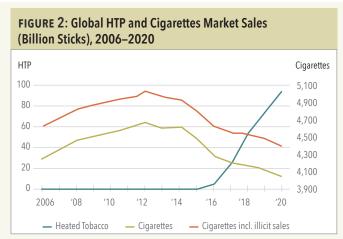
TABLE 1: Growth (CAGR) of Global Shipment Volumes and Net Revenue, 2015 to 2020

	Net Revenue	Shipment Volume
Cigarettes	-3.9%	-5.8%
RRPs	154.5%	186.3%
Total	1.4%	-3.6%

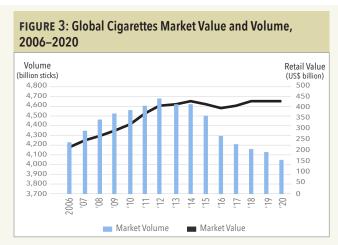
**SOURCES**: Philip Morris International Annual Reports, various years. Reduced-risk products ("RRPs") is the term PMI uses to refer to heated tobacco units, heat-not-burn devices and related accessories, and other nicotine-containing products, primarily e-vapor products. **CAGR** = compound annual growth rate.

However, it should be noted that despite the decline of conventional cigarette sales over the past decade, the value of cigarette sales has continued to rise, revealing that cigarettes continue to be the key engine for tobacco industry profitability. (FIGURE 3) Moreover, PMI net earnings (i.e., earnings after cost of production, incl. tax payments) have increased from US\$ 7.03 billion in 2015 to 8.59 billion in 2020, despite a continued decline in cigarette shipment volumes. (FIGURE 4)

Trend in cigarette volume decline portends limits on the rate of value growth in the future, underscoring the critical importance of market growth of HTP. For tobacco companies, it is crucial that the heated tobacco sticks used with HTP systems generate value. Consequently, tobacco companies aggressively promote HTPs, often emphasizing their so-called reduced risk to tobacco users or reduced exposure to harmful emissions. These claims are also carried to policymakers in an effort to prevent strong regulation of the products, including their inclusion in tax codes or in a taxation system that creates a new category of tobacco product for HTP to be taxed in manner essentially equivalent with how conventional cigarettes are taxed. As the HTP market has grown globally, the largely unregulated or modestly regulated HTP market has enabled tobacco companies to partially compensate for the retracting rate of conventional cigarette value by an exponential growth in value from the sale of HTPs.



**SOURCES**: Euromonitor International, Passport Database, edition 2021. Euromonitor estimates illicit sales based on a variety of sources including interviews and secondary research (incl. revenue agencies and customs), seizures of illicit cigarettes, or tobacco companies' own estimates.



SOURCES: Euromonitor International, Passport Database, edition 2021.

In its Annual Reports, PMI exposes that capital expenditures over recent years are primarily related to its ongoing investments in RRPs, funded by operating cash flows.

Looking deeper into the HTP market, it is clear that in the future the key to generating profits from HTPs rests with the sale of heated tobacco sticks. In 2014, two-thirds of the total value generated from HTPs was derived from selling HTP devices and accessories (e.g., *IQOS*), leaving only a third to heated tobacco sticks. With the growth of HTPs over years, this proportion quickly reversed and by 2020, heated tobacco sticks already constituted the vast majority of total value at 93 percent of value. (FIGURE 5)

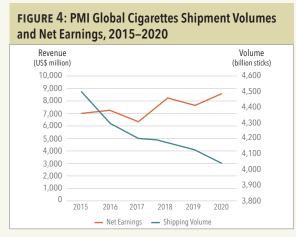
This shift in proportion is not surprising. First, though heating devices are a necessary purchase to consume tobacco sticks, they are durable products with depreciating life spans than can extend from several months to even more than a year, whereas tobacco sticks can be only used once. Second, with large ongoing capital investment in research and development, tobacco companies have significantly improved the performance of devices and accessories, and reduced the cost of producing them over years.

### Challenges for Government Taxation of HTPs

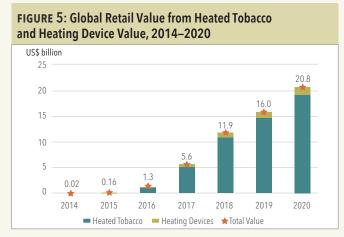
Governments face several challenges when determining how to tax tobacco products.

