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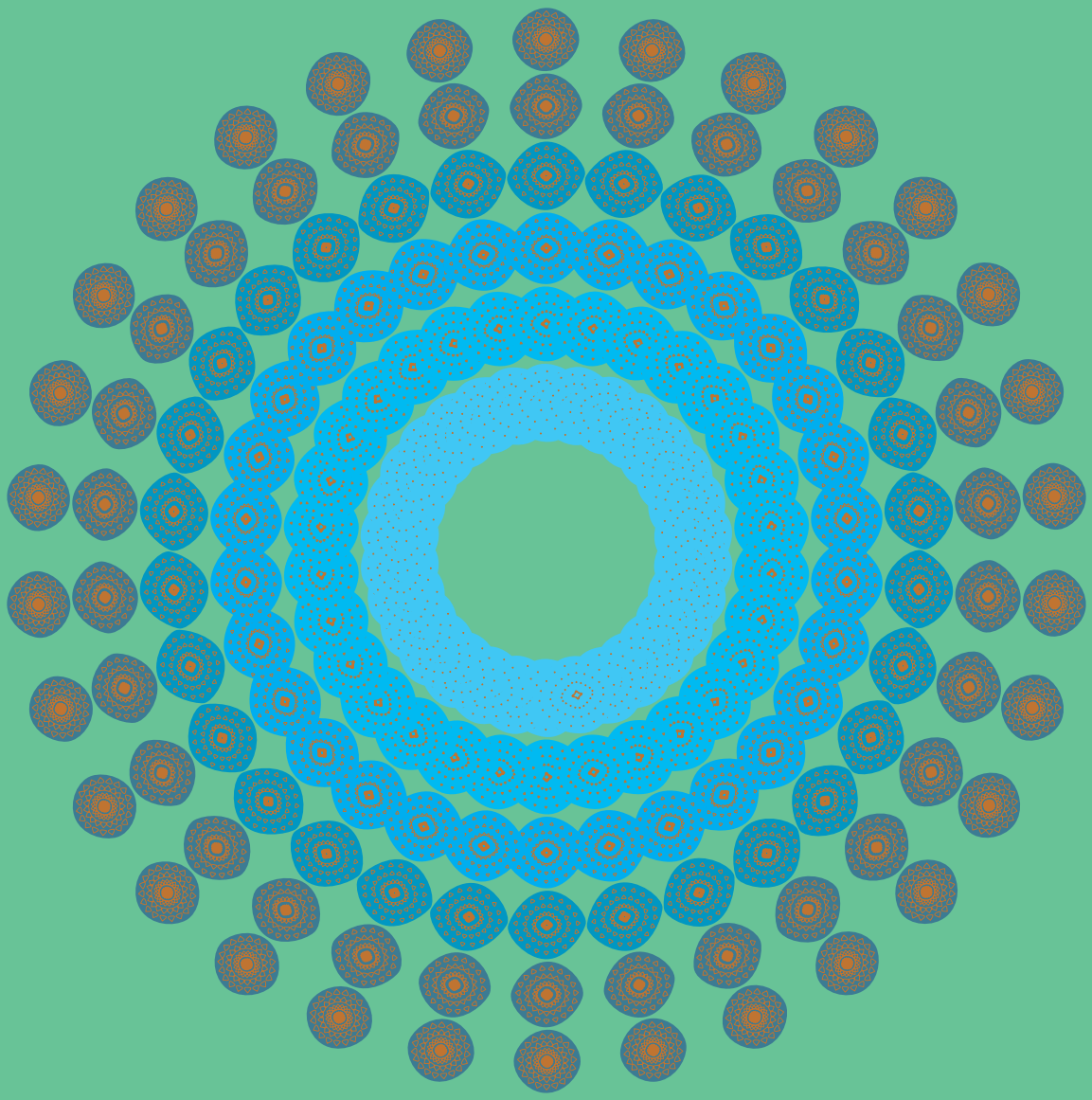
Investment Case for Tobacco Control in the Islamic Republic of Iran



Investment Case for Tobacco Control in the Islamic Republic of Iran

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Investment Case for Tobacco Control in the Islamic Republic of Iran

The case for scaling-up WHO FCTC implementation

Investment Case for Tobacco Control in the Islamic Republic of Iran

More than

50,500

Iranians die every year due to tobacco-related illness, accounting for

14% of all deaths in the country.

Investing now in four proven tobacco control measures will prevent more than

129,900 deaths

and avert

845 trillion IRR

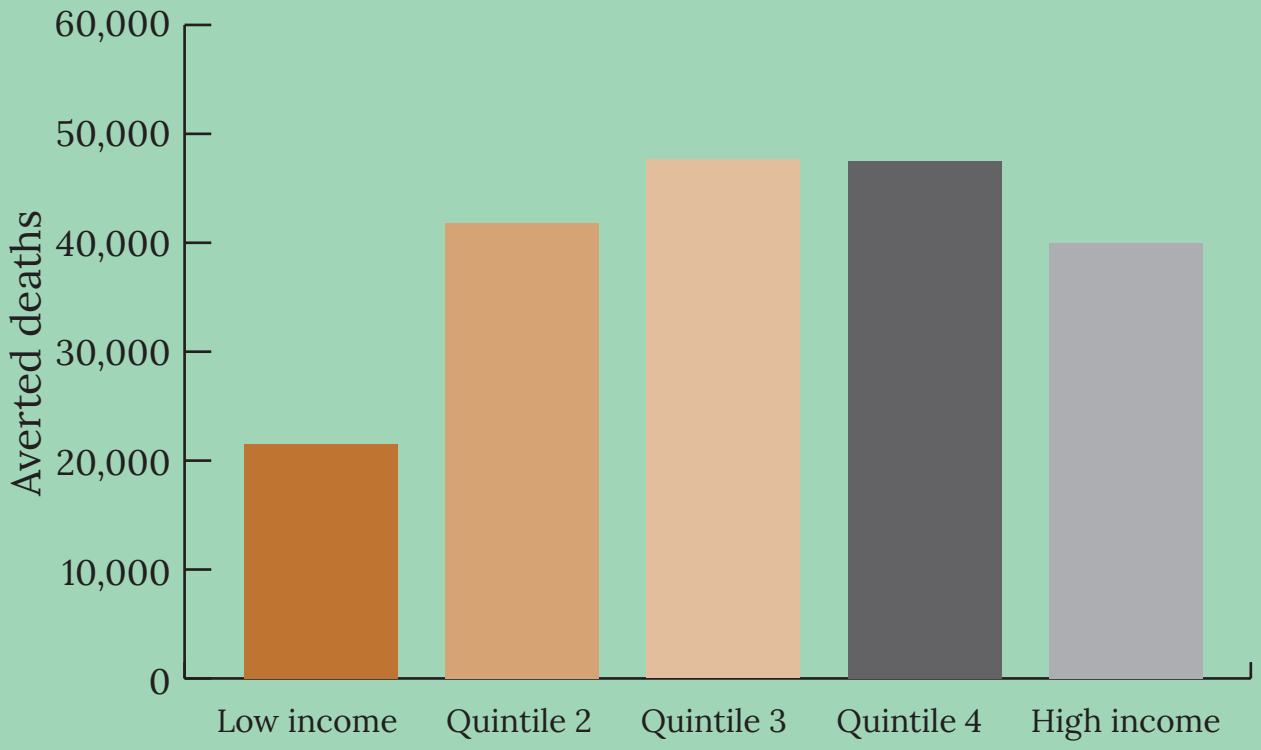
in economic losses by 2037.