- Tobacco control laws in many of the countries where HTPs are sold were adopted before the products were introduced. These laws are written in ways that are generally not well suited to regulating HTPs to protect public health.
- HTPs do not fit within the existing taxation categories of tobacco products. This is, in part, because they do not produce smoke but instead emit substances, yet they are different from traditional smokeless

- products, such as chewing tobacco. Additionally, a key component of HTP systems are the electronic heating devices, which are also an entirely new type of tobacco product. Tobacco companies often promote devices separately from the heated sticks, but they are designed only for use with them.
- Few countries have adopted laws or regulations to specifically address HTPs, and currently many governments simply apply existing tobacco control and other laws to HTPs by default. As a result, where HTPs are sold, regulation, including taxation, is varied and complex.
- Tobacco companies aggressively market HTPs as reduced risk products, despite the lack of evidence that HTPs are less harmful than cigarettes<sup>2</sup> and concerns about their growing popularity among youth and young adults who often are not smokers.
- The regulatory regimes for HTPs in many countries require considerable changes, such as including how the products are defined, the types of tax systems that should apply to them, and the basis for taxation.
- Last but not least, governments face limited technical and administrative capacity to determine and enforce a taxation approach designed to achieve equivalency with taxation on conventional cigarettes. For many years, HTPs have been included by default in existing categories within the country tax code, most often as "other tobacco products", "pipe tobacco", or "smokeless products." These categories carry a much lower tax burden than conventional cigarettes, in part because they are subject to different tax rates and different tax bases (i.e., weight instead of sticks), even though most HTPs are sold in packs of 20 sticks.



**SOURCES**: Philip Morris International Annual Reports, various years.



SOURCES: Euromonitor International, Passport Database, edition 2021.

At the 8th Conference of Parties (COP8) to the WHO Framework Convention on Tobacco Control (WHO FCTC) in 2018, a Decision was adopted that reminded Parties to regulate novel tobacco products such as HTPs, including "the devices designed for consuming [the] products."3 More recently, the 2021 WHO Report on the Global Tobacco Epidemic noted that tobacco companies will conflate electronic cigarettes with HTPs and when expedient, argue that HTPs are similar to ENDS. But when ENDS are banned or strictly regulated, tobacco companies argue that HTPs do not fall within existing categories. 4 To protect public health from the risks posed by HTPs, these tobacco products should be strictly regulated and taxed to achieve equivalency with the tax on conventional cigarettes.5

## Government Approaches to Taxation of HTPs

Over time, several countries have amended their tax codes to assign a new category to HTPs, but these countries modified their tax codes in very different manners and with different motivations. Recognizing the exponential growth and potential harms posed to public health from the use of HTPs, several countries have adopted a new approach that taxes them apart from smokeless tobacco categories, employing a system resembling that used for conventional cigarettes. Among the 55 countries and 13 Canadian provinces where HTPs were sold in 2021 and included in our database, at least 32 countries and 1 Canadian province have amended their tax codes to include heated tobacco in a well defined category. "However, many of these countries still use a tax system that closely matches that of pipe tobacco or smokeless tobacco, resulting in much lower taxation for HTPs than for cigarettes. The use of a tax based on weight rather than sticks is challenging for tax authorities because of the technical difficulties to measure the amount of tobacco in a heated stick. This difficulty increases the opportunity for tax avoidance.

As of June 2021, 15 countries, a Canadian province, and the Palestinian territories tax HTPs using a specific tax system based on sticks or a mixed tax system in which the specific tax is based on sticks (i.e., the same tax base as that used for cigarettes). These jurisdictions include Armenia, Azerbaijan, Canadian province British Columbia, Colombia, Georgia, Hungary, Israel, Italy, Japan, Jordan, Kazakhstan, Moldova, Philippines, South Africa, South Korea, Ukraine, and West Bank & Gaza Strip. Six countries use an ad-valorem only system. In 13 countries, one Canadian province, and the Palestinian territories the share of the excise tax in the retail price (or tax burden) is either the same or very close to that for cigarettes. In 6 of the 13 countries (or province) that use a pure specific tax system based on sticks for both cigarettes and heated tobacco, the share of the tax in the price is currently much smaller for heated tobacco than for cigarettes: Armenia, Hungary, Italy, Jordan, Kazakhstan, and the Philippines. (TABLE 2)

In countries that have not amended the tax code to include heated tobacco, HTPS are either not taxes or taxed in an existing category, generally based in weight (e.g., pipe tobacco).