Tobacco-attributable economic losses are about

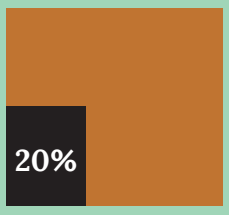
5.0 times larger

than the collected tobacco tax government revenue.

Deaths averted in the Islamic Republic of Iran by tax increase, by income quintile during the first year of tax increases that are modeled (2025).



Government tobacco tax revenue as a % of the tobacco burden.



Tobacco costs the Islamic Republic of Iran 501 trillion IRR every year, equivalent to 0.5% of its annual GDP in 2019.

Costs per adult smoker

32 million IRR

Acknowledgements

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This tobacco control investment case highlights the enormous costs of tobacco in the Islamic Republic of Iran and the set of recommended policy actions that will deliver substantial economic and public health benefits to the country. The implementation of effective tobacco control policies from the WHO Framework Convention on Tobacco Control can play an important role in strengthening sustainable development in the Islamic Republic of Iran.

Photo: © Freepik.com

Executive summary

Overview

Tobacco is a significant threat to health and sustainable development. Tobacco causes premature death and preventable disease that results in high health costs and economic losses, widens socioeconomic inequalities, and impedes progress towards the achievement of the Sustainable Development Goals (SDGs).

This report summarizes the costs and benefits—in health and economic terms—of implementing four key WHO FCTC policy actions of the WHO Framework Convention on Tobacco Control (WHO FCTC) that focus on demand reduction measures. The four actions are:

1) **Increasing tobacco taxation to reduce the affordability of tobacco products** (*WHO FCTC Article 6*).
2) **Implementing plain packaging of tobacco products** (*WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13*).
3) **Promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation** (*WHO FCTC Article 12*).
4) **Scaling up of brief advice to quit for tobacco users in primary care clinics** (*WHO FCTC Article 14*).

Main findings

In 2019, tobacco use in the Islamic Republic of Iran imposed around 501 trillion Iranian rials (IRR)[1] in economic losses. These losses are equivalent to 0.5 percent of the Islamic Republic of Iran's gross domestic product (GDP). These include a) 136 trillion IRR in direct health-care expenditures to treat tobacco-related illness, (b) tobacco-attributable mortality valued at 226 trillion IRR, and c) 139 trillion IRR in reduced workplace productivity from absenteeism and presenteeism. Productivity losses from current tobacco use in the Islamic Republic of Iran, representing 28 percent of all tobacco-related economic losses show how tobacco use impedes development in the Islamic Republic of Iran beyond health. Multisectoral engagement is required for effective tobacco control, and other sectors benefit substantially from the implementation of tobacco control measures that create healthier communities and a more productive labour force.

Every year, tobacco use kills more than 50,500 people in the Islamic Republic of Iran, with 55 percent of these deaths being premature, among people under the age of 70. Around 21 percent of lives lost from tobacco use are due to exposure to secondhand smoke. Demonstrating the importance of protecting people from secondhand smoke by enforcing smoke-free places as well as conducting regular public awareness campaigns. Deaths from tobacco are entirely preventable.

By acting now, the Government of the Islamic Republic of Iran can reduce the national burden from tobacco use. The investment case findings demonstrate that enacting and enforcing four proven WHO FCTC tobacco control measures would, over the next 15 years:

Avert IRR 845 trillion in economic losses, coming from:

- 234 trillion IRR due to workplace productivity losses. The tobacco control actions should stimulate economic growth because fewer people 1) miss days of work due to disability or sickness, and 2) work at a reduced capacity due to tobacco-related health issues.

- 229 trillion IRR in savings through avoidance of tobacco-attributable health-care expenditures. Of this, the government would save IRR 114 trillion in health-care expenditures and citizens would save IRR 90 trillion in out-of-pocket health-care costs, with remaining savings going to other payers.

- 382 trillion IRR in averted economic costs from tobacco-attributed mortality.

1 Modelling for the investment case was done in 2021. The figures were adjusted per inflation in November 2023 using IMF data, available at: https://www.imf.org/en/Countries/IRN#countrydata

Provide a return on investment (ROI) of 41:1.[2] This means that economic benefits (845 trillion IRR) significantly outweigh the costs of implementing the four WHO FCTC policy actions (21 trillion IRR). For each individual measure, increasing cigarette taxes will have the highest ROI (467:1), followed by implementing plain packaging of tobacco products (124:1), promoting and strengthening public awareness of tobacco control issues (52:1), and cessation support by training health professionals to provide brief advice to quit tobacco use (4:1).

Save more than 129,900 lives and reduce the incidence of disease. This would contribute to the Islamic Republic of Iran's efforts to achieve Sustainable Development Goal (SDG) Target 3.4, which aims to reduce by one-third premature mortality from non-communicable diseases (NCDs) by 2030. Enacting the four key WHO FCTC policy actions would prevent premature deaths from the four main NCDs – cardiovascular disease (CVD), diabetes, cancers, and chronic respiratory disease – by 2030, in the equivalent of 9.4 percent of the needed reduction in premature mortality to achieve SDG Target 3.4.

In addition to these main findings, the investment case separately examined the equity implications of increasing cigarette taxes. Increasing cigarette taxes in the Islamic Republic of Iran will confer social benefits to all, but particularly the poor. Those with lower incomes are more likely to quit smoking when cigarette prices rise, helping them to avoid illness and catastrophic health-care expenditures [1]. During the first six years of the modeled tax increase, nearly three quarters (73 percent) of all catastrophic health expenditures averted from increasing cigarette taxes will be among the poorest 40 percent of the population. Cigarette tax increases would further benefit Iranians with lower incomes if the resulting government tax revenue were reinvested in further WHO FCTC implementation and national development priorities such as universal health coverage. There is potential for even greater revenue increases in tax for all tobacco products (not only cigarettes).

Recommendations

This report recommends actionable steps, in addition to the modeled WHO FCTC provisions, that the **Government of the Islamic Republic of Iran** can take to strengthen a whole-of-government approach to tobacco and its development consequences. Through the FCTC 2030 Project, the Secretariat of the WHO FCTC, UNDP and WHO stand ready to support the Government of the Islamic Republic of Iran to reduce the tobacco-induced social, economic, and environmental burdens and prevent them from worsening. Achieving the target intervention levels modeled in this investment case would be accelerated if the Islamic Republic of Iran were to:

2 For every 1 IRR invested in the four key WHO FCTC policy actions today, the Islamic Republic of Iran will avert 17 IRR in economic losses by 2027 and 41 IRR by 2037.

Recommendations

1. **Commit to fully implement the WHO FCTC.**
2. **Strengthen tobacco tax structures and increase tax rates. (WHO FCTC *Article* 6)**
3. **Strengthen, implement and enforce the other three tobacco control policies studied in this investment case:**
   - **plain packaging of tobacco products (WHO FCTC *Guidelines for implementation of Article* 11 *and* WHO FCTC *Guidelines for implementation of Article* 13);**
   - **promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation (WHO FCTC *Article* 12); and**
   - **scale up of brief advice to quit for tobacco users in primary care clinics (WHO FCTC *Article* 14).**
4. **Ensure enforcement of the ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS). (WHO FCTC *Article* 13)**
5. **Ensure smoke-free public places and workplaces to protect people from the harms of tobacco smoke. (WHO FCTC *Article* 8)**
6. **Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (WHO FCTC *Article* 5.3).**
7. **Strengthen multisectoral coordination for tobacco control in the Islamic Republic of Iran by establishing a national coordination mechanism and bringing together various stakeholders (WHO FCTC *Article* 5.2*(a) and* 4.7)**
8. **Support health-promoting and economically viable alternatives to tobacco manufacturing. (WHO FCTC *Articles* 17 *and* 18)**
9. **Fully implement the Protocol to Eliminate Illicit Trade in Tobacco Products, including by building capacity to combat illicit trade. (*Protocol and* WHO FCTC *Article* 15)**
10. **Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies.**

Through the FCTC 2030 project, the Secretariat of the WHO FCTC, the United Nations Development Programme (UNDP) and the World Health Organization (WHO) stand ready to support the Government of the Islamic Republic of Iran to reduce the tobacco-induced social, economic, and environmental burdens through the implementation of evidence-based tobacco control laws and policies.

Table ES1. Summary of the main results of the Investment Case for Tobacco Control in the Islamic Republic of Iran 2023-2037*

Every year, tobacco use causes...

- More than 50,500 deaths.
- 136 trillion IRR in healthcare expenditures.
- Tobacco-attributable mortality valued at 226 trillion IRR.
- 139 trillion IRR in workplace productivity losses
- Total social and economic losses equivalent to 0.5 percent of GDP in 2019.

Implementing the modeled WHO FCTC measures now would, over the next 15 years...

- Prevent more than 129,900 deaths.
- Save 229 trillion IRR in healthcare expenditures.
- Generate economic benefits (845 trillion IRR) that significantly outweigh costs (21 trillion IRR) of implementation and enforcement – a 41:1 return on investment.
- Prevent 382 trillion IRR in losses due to tobacco-attributable mortality.
- Prevent 234 trillion IRR in workplace productivity losses.

1. Introduction

The tobacco epidemic is one of the greatest public health threats the world has faced, killing more than 8 million people a year, including some 1.2 million deaths from exposure to secondhand smoke [2]. Tobacco use is a main risk factor for non-communicable diseases (NCDs) including cardiovascular disease (CVD), diabetes, cancer and chronic respiratory disease, as well as a cause of many other diseases [3]. In the Islamic Republic of Iran, around 14 in every 100 adults currently use some form of tobacco product, with a higher prevalence among men (25 percent) than women (3.3 percent) [4]. Tobacco use causes more than 50,500 deaths every year [5]; about 55 percent of them are premature, occurring among those under the age of 70 [5].

In addition to the cost to health and well-being, tobacco also imposes a heavy economic burden throughout the world. A 2018 study (based on 2012 data) found that the costs of smoking[3] were equivalent to 1.8 percent of the world's annual gross domestic product (GDP). Almost 40 percent of the costs occurred in developing countries, highlighting the substantial burden these countries suffer [6].

Tobacco use reduces productivity by permanently or temporarily removing individuals from the labour market due to poor health [7]. When people die prematurely, the labour output that they would have produced in their remaining years is lost. In addition, people with poor health are more likely to miss days of work (absenteeism) or to work at a reduced capacity while at work (presenteeism) [8], [9]. The labour and health consequences affect not only smokers, but also the people in their households who often need to take time off from work to care for those with tobacco-related diseases.

Tobacco use also displaces household expenditure that would otherwise go to fulfilling basic needs, including food and education [10]–[12], and it contributes to hunger and impoverishment of families [13], [14]. The use of tobacco imposes health and socio-economic challenges on vulnerable populations including the poor, women and young people [15].

Tobacco production causes environmental damage including soil degradation, water pollution, and deforestation. Tobacco's annual climate change impact is comparable to entire countries' emissions and represents 0.2 percent of the global total. As a result of the shift of tobacco production from richer countries to lower income countries its environmental impacts are now mostly borne by developing regions. By depleting these countries' valuable resources, polluting and damaging their ecosystems, tobacco puts their livelihoods and development at risk [16]–[18].

Given the far-reaching health and development impacts of tobacco, and the multisectoral

3 Defined as either "direct costs" such as hospital fees or "indirect costs" representing the productivity loss from morbidity and mortality.

nature of the interventions required, effective tobacco control needs the engagement of non-health sectors to be operating in support of a whole-of-government and whole-of-society approach to policy making and implementation of the WHO Framework Convention on Tobacco Control (FCTC).

The WHO FCTC was developed in response to the globalization of the tobacco epidemic and is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. The Convention represents a milestone for the promotion of public health and provides new legal dimensions for international health cooperation. The Islamic Republic of Iran ratified the WHO FCTC in 2005 and became a Party to the treaty in 2006.

The Islamic Republic of Iran also became a Party to the Protocol to Eliminate Illicit Trade in Tobacco Products in 2018. The Protocol is an international treaty that builds upon Article 15 of the WHO FCTC, with the objective of eliminating all forms of illicit trade in tobacco products through a package of measures to be taken by countries acting in cooperation.

Tackling tobacco use across the world is a priority within the 2030 Agenda for Sustainable Development. Tobacco control is relevant to the achievement of many Sustainable Development Goals (SDGs), particularly SDG Target 3.4 that calls on action to achieve a one-third reduction in premature mortality from NCDs by 2030. Target 3.a is a means of implementation of SDG 3.4 and calls for strengthened implementation of the WHO FCTC. But beyond health, tobacco control is also a proven approach to reduce poverty and inequalities, strengthen and expand the economy and advance sustainable development more broadly. Tobacco control is an SDG accelerator as it can contribute to many goals simultaneously across the economic, social, and environmental spheres [19]. In addition, reducing tobacco use is a one of the nine targets of the WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2030 [20].

Box 1. 2030 Agenda for Sustainable Development

In 2015, all UN Member States adopted the 2030 Agenda for Sustainable Development, outlining actions to achieve greater peace and prosperity. The core components of the Agenda are the 17 SDGs which are an urgent call for all countries to act together, recognizing that efforts to address poverty, inequalities, health, education, economy and climate change must be undertaken in unison [21].

Since joining the WHO FCTC as a Party in 2006, the Islamic Republic of Iran passed the Comprehensive Act on National Control and Campaign Against Tobacco in 2006 and subsequent executive by-laws by the Ministry of Health (in particular, the Executive By-Law of 2007). Through these and other legislative measures, the Islamic Republic of Iran introduced a complete smoke-free policy in all public places and public transport, prohibited all forms of direct tobacco advertising, mandated health warnings on all tobacco packaging, improved

availability of smoking cessation services at public health centres, and established the National Headquarters for Control and Campaign against Tobacco [22].

The Islamic Republic of Iran has demonstrated leadership in the implementation of tobacco control policies, outpacing global implementation averages in many areas (see Figure 3). The Islamic Republic of Iran was one of the first countries in the Eastern Mediterranean region to implement a comprehensive ban on tobacco advertisement, promotion and sponsorship (TAPS) [23]. However, the Islamic Republic of Iran's young population and growing incomes make it a prime target of tobacco industry expansion and more vulnerable to increases in tobacco use [24]. Several key demand reduction measures within the WHO FCTC remain to be implemented and some require strengthening. Opportunities for the Islamic Republic of Iran to improve implementation of the WHO FCTC include: strengthening tobacco tax structures and increasing tax rates; implementing plain packaging for tobacco products; promoting and strengthening public awareness of tobacco control issues, and scaling up of brief advice to quit for tobacco users in primary care clinics. In 2013, the Islamic Republic of Iran undertook a WHO FCTC Needs Assessment that made recommendations for the country to accelerate implementation of the Convention by amending legislation to exclude the tobacco industry from policymaking, strengthening multisectoral coordination for tobacco control, increasing tobacco taxation, reviewing standards of tobacco product contents, strengthening tobacco control packaging and labelling requirements, evaluating public awareness activities, increasing international cooperation and the including tobacco in United Nations Development Assistant Framework programmes [25]. Realizing the full benefits of all of the above measures depends on concerted and coordinated efforts from multiple sectors of government with support from civil society.