TABLE 2: Tax Systems for HTPs, by Tax Burden, compared to Cigarettes and by Tax Bases (55 countries incl. Canada and 13 Canadian	
provinces)	

TYPE OF TAX SYSTEM	Share of excise tax in price cigarettes: 41 countries + 1		Share of excise tax in price is close to or equal to cigarettes: 13 countries + 1 Canadian province + The Palestinian territories		
	Base for the specific tax is the weight (kg) or advalorem system only (26+3+6+12 provinces)	Base for the specific tax is the number of sticks (6)	Base for the specific tax is the weight (kg)	Base for the specific tax is the number of sticks	
Specific tax: 39 countries (26 + 6+ +6 + Canada)	Albania, Austria, Belarus, Bosnia & Herz., Bulgaria, Canada/1, Croatia, Cyprus, Czech Rep., Denmark, Estonia, Greece, Kyrgyzstan, Latvia, Lithuania, Malaysia, Montenegro, Netherlands, New Zealand, North Macedonia, Romania, Russia, Serbia/2, Slovak Rep., Slovenia, Sweden, United Kingdom	Armenia, Hungary, Italy/3, Jordan, Kazakhstan, Philippines		Azerbaijan, Canada/1, Japan/4, Korea/5, Moldova/6, South Africa, Ukraine	
Ad-valorem tax based on the retail sales price (unless otherwise provided): 6 countries	Dominican Rep., Spain, Switzerland		Indonesia/7, Saudi Arabia/8, United Arab Emirates/9		
Mixed tax system (i.e., with two components including a specific tax and an ad- valorem tax based on the retail sales price, unless otherwise provided): 11 countries	Belgium, Finland, France, Germany, Poland, Portugal		Costa Rica	Columbia, Georgia, Israel/10, West Bank & Gaza/10	

**SOURCES**: Interactive HTP and Cigarettes Tax and Price Interactive Maps, Campaign for Tobacco Free Kids, 2021.

NOTE: This list differs from WHO's 2021 Report on the Global Tobacco Epidemic (GRTE) in that: (i) for every country we use the most sold brand of heated tobacco worldwide (unless otherwise provided) and the brand of cigarettes that most closely match them. (ii) It includes 7 countries than are not included in the 2021 WHO's RGTE: Estonia, Malaysia, Canada, Dom Rep., Belgium, Finland, Costa Rica, and (iii) It is based on data as of July 2021 (unless otherwise provided), contrary to WHO's list (based on 2020 information). Available at: https://www.tobaccofreekids.org/what-we-do/global/taxation-price/all-data.

#### Country-specific notes:

- 1 All Canadian provinces apply a specific tax system on cigarettes and heated tobacco, but British Columbia is the only province that uses the same tax base as that of cigarettes (number of sticks).
- 2 Serbia amended the tax code in 2015 to introduce a specific tax based on the weight of heated tobacco (in kg), and such that the tax represents only 40% of the minimum tax of cigarettes price. Nevertheless the gap between taxes on heated tobacco and cigarettes is scheduled to decrease every year, such that by 2024, the tax share in the price will be the same for the two products.
- **3** Italy uses a specific tax based on sticks, but applies a complex rule to based on consumption time to estimate an equivalent number of stick per pack for heated tobacco.
- 4 In Japan, the tax code was amended in 2017 to introduce a new category for heated tobacco. The new system is a specific excise based sticks, where the number of HTP sticks is defined as an equivalent quantity of cigarettes, such that the gap between the tax on heated tobacco and cigarettes decreases every year. As of 2021, the tax burden (tax as a share of retail price) was just 4.9 p.p smaller for heated tobacco than cigarettes.
- **5 Korea**: In 2021, the share of the excise tax in the retail price was 57.7 for heated tobacco and 64.7% for cigarettes, representing a very small tax gap (about 7 percentage points in 2021) compared to most other countries.

- **6 Moldova**: Heated tobacco was introduced in the tax code in 2019. The specific tax is based on sticks and larger than that for cigarettes. However, cigarettes are also subject to an ad-valorem tax. The overall excise tax represents a slightly smaller share in the price for heated tobacco than for cigarettes, but the tax gap is relatively small (about 4 percentage points in 2021).
- 7 Indonesia: Heated tobacco, Indonesia applies the maximum tax rate for cigarette taxation (57% of the retail price).
- **8 Saudi Arabia**; the tax rate is the same for all tobacco products, including cigarettes and heated tobacco. It is an ad-valorem tax where the tax base is the "pre-tax price", defined as 50% of the retail sales price.
- 9 The United Arab Emirates applies an ad-valorem excise that is the same for all tobacco products, including cigarettes and heated tobacco. The tax base is the "excise price", which is held of the "designated retail price". The designated retail price is the retail price less the VAT.
- 10 The same mixed excise tax system applies to Israel and the West Bank & Gaza (Palestinian territories). The tax based for the ad-valorem part is the wholesale price.

The Campaign for Tobacco Free Kids hosts a website where detailed information on HTP and cigarette taxation. It includes information on how both products are priced and taxed, as well as links to government tax codes. Price and tax data are available for 68 jurisdictions (55 countries and the 13 Canadian provinces) where HTPs were on market as of June 2021.

## The HTP Maps: A Tool for Advancing Tax Equivalency

Taxing tobacco products to make them less affordable is the most effective way to prevent non-users from starting and incentivize current users to quit.<sup>6</sup> Moreover, there is no evidence documenting HTPs as less harmful that conventional cigarettes nor as an effective way to help smokers quit smoking.<sup>2</sup> In addition, HTP emissions contain many of the same carcinogenic and toxic chemicals found in cigarette smoke<sup>7-15</sup>, and their effects in cigarette smoke should inform understanding of the potential health impacts of HTPs.

The Decision adopted at COP8 defined HTPs as tobacco products, and asserted that they are "therefore subject to the provisions of the WHO FCTC."3 This includes applying all the provisions to reduce tobacco demand.<sup>iii</sup> With respect to taxation, governments should impose the same types and high levels of excise taxes on HTPs as conventional cigarettes, as this is the only way to reduce their affordability. Although currently most countries do not tax HTPs to achieve equivalency with conventional cigarettes, many countries have already started to adopt this approach by taxing HTPs based on sticks and at the same rates as cigarettes. (TABLE 2) In fact, it is important to note that companies sell HTPs and cigarettes at similar prices everywhere, yet HTPs bear roughly half the tax burden of cigarettes or less in most countries. This means that governments forgo important revenue sources from taxing HTPs sticks while enabling tobacco companies to derive higher profits from HTP stick sales compared to cigarette sales.

Below are two examples of how countries have opted to tax heated cigarettes and conventional cigarettes differently and the result on market growth.

#### Case Example: Italy

HTPs were introduced in Italy in November 2014 and have always been subject to a percentage of the excise tax imposed on an "equivalent" quantity of cigarettes. Initially, this "equivalency rule" was such that, in effect, the excise tax on a pack of 20 heated cigarette sticks was just 50% of excise tax imposed on a pack of cigarettes. With a new government in 2018, HTP and vapor products received an even higher discount. By the end of 2018, the equivalency ratio between HTP and cigarette taxes was just 25% of the excise tax on cigarette sticks, resulting in a huge tax discount for heated tobacco as compared to conventional cigarettes. The move to further reduce the tax on HTPs was a huge victory for the tobacco industry, and it came in spite of the negative evaluation from the Ministry of Health of the submissions from the tobacco industry asserting HTPs' lower toxicity and lower harm to human health compared to traditional cigarettes. Notably, the vaping industry praised Italy for "leading a revolutionary change," a clear illustration of the mutual interests of the tobacco and vaping industries when it comes to securing lax regulation of electronic nicotine delivery systems.