In 2021, the Secretariat of the WHO FCTC, UNDP, and WHO undertook a virtual mission with partners in the Islamic Republic of Iran to initiate this investment case. The investment case is part of support made available to the Islamic Republic of Iran as an FCTC 2030 project country.[4]

Investment cases for tobacco control analyse the health and economic costs of tobacco use as well as the opportunities for potential gains from scaled-up implementation of key WHO FCTC measures. It identifies which WHO FCTC demand reduction measures are likely to produce the largest health and economic returns for the Islamic Republic of Iran, based on the return on investment (ROI). Taking into account the current implementation of WHO FCTC measures in the Islamic Republic of Iran, the investment case models the impact of the following four key WHO FCTC provisions:

4 The FCTC 2030 project is a global initiative funded by the Governments of Australia, Norway and the United Kingdom to support countries to strengthen WHO FCTC implementation to achieve the SDGs. As of 2022, the Islamic Republic of Iran is one of 33 countries worldwide that have participated in the FCTC 2030 project [26].

2. Tobacco control in the Islamic Republic of Iran: status and context

1. **Increase cigarette taxation to reduce the affordability of tobacco products.** *(WHO FCTC Article 6)*
2. **Implement plain packaging[5] of tobacco products.** *(WHO FCTC Article 11: Guidelines for implementation, and Article 13)*
3. **Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation.** *(WHO FCTC Article 12)*
4. **Scale up of brief advice to quit for tobacco users in primary care clinics. (WHO FCTC *Article* 14)**

Chapter 2 of this report provides an overview of tobacco control in the Islamic Republic of Iran, including tobacco use prevalence as well as challenges and opportunities. **Chapter 3** summarizes the methodology of the investment case (see Methodology annex and the separate *Technical Appendix*, available upon request, for more detail). **Chapter 4** reports the main findings of the economic analysis. **Chapter 5** details results of complementary analyses examining equity considerations of increasing tobacco taxes, as well as the projected impact on government revenue. Further, it also details the contribution of the FCTC demand reduction measures to meeting SDG Goal 3.4 to reduce premature mortality due to NCDs by one-third by 2030. **Chapter 6** summarizes the results and provides recommendations to the government to further tobacco control. The annex provides information on the methods underlying the various analyses described in the report.

2.1 Tobacco use prevalence, social norms, and awareness-raising

Around 14.2 percent of adults use tobacco products in the Islamic Republic of Iran according to the WHO Report on the Tobacco Epidemic, 2021 [4].However, a study in different in the west of the Islamic Republic of Iran found the tobacco prevalence to be greater at 20 percent among adults ages 35 to 65 [27].

5 Plain (or neutral) packaging requirements prohibit the use of logos, colors, brand images, or promotional information on packaging other than brand names and product names displayed in a standard color and font style.

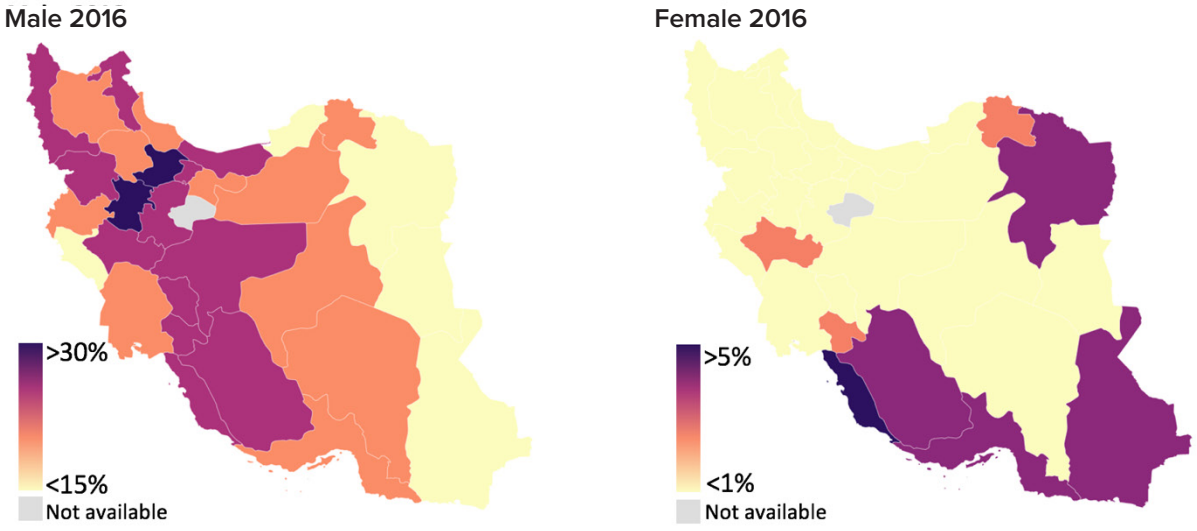
According to the 2021 WHO Report, overall, tobacco prevalence is much higher among men than among women (25 and 3.3 percent respectively) [4]. A study conducted among women ages 15 to 49 in Alborz found tobacco smoking prevalence to be three times this at 10 percent. Furthermore 10.5 percent of women smoked hookahs in particular [28]. Cigarettes are the most common form of smoked tobacco used, with around 74 percent of all adult tobacco smokers using cigarettes. On average, cigarette smokers in the Islamic Republic of Iran consume around 15 cigarettes a day [29].

Although the commercial purchase and sale of smokeless tobacco is prohibited [30] its consumption is popular in the Islamic Republic of Iran, particularly among the younger population groups, but there is limited availability of data on nation-wide prevalence [31]. Estimates from 2017 suggest that around 5.4 percent of young men and 4.8 percent of young women consume smokeless tobacco in the Islamic Republic of Iran [32]. No data on smokeless tobacco consumption among adults is available [31].

Water-pipes are also smoked in the Islamic Republic of Iran. Based on available data, around 2.92 of the adult population (2.22 percent of men and 1.19 percent of women) report smoking water-pipe (shisha) [33]. The prevalence is higher among young adults with 6.9 percent of young adults 18-24 years old (10.7 percent of boys 18-24 and 3.5 percent of girls) smoking water-pipe [34].

Tobacco consumption in the Islamic Republic of Iran varies according to geographical area, with smoking prevalence being particularly high among men living in western provinces (see **Figure 1**) [29]. Among women, the highest smoking prevalence is observed in southern parts of the country [29]. Furthermore, the latest STEPwise approach to surveillance (STEPS) survey data suggests that current tobacco smoking prevalence tends to be higher in rural than in urban areas [31].

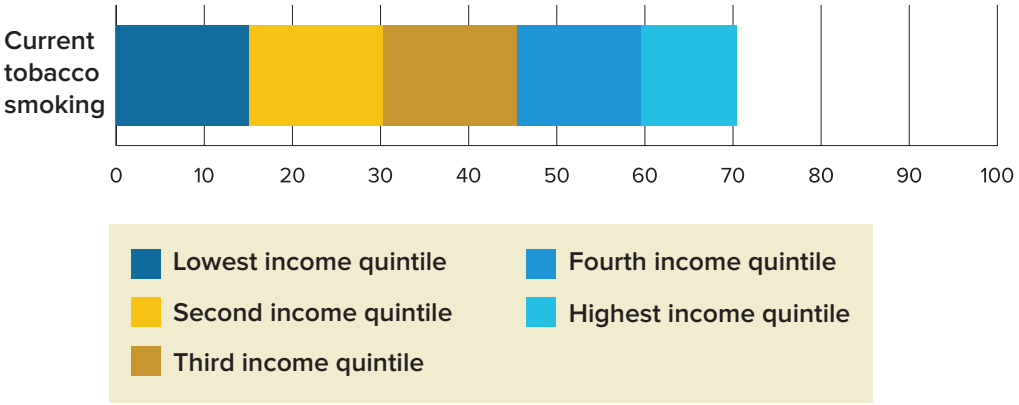
Fig. 1: Geographical pattern of current tobacco smoking in the Islamic Republic of Iran, 2016*



**Smoking prevalence used in models is drawn from WHO estimates while this data is from the 2014 Demographic and Health Survey [4].*

There are also considerable variations in tobacco prevalence across different age groups. According to the 2016 STEPS survey, the highest tobacco smoking prevalence is among males and females 45-54 years old, while the lowest is among those 18-24 years old [31]. In addition, the STEPS survey revealed that tobacco smoking prevalence in the Islamic Republic of Iran decreases as income increases (see **Figure 2**). Less adults from the wealthiest population quintile smoke tobacco compared to adults from the poorest population quintile (11 and 15 percent respectively) [31], increasing the vulnerability of low-income households to the negative effects of tobacco.

Fig. 2: Proportion of current adult smokers by income quintile (%) in 2016*



Source: This data is from 2016 STEPS survey [31]. Smoking prevalence used in models is drawn from WHO estimates [4].

The latest Global Youth Tobacco Survey (GYTS) revealed that more than one in ten students 13-15 years old consumed some form of tobacco in 2016 (10.2 percent of students) [35]. More recent studies have yielded similar findings with a 2020 study finding that 9 percent of Iranian adolescents 12-17 years old are current smokers [36].

The 2016 GYTS found that smoking tobacco is more prevalent than smokeless tobacco with 9.2 percent of students smoking tobacco and 1.2 percent of students using smokeless tobacco. Looking at smoked tobacco, the prevalence of shisha smoking is more than three times greater than that of cigarettes (5.7 percent of students compared to 3.4 percent respectively) [35]. Moreover, more than 60 percent of students buy cigarettes from shops, supermarkets, street vendors, and kiosks [35].

Both adolescents and adults in the Islamic Republic of Iran are exposed to secondhand tobacco smoke. The latest available data from the STEPS and the GYTS report that more than 25 percent of adults (18 years and older) and more than 24 percent of students (13-15 years old) are regularly exposed to secondhand smoke at home [31], [35]. People from lower-income rural households are at the highest risk of secondhand smoke exposure in the home. Exposure to secondhand smoke at work is estimated to be around 15 percent among adults. However, 38 percent of surveyed adolescent students report being exposed to secondhand smoke inside enclosed public places [4].

The GYTS also found that more than half of tobacco users want to quit and more than 40 percent have already attempted to stop smoking at least once [35]. However, only 36 percent of smokers who visit doctors are advised to quit [29].

Making tobacco products less affordable is one of the best ways to control tobacco use, and young people are particularly sensitive to the price of tobacco [37]. A 2021 study demonstrated that higher tobacco prices, such as through tax increases, are associated with a decreased risk of smoking initiation among youth and young adults [38]. Higher tobacco prices from tax increases can make smoking too costly for young people and reduce the incentive to start or continue to smoke.

Box 2. Tobacco and gender

While worldwide women and girls tend to use tobacco at lower rates than men, they can still be subjected to the harms of tobacco use—including exposure to secondhand smoke and the effects of household income diverted to tobacco use. Since tobacco use prevalence is often lower for women than men, the tobacco industry see this as an opportunity to scale up marketing targeted at women and girls. In some southern and eastern provinces of the Islamic Republic of Iran, the prevalence of tobacco smoking among women is higher than the national average (as high as 5 percent compared to 3.3 percent) [29]. Furthermore, fewer women than men in the Islamic Republic of Iran attempt to quit smoking tobacco. The prevalence of female smokers who had attempted to quit smoking was more than two times lower than among men (12.4 and 26 percent respectively) [29]. In addition, women non-smokers in the Islamic Republic of Iran (and globally) have a higher risk of exposure to second hand smoke at home than men [31] .

Box 3. Tobacco and pregnancy

Tobacco use during pregnancy imposes significant health risks on the fetus, infant and mother. It increases the likelihood of miscarriages, stillbirths, preterm births, low birth weight, birth defects, and sudden infant death syndrome, among others [39], [40]. Exposure to secondhand smoke during pregnancy also increases the risks of having low birthweight babies, in turn increasing the risk of a mother and child developing health issues [40]. Mothers face additional health risks as pregnant smokers are more likely to experience heart and lung complications than pregnant nonsmokers [41]. Despite the strong evidence, the tobacco industry continues to aggressively target women and girls [40]. It is estimated that the global prevalence of smoking during pregnancy is 1.7 percent [42].

2.2 National tobacco control legislation, strategy and coordination

The Comprehensive Act on National Control and Campaign Against Tobacco of 2006 is the primary tobacco control instrument in the Islamic Republic of Iran [43]. Passed shortly after the ratification of the WHO FCTC, the comprehensive law contains provisions governing smoke-free places, TAPS, tobacco packaging and labelling, and tobacco control governance. The Ministry of Health and Medical Education subsequently issued decrees and by-laws based on the Act, including establishing fine amounts for violations of the tobacco control legislation, requirements for graphic health warnings, and other regulations (executive by-laws of 2007, 2009) [44], [45].

The Comprehensive Act on National Control and Campaign Against Tobacco of 2006 and the executive by-law of 2007 substantially strengthened national regulation of smoke-free spaces. While bans on smoking in public places already existed prior to 2006, the new legislation has clearly defined the scope of these bans and provided additional mechanisms and tools for monitoring and enforcement [23]. In addition, the act prohibits all forms of direct tobacco advertising, mandates health warnings on all tobacco packaging, and provides for improved availability of smoking cessation services at public health centres, among other measures [22].

The Ministry of Health and Medical Education issued a letter in 2012 prohibiting the production, supply and consumption of e-cigarettes [46]. This ban is also restated in the "Specific Regulations of Tobacco Products and Tobacco Promotional Items" approved by the Presidency of the Islamic Republic of the Islamic Republic of Iran in 2019. This document states that the commercial sale and purchase and sale of e-cigarettes as well as smokeless tobacco is prohibited [30].

To address youth tobacco consumption, there is an agreement between the Ministry of Health and Medical Education and the Ministry of Education to protect youth from tobacco [22]. The agreement provides for collaboration between the two institutions on prevention of tobacco use among children and establishes a strong foundation for implementation of joint programmes and initiatives.

To ensure effective implementation of the tobacco control legislation and to facilitate multi-stakeholder collaboration, the National Headquarters for Control and Campaign against Tobacco (NHCCT) was established as per the provisions of Article 1 of the Comprehensive Act on National Control and Campaign against Tobacco. The NHCCT is headed by the Ministry of Health and Medical Education and serves as a multi-stakeholder committee that facilitates collaboration of different government entities on development and implementation of different tobacco control measures. The NHCCT has been engaged in the codification of relevant executive orders, drafting and adoption of training programs, design, review, and approval of anti-tobacco warnings and messages, and consolidation of relevant data and research, among other activities [22].