Not surprisingly, a large increase in heated tobacco sales resulted from the further reduction, and this development, combined with the health fund

WHO Framework Convention on Tobacco Control. See Articles 6 through 14. Available at: https://www.who.int/fctc/text\_download/en/.

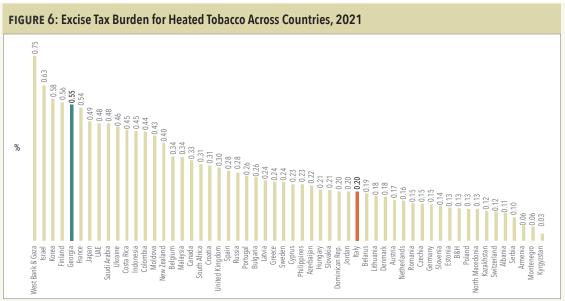
TABLE 3: Taxation and Tax Burdens of various Tobacco Products in Italy, 2021										
	Excise Taxes		Price	Minimum Excise		Tax Burden				
	Specific (base)	Ad Valorem (base)	(varying base)	Statutory Tax base (varying)	Equivalent tax base (est.) per 1 kg 2/	(% or price)				
Cigarettes 1/	€20.98 per 1000 sticks	51.24% of rsp	€5.9 per pack of 20 sticks	€193.21 per 1000 sticks	€ 322 per kg	65.5%				
Cigars 1/	No tax	23.5% of rsp	n.a.	n.a.	n.a.	23.5%				
RYO / Fine cut	No tax	59% of rsp	n.a.	n.a.	n.a.	59%				
Other tobacco (e.g., pipe tobacco)	No tax	56.5% of rsp	n.a.	n.a.	n.a.	56.5%				
Heated Tobacco 1/	€44.86 per 1000 sticks	No tax	€4.5 per pack of 20 sticks	€27.09 per 1000 sticks	€88.8 per kg	19.9%				
E-liquids	n.a.									

NOTES: Italian Customs & Monopoly Bureau (ADM) and author's calculations. https://www.adm.gov.it/portale/monopoli/tabacchi/prezzi/prezzi\_pubblico
1/ We use the prices and taxes of 1/ HEETS Ambers as listed by the ADM, and equivalent cigarettes from PMI (Marlboro red). For cigars we use the price of 20 Habano Samplers.
2/ For conversion, we use the fact that a heastick (HEETS) is 0.305 gr, a stick of Marlboro red is 0.6 gr, and a unit of Habano cigar is about 1.1gr.
n.a.: not available. Est.: estimated by authors.

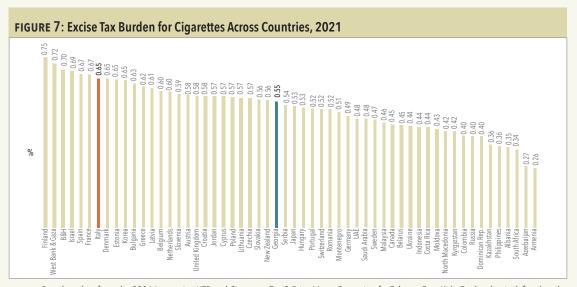
emergency generated by the COVID-19 pandemic, pushed the government to revisit the discount in December 2020. Effective January 2021, the excise duty for HTPs began an annual stepped increase moving from 25% to 40% of an "equivalent" quantity of cigarettes by 2023. This tax discount for HTPs is still substantially large compared not only to other countries but also to other tobacco products in Italy (TABLE 3), and it is essentially the result of intense lobbying from the tobacco industry. Obviously given the overall low tax burden on heated cigarettes and the sizable tax gap, these changes in excise taxation are not expected to result in declines in HTP consumption.

Using the prices and excise taxes of the dominant brand of heated tobacco (PMI's HEETS sticks) and its equivalent cigarette brand (Marlboro, as of 2021, the tax share in the price (or tax burden) is only 19.9% for heated tobacco (TABLE 3 and FIGURE 6), compared to 56%–59% for roll-your-own (RYO) tobacco and pipe tobacco (TABLE 3), and 65.5% for cigarettes (TABLE 3 and FIGURE 7), implying a large excise tax gap between the HTPs and other tobacco products. Among the 56 countries (including the average for Canada)iv, the tax gap is the fourth largest at 45.6 percentage points. (FIGURE 8)

<sup>&</sup>lt;sup>iv</sup> Canada is inserted as a weighted average of taxes and prices across provinces, based on prevalence of adult smokers.