2.3 The status of WHO FCTC tobacco control demand-reduction measures

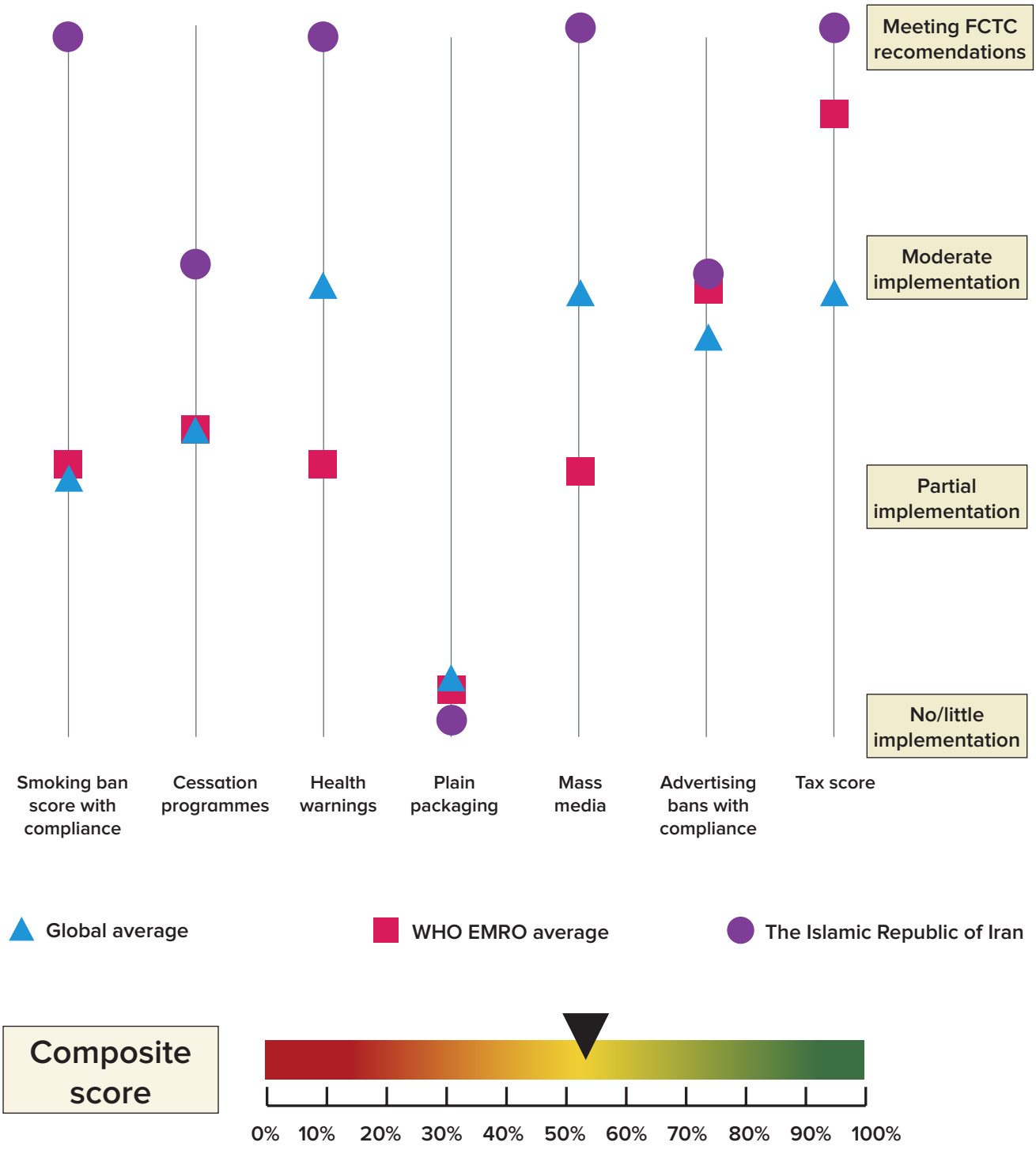
Strong fiscal and regulatory measures influence societal norms by signalling that tobacco use is harmful, not only for users but for the people around them including family, colleagues, and co-workers.

While the Islamic Republic of Iran has demonstrated progress to implement key demand reduction measures, more than 14 percent of Iranians continue to use tobacco [4]. Implementing additional demand reduction measures or intensifying existing ones can draw the Islamic Republic of Iran into closer alignment with the WHO FCTC and reduce the substantial costs imposed by tobacco use. Below, the status of each of the demand reduction measures in relation to WHO FCTC recommendations is discussed.

Figure 3 summarizes the status of tobacco control demand reduction measures in the Islamic Republic of Iran from the WHO Report on the Global Tobacco Epidemic, 2021 [4] and, for each, progress toward meeting the WHO FCTC obligations. Overall, the Islamic Republic of Iran is assessed to be 66 percent of the way toward fulfilling the key WHO FCTC demand reduction measures, above the global average of 53.[6]

6 This composite score represents a status quo implementation level of tobacco control demand reduction measures developed intentionally for tobacco control investment cases.

Fig. 3: Implementation of WHO demand-reduction measures in the Islamic Republic of Iran



1. Increase cigarette taxation to reduce the affordability of tobacco products (*WHO FCTC Article 6*)

In the Islamic Republic of Iran, according to the 2021 WHO Global Report on the Tobacco Epidemic, total taxes comprise about 15.5 percent of the retail price of the most sold brand of cigarette [4]. Tax on cigarettes consists of an ad valorem excise tax, value added tax (VAT), and other taxes. The ad valorem excise tax account for the 9.3 percent of the retail price and it is applied at a tiered rate to different tobacco products [47]. Currently there is no specific excise tax for tobacco in the Islamic Republic of Iran.

There is substantial scope for action to reach what is considered in the WHO Report on the Global Tobacco Epidemic as a high-level of achievement, which is for total taxes to represent at least 75 percent of the retail price [4]. On tax design for tobacco products, WHO makes a number of recommendations including that governments should rely more on specific tobacco excises to drive price increases (rather than rely only on ad valorem excises), increase tobacco taxes significantly to reduce the affordability of tobacco products and automatically adjust specific tobacco taxes for inflation and income growth [48].

According to the WHO technical manual on tobacco tax policy and administration, uniform specific excise taxes or mixed tax structures that rely on specific excise taxes are the most likely to lead to higher prices [48]. Similarly, according to the WHO FCTC Guidelines for Implementation of Article 6, Parties to the Convention should consider specific or mixed excise tax systems, these guidelines also recommend a minimum specific tax floor [49].

The Global Cigarette Tax Scorecard that assesses countries' cigarette tax policy performance gave the Islamic Republic of Iran a score of 2 out of a maximum score of 5 in 2020. This is lower than the global average of 2.28. Within the Tax Scorecard, the Islamic Republic of Iran rated lowest on tax share of price and tax structure scoring 0 and 1 respectively in 2020 [50].

The investment case examines the impact of raising cigarette taxes to levels considered in the WHO Report on the Global Tobacco Epidemic, 2021 as a high-level of achievement, which is for total taxes to represent at least 75 percent of the retail price[7] [4]. Additional real price increases averaging 6.7 percent annually are modeled from 2028 to 2037 (see the annex on methodology for more detailed information).

7 The WHO Report on the Global Tobacco Epidemic classified total tax share of 75 percent or more of the retail price as a high level of achievement [4]. In the scenario modeled, cigarette taxes would meet the 75 percent level by 2038, after the 15-year period modeled.

Further economic gains will be made in the Islamic Republic of Iran with substantial tax increases on all tobacco products.

2. Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke *(WHO FCTC Article 8)*

There is a complete smoke-free policy in all public areas in the Islamic Republic of Iran, including health-care and educational facilities, indoor offices and workplaces, restaurants, cafés, traditional teahouses, all food production facilities, and public transport [22]. Although national laws are in place for imposing fees and penalties on establishments in the case of violations [51], discussions from investment case interviews indicate they are not being imposed. In addition, according to investment case interviews although the amounts for fines and penalties have increased per inflation, these increases were based on a baseline that was reportedly small. High compliance of the smoke-free policy is reported in most places, except for restaurants, and cafés where the compliance score was estimated as 4 out of 10 [51]. While additional monitoring and enforcement are needed [51] as well as strengthening of the mechanism for fees and penalties, overall, the Islamic Republic of Iran has been recognized as one of the highest achieving countries to implement the WHO FCTC Article 8 [4]. Therefore, this measure is not modeled in the investment case.

3. Require tobacco packaging to carry graphic health warnings describing the harmful consequences of tobacco use *(WHO FCTC Article 11)*

Thirteen rotating graphic warning labels are required on cigarette packaging in the Islamic Republic of Iran [51]. The Comprehensive Act on National Control and Campaign Against Tobacco mandates that not less than 50 percent of the front and rear principal display areas of cigarette packaging be covered by health warning (Articles 6 and 16). Misleading words such as “low tar” or “light” are prohibited [4]. Despite existence of the law, investment case interviews indicate there are still some tobacco products available that do not have a warning label.

Given the requirements for the WHO FCTC Article 11 obligations are being met and there is a good level of implementation, this intervention has not been modeled in the investment case.

4. Implement plain packaging of all tobacco products *(WHO FCTC Article 11: Guidelines, and Article 13)*

The Islamic Republic of Iran currently does not require plain packaging of tobacco products [4]. The investment case examines the impact of implementing and enforcing plain packaging requirements.

5. Promote and strengthen public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction, and the benefits of cessation *(WHO FCTC Article 12)*

The Government of the Islamic Republic of Iran has actively engaged in health literacy promotion and anti-tobacco awareness-raising. Local and national anti-tobacco campaigns are regularly organized by the Ministry of Health and Medical Education in collaboration with other relevant stakeholders (e.g. the Ministry of Education) [22]. The campaigns typically leverage communication channels [51]. Investment case interviews also indicate that during World No Tobacco Day, there has been cooperation among relevant government agencies for the implementation of relevant campaigns.

However, no target audience research has been conducted to adjust the content and design of communication materials and the impact of anti-tobacco campaigns has not been systematically monitored and evaluated [51]. As a result, there is also a lack of information on public perception and attitudes toward national anti-tobacco campaign messages and materials [51]. WHO FCTC Guidelines for implementation of Article 12, recommend ensuring that research, target audience testing, and process and outcome evaluations are conducted to achieve the greatest possible impact on people's knowledge, attitudes, and behaviours [52]. Still, there is strong engagement from a range of public sector and civil society stakeholders in these campaigns. Additionally, the 2007 executive by-law requires all relevant government and nongovernmental agencies to implement smoking prevention training and education programmes [23]. Non-governmental organizations (NGOs), such as the Iranian Anti-Tobacco Association (IATA), have also actively engaged in raising public awareness about tobacco harms [53].

The investment case models the impact of running a best-practice mass media campaign that would further promote and strengthen public awareness about tobacco control issues and the harms of tobacco use.

6. Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship *(WHO FCTC Article 13)*

The Islamic Republic of Iran has a total ban on tobacco advertising, promotion, and sponsorship (TAPS) and has been recognized as one of the highest achieving countries to enforce the WHO FCTC Article 13 [4] The national legislation bans both direct and indirect forms of advertising and imposes fines for violations. High compliance is reported with nearly all national TAPS regulations, except for advertising at point of sale and appearance of tobacco products on television and/or films [51]. Although advertising on the internet is banned in the Islamic Republic of Iran, investment case interviews indicate the existence of tobacco advertising and promotion online and on social media. Given the requirements for the WHO FCTC Article 13 obligations are being met and there is a good level of implementation, this intervention has not been modeled in the investment case.

7. Scale up of brief advice to quit for tobacco users in primary care clinics*(WHO FCTC Article 14)*

The Islamic Republic of Iran has a national toll-free quit line, and tobacco cessation services are offered in some health-care facilities. According to the WHO Report on the Tobacco Epidemic, 2021, Country Profile for the Islamic Republic of Iran, the Islamic Republic of Iran's national health insurance or publicly-administered programmes do not cover the cost of tobacco cessation services nor the cost of nicotine replacement therapy (NRT) [51]. However, investment case interviews indicate that as of 2022, national health insurance does now cover NRT.

The provision of brief advice to tobacco users from health-care professionals whenever they access health-care services – especially in the primary care setting – is also shown to be effective in supporting successful tobacco cessation [54] and represents a useful early step in rolling out support for tobacco users to quit. The investment case models the impact of training primary care health providers to identify tobacco users and to provide tobacco cessation advice (see the annex on methodology for detailed information). Further gains would be possible with the provision of further support to tobacco users, such as offering specialized tobacco dependence treatment services, and/or internet based quit support and making pharmacotherapies more widely available (free of cost, if possible).

Table 1 summarizes the existing state of WHO FCTC demand-reduction measures

and compares them against the WHO FCTC target for each measure. Reaching the WHO FCTC targets can further reduce tobacco consumption and its development impacts. The impact of each policy measure—individually and in combination—is described in **Annex Table A4**.

Table 1: Summary of the current state of WHO FCTC demand reduction measures in the Islamic Republic of Iran and modeled implementation targets based on the WHO Report on the Global Tobacco Epidemic, 2021 [4]

Tobacco Control Policy	The Islamic Republic of Iran Baseline*	Modeled WHO FCTC Target
Increase cigarette taxation to reduce the affordability of tobacco products *(WHO FCTC Article 6)*	Tax share equivalent to 15.5% of the retail price of the most sold cigarette brand.	Increase total tax rates on cigarettes towards the goal of at least 75% of the retail price. Implement regular tax increases to outpace inflation and income growth.
Implement and enforce bans on smoking in public places to protect people from exposure to tobacco smoke *(WHO FCTC Article 8)*	Plain packaging requirements are not currently in place.	Implement and enforce plain packaging of tobacco products.
Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns *(WHO FCTC Article 12)*	The Government of the Islamic Republic of Iran implements regular anti-tobacco campaigns both at regional level and nation-wide. However, the communication materials are not tested with target audience, and the impact of the campaigns is not systematically monitored.	Implement a national anti-tobacco mass media campaign that is researched and tested with a targeted audience and evaluated for impact.
Scale up of brief advice to quit for tobacco users in primary care clinics *(WHO FCTC Article 14)*[8]	Smoking cessation is currently only offered in some health-care facilities, usually at secondary and tertiary level. There is a national quit line to support quitting, but the cost of pharmacotherapy is not fully covered by the national health insurance.	Expand training of primary health-care providers to identify tobacco users and to provide tobacco cessation advice; implement the provision of tobacco cessation services at the primary care level.

Source: *WHO Report on the Global Tobacco Epidemic, 2021* [4].