**SOURCE**: Based on data from the 2021 Interactive HTP and Cigarettes Tax & Price Maps, Campaign for Tobacco-Free Kids. Tax burden is defined as the share of the excise tax in the retail price, using the globally most sold brand of heated tobacco, PMI's HEETS. Available at: https://www.tobaccofreekids.org/what-we-do/global/taxation-price/all-data.



**SOURCE**: Based on data from the 2021 Interactive HTP and Cigarettes Tax & Price Maps, Campaign for Tobacco-Free Kids. Tax burden is defined as the share of the excise tax in the retail price, using PMI Marlboro cigarettes, from which PMI HEETS are branded. Available at: https://www.tobaccofreekids.org/what-we-do/global/taxation-price/all-data.

#### Case Example: Georgia

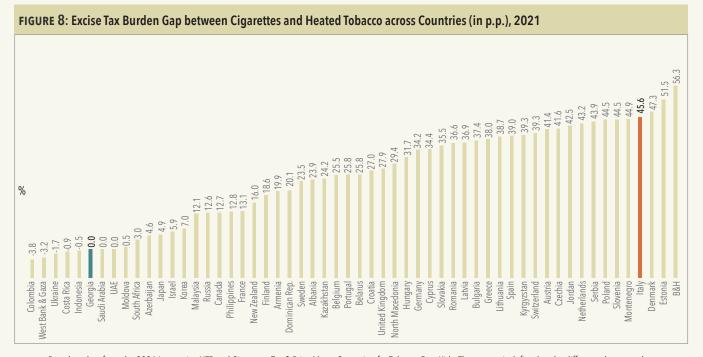
Until recently HTPs were rare in Georgia, and the tax code did not include a definition for heated tobacco. When sold, heated sticks were taxed at the same rate as "pipe tobacco"; that is, sticks were subject to a specific excise based on weight.

The excise tax law was amended in December of 2017 to define heated tobacco (and e-cigarettes) in separate categories. Heated tobacco is defined under two categories: "capsules and similar products, with tobacco content" and "tobacco products, without burning process, to be used for obtaining aerosol." Effective January 1, 2018, heated tobacco became subject to a similar tax system as that used for cigarettes, a mixed excise system with an ad-valorem excise based on the retail price and a specific excise based on the number of sticks, and at the same rate as conventional cigarettes.

This will enable the country to effectively reduce the use of all tobacco products, secure additional tobacco tax revenue that the government can use for various social and health projects, and, limit the opportunity for companies to extract extra profit margins from selling an addicitve and deadly product. Nevertheless, the HTP tax burden is still below the minimum level of excise taxes recommended by the WHO<sup>5</sup> and required in the EU Council Directive on tobacco.<sup>v, 16</sup>

Using the prices and excise taxes of the dominant brand of heated tobacco (PMI's HEETS sticks) and its equivalent cigarette brand (Marlboro), as of 2021, the tax burden was 55% for both heated tobacco and cigarettes (FIGURES 6 AND 7), implying a zero tax burden gap between the two products. Among the 56 countries (including the average for Canada)<sup>vi</sup>, the excise tax gap between HTPs and cigarettes is among the smallest in the world. (FIGURE 8)

Canada is inserted as a weighted average of taxes and prices across provinces, based on prevalence of adult smokers.



**SOURCE**: Based on data from the 2021 Interactive HTP and Cigarettes Tax & Price Maps, Campaign for Tobacco-Free Kids. The tax gap is defined as the difference between the tax burdens of HTPS and cigarettes, in percentage points (p.p.) Available at: https://www.tobaccofreekids.org/what-we-do/global/taxation-price/all-data.

EU Council Directive 2011/64/EU "on the Structure and Rates of Excise Duty Applied to Manufactured Tobacco" requires that the overall excise duty on cigarettes in member states be at least 60% of the weighted average retail selling price and that it shall not be less than EUR 90 per 1000 sticks (Art 10.2). The WHO recommends that the excise on cigarettes be at least 70% of the retail price 17, while the WHO reports on the global tobacco epidemic use 75% or more of total tax share of the retail price to reflect a high level of achievement. 18

## Taxation Policy at the Expense of Public Health

As illustrated in the case examples above, taxation of heated cigarettes may differ, with resulting effects not only on the overall tax burden on products but also on the affordability of one tobacco product relative to the other. When there are significant differences between the tax system and/or the tax rates for heated tobacco compared to conventional cigarettes, as is the case in Italy, governments create a condition that supports the uptake of tobacco use while also foregoing a possibly significant source of revenue. Moreover, tobacco companies are likely to extract large profit margins from heated tobacco compared to conventional cigarettes because in most countries tobacco companies sell heated tobacco and cigarettes at similar prices, even though the cost of producing them are the same. 19 Indeed, based on 2020 data, in no country that imposed a lower tax burden on heated tobacco were pack prices for heated cigarettes higher than the pack price of conventional cigarettes. With heated tobacco emissions known to contain carcinogens and other toxic chemicals harmful to human health and fetal development, the higher profits generated for multinational tobacco companies come at the expense of public health.

In countries that apply an approach to taxation for HTPs that seeks to achieve equivalency with excise on conventional cigarettes, as in Georgia, there is little or no gap between the tax burdens on HTPs and conventional cigarettes. And while there may

be a price differential between the two products, it tends to be narrow. The appeal of HTPs as a tobacco product seems to be dampened by the fact that they are generally as expensive as conventional tobacco products, regardless of the type of tax used for HTPs. Adopting an "equivalency approach" strongly suggests that governments would raise higher revenue than they would under approaches that allow for variation, as it would limit the room for tax avoidance. Crucially, imposing the same regulations on heated tobacco as those for cigarettes under the WHO FCTC would simplify tax systems, increase compliance, and limit the cost of enforcing tax laws, especially in countries with low administrative capacity.

#### **Conclusion**

The WHO FCTC obligates Parties to tax HTPs as tobacco products.<sup>3</sup> While country governments may comply with this obligation, the products often benefit from favorable tax treatment that encourages product uptake and increases their market growth. Importantly, while the short- and long-term health effects of HTP use and exposure are still unknown, many of the chemicals found in HTP emissions are toxic and carcinogenic.<sup>20</sup> As the harmful effects of these chemicals have been documented among smokers<sup>21</sup>, it is reasonable to assume that HTP emissions pose serious risks to human health. HTPs should be subject to a tax burden equal to conventional cigarettes, and both products should be taxed in ways that make them expensive.

## References

- Philip Morris International. IQOS heated tobacco products. Available at: https://www.pmi.com/smoke-free-products/ iqos-%20our-tobacco-heating-system
- World Health Organization. Heated Tobacco Products information sheet 2nd edition. March 2020. Available at: https://www.who.int/publications/i/item/WHO-HEP-HPR-2020.2
- Conference of the Parties to the WHO Framework Convention on Tobacco Control. FCTC/COP8(22) Novel and emerging tobacco products. Eighth session Geneva, Switzerland. 6 October 2018. Available at: https://www.who.int/fctc/cop/ sessions/cop8/FCTC\_COP8(22).pdf
- World Health Organization. WHO report on the global tobacco epidemic 2021: addressing new and emerging products. Geneva: World Health Organization; 2021. Available at: https://www.who.int/publications/i/item/9789240032095
- World Health Organization. WHO technical manual on tobacco tax policy and administration. Geneva: World Health Organization; 2021. Available at: https://www.who.int/ publications/i/item/9789240019188
- 6. U.S. National Cancer Institute and World Health Organization. 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, CH: World Health Organization; 2016. Available at: https://cancercontrol.cancer. gov/brp/tcrb/monographs/monograph-21
- Auer R, Concha-Lozano N, Jacot-Sadowski I, et al. Heat-Not-Burn Tobacco Cigarettes: Smoke by Any Other Name. JAMA International Medicine. 2017. 177(7):1050-1052. Available at: https://pubmed.ncbi.nlm.nih.gov/28531246/
- Bekki K, Inaba Y, Uchiyama S, et al. Comparison of Chemicals in Mainstream Smoke in Heat-not-burn Tobacco and Combustion Cigarettes. J of UOEH. 2017. 39(3):201-207. Available at: https://pubmed.ncbi.nlm.nih.gov/28904270/
- Leigh NJ, Palumbo MN, Marino AM, et al. Tobacco-specific nitrosamines (TSNA) in heated tobacco product IQOS. Tobacco Control. 2018;27:s37-s38. Available at: https://pubmed.ncbi. nlm.nih.gov/30242043/
- Zuck, K. Evidence Related to the Health Risk of IQOS Use: Evaluation of Product Chemistry. Presented January 24-25, 2018 at the USFDA Center for Tobacco Products. Slide 15. Available at: https://www.fda.gov/media/110744/download
- 11. Ishizaki A, Kataoka H. A sensitive method for the determination of tobacco-specific nitrosamines in mainstream and sidestream smokes of combustion cigarettes and heated tobacco products by online in-tube solid-phase microextraction coupled with liquid chromatography-tandem mass spectrometry. Analytica Chimica Acta. 2019; 1075:98-105. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0003267019305434?via%3Dihub
- Davis B, Williams M, Talbot P. IQOS: evidence of pyrolysis and release of a toxicant from plastic. Tobacco Control. 2019;28:34-41. Available at: https://tobaccocontrol.bmj.com/ content/28/1/34
- Li X, Luo Y, Jiang X, et al. Chemical Analysis and Simulated Pyrolysis of Tobacco Heating System 2.2 Compared to Conventional Cigarettes. Nicotine & Tobacco Research. 2019; 21(1): 111-118. Available at: https://pubmed.ncbi.nlm.nih. gov/29319815/

- Salman R, Talih S, El-Hage R, et al. Free-base and total nicotine, reactive oxygen species, and carbonyl emissions from IQOS, a heated tobacco product. Nicotine and Tobacco Research. 2019;21(9):1285-1288. Available at: https://pubmed.ncbi.nlm. nih.gov/30476301/
- Ilies BD, Moosakutty SP, Kharbatia NM, et al. Identification of volatile constituents released from IQOS heat-not-burn tobacco HeatSticks using a direct sampling method. Tobacco Control. 2020. Epub ahead of print. 26 May 2020. Available at: https://tobaccocontrol.bmj.com/content/tobaccocontrol/ early/2020/06/08/tobaccocontrol-2019-055521.full.pdf
- 16. Directive 2014/40/EU of The European Parliament and of The Council of 3 April 2014 on the Approximation of the Laws, Regulations and Administrative Provisions of the Member States Concerning the Manufacture, Presentation and Sale of Tobacco and Related Products and Repealing Directive 2001/37/ EC. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0040
- World Health Organization. Technical manual on tobacco tax administration; 2010. Available at: https://www.who.int/ publications/i/item/9789240019188
- World Health Organization. (2015). WHO report on the global tobacco epidemic, 2015: Raising taxes on tobacco. Available at: https://apps.who.int/iris/ bitstream/handle/10665/178574/9789240694606\_eng. pdf?sequence=1&isAllowed=y
- Dauchy E, Shang C. The pass-through excise taxes to market prices of heated tobacco (HTPs) and cigarettes—a cross-country analysis. 16 September 2021.
- U.S. Food and Drug Administration. Harmful and Potentially Harmful Constituents in Tobacco Products and Tobacco Smoke: Established List. Published Apr 2012, updated Oct 2019. Available at: https://www.fda.gov/tobacco-products/ rules-regulations-and-guidance/harmful-and-potentiallyharmful-constituents-tobacco-products-and-tobacco-smokeestablished-list
- 21. U.S. Department of Health and Human Services. The Health Consequences of Smoking–50 Years of Progress: A Report of the Surgeon General. Centers for Disease Control and Prevention 2014. Available at: https://www.cdc.gov/tobacco/data\_statistics/sgr/50th-anniversary/index.htm