8 The costs include: those to train health providers, the cost to health systems to deliver the brief interventions (inclusive of human resource time, facility overheads, etc.), and some programmatic costs

2.4 Tobacco use and the COVID-19 pandemic

The global coronavirus disease (COVID-19) pandemic has strained health systems worldwide, and the economic impact of the outbreak has been immense. According to WHO, evidence indicates that smokers are more likely to suffer more severe outcomes of COVID-19, such as admission into intensive care units and death, than never smokers. Furthermore, severe forms of COVID-19 or deaths due to COVID-19 are more frequent in people with comorbidities that are related to tobacco use, including chronic obstructive pulmonary disease, lung cancer and cardiovascular diseases [55]. Moreover, tobacco use is also proven to worsen the outcomes of other communicable diseases such as tuberculosis and HIV [56].

2.5 Financing

Currently, the Islamic Republic of Iran allocates up to 2 percent of tobacco taxes to tobacco control activities [51]. However, investment case interviews indicate that as of 2022, indicated that it increased to 2.9 percent. In 2014, government expenditure on tobacco control was reported as US$1.5 million [51]. However, health experts in the country have indicated that these resources are not sufficient to maintain and scale up the work on implementation and enforcement of all tobacco control regulations [57]. Furthermore, investment case interviews indicate that Ministries of Health, Education, Interior, Industry as well and ministry of Youth and Sport have specific budget lines to allocate for tobacco control activities.

2.6 Tobacco industry presence and interference in policymaking

The Islamic Republic of Iran is a producer of raw tobacco, which is cultivated mainly in the northern provinces of the country. The area under cultivation is estimated at 10,383 hectares as of 2023 [58], which would be sufficient to produce around 62,000 to 93,000 tonnes of wheat.[9] Tobacco farming in the Islamic Republic of Iran has been found to be associated with negative environmental effects, including on-site emissions, terrestrial ecotoxicity, and aquatic acidification [59]. In 2020, the Ministry of Health and Medical Education reported that there were 6,000 workers involved in tobacco growing, and the value of tobacco leaf production represented under 20 percent of national GDP [60]. The ministry also reported that no economically viable and sustainable alternatives are promoted for tobacco growers, workers or sellers and that the Policy options and recommendations on economically sustainable alternatives to tobacco growing (in relation to Articles 17 and 18 of the WHO FCTC) have not been used in policy development [60], [61]. In 2023, the Ministry of Agriculture prioritized the importance of replacing tobacco growing with other agricultural commodities supported by research and education [58].

9 According to the Food and Agriculture Organization of the United Nations (FAO), under irrigation a good commercial wheat grain yield is 6 to 9 tonnes per hectare. See the official website of the FAO “Crop information: Wheat” Accessible at: https://www.fao.org/land-water/databases-and-software/crop-information/wheat/en/. Accessed: 29 Nov 2022.

In addition to tobacco cultivation, the Islamic Republic of Iran has a growing tobacco manufacturing industry. There has reportedly been an increase in the number of tobacco companies in the Islamic Republic of Iran and an increase in the number of manufactured cigarettes between 2015 and 2020 [62]. The majority of raw tobacco used to manufacture tobacco is imported, with 20 percent produced in the Islamic Republic of Iran [63]. Cigarette exports have also been a source of foreign revenues with the number of exported cigarettes steadily increasing over the past several years [62].

The importation of cigarettes is banned in the Islamic Republic of Iran, but raw materials to manufacture tobacco products is permitted [64]. However, local production of cigarettes, including international brands, is increasing. In 2018 Philip Morris International (PMI) signed an agreement with the Iranian Tobacco Company to import and jointly produce Marlboro cigarettes [63].

The Iranian Tobacco Company (ITC) continues to operate in the Islamic Republic of Iran as a private company. Before the company was privatized, in 2013, tobacco industry representatives were treated as a part of government and participated in policy meetings [23]. Investment case interviews indicate that in the Islamic Republic of Iran, government employees cannot be among the chief board of private companies, meaning they cannot serve on the board for the ITC. A 2012 qualitative analysis survey conducted among 40 public health experts in the Islamic Republic of Iran found that the majority of participants (83 percent) believed that the status of the national tobacco company as a governmental organization was a major obstacle to effective tobacco control legislation in the country [57]. As of 2021, major tobacco companies present in the Islamic Republic of Iran still include the ITC, in addition to British American Tobacco and Japan Tobacco International , with the latter two controlling 70 percent of the cigarette market in the country [64].

With the strong presence of tobacco industry in the Islamic Republic of Iran, tobacco industry inference in policymaking continues to be a threat, even with current regulations that prohibit tobacco manufacturers from participating in policy development. Further, all tobacco-related corporate social responsibility activities are banned in the country [64]. In the Global Tobacco Industry Interference Index[10] the Islamic Republic of Iran scored 50, ranking 26th out of 90 countries (in a system where a lower the score indicates less interference) [65].

Despite these achievements, there remain potential opportunities for tobacco industry influence on national policy, particularly with the growth of the tobacco market in the country [23]. For example, government ministries have appointed some of the directors for the board

10 The Global Tobacco Industry Interference Index measures efforts by governments to address tobacco industry interference. It is accessible at https://globaltobaccoindex.org/

of the ITC [64] and the ITC actively works with transnational tobacco companies for the import and joint manufacturing of tobacco products [63]. In 2020, new permits and licenses were issued to nearly 50 cigarette and tobacco brands to increase local production of cigarettes [63]. Additionally, there is no official code of conduct for public officials for dealing with tobacco companies, although reports suggest it is in progress [64], and there is no plan to raise awareness about issues related to tobacco industry interference and WHO FCTC Article 5.3 among government agencies [64]. However, investment case interviews indicate that there is a general code for public officials can refer to regarding interaction with tobacco companies. Furthermore, there continues to be a lack of transparency on tobacco industry activities in the country, as there is some uncertainty about the tobacco company's mandatory reporting on its activities, including whether or not this information is shared with the NHCCT [64].

2.7 Civil society organizations and academia

Civil society organizations and academia are key tobacco control stakeholders in the Islamic Republic of Iran. The Iranian Anti-Tobacco Association (IATA) is an NGO that, since 1983, has actively engaged in raising public awareness about tobacco harms and has led on a number of community-based initiatives aimed at strengthening national tobacco prevention [66]. Its members include physicians, journalists, activists, religious leaders, politicians, and researchers.

Academia in the Islamic Republic of Iran has produced a rich library of data-driven research that supports design and implementation of tobacco prevention and control policies. For instance, multiple surveys were conducted by Tehran University of Medical Sciences to examine tobacco prevalence and consumption patterns among youth [67].

According to WHO FCTC Article 4.7, the participation of civil society and academia is essential in achieving the objective of the WHO FCTC and the Protocol to Eliminate Illicit Trade in Tobacco Products. While members of academia are already engaged in tobacco control policy dialogues, there remains room for strengthened collaboration. The Government of the Islamic Republic of Iran can do so by integrating their work in national anti-tobacco programmes, including monitoring and evaluation activities.

2.8 Illicit trade in tobacco products

Illicit trade in tobacco products poses a serious threat to public health. Illicit trade increases the accessibility and affordability of tobacco products, thus fuelling the tobacco epidemic and undermining tobacco control policies. It also causes substantial losses in government revenues, and at the same time contributes to the funding of transnational criminal activities

[68]. Despite tobacco industry's claims, changes in illicit tobacco trade levels are very loosely connected with changes in tobacco taxes. Increasing tobacco taxes does not necessarily lead to more tobacco smuggling, as demonstrated by multiple studies [69]. In addition, the recent devaluation of the Iranian rial makes smuggling less attractive.

A 2021 cross-sectional household survey in Tehran of over 3,000 participants found that 11.1 percent of respondents consumed illegal cigarettes (i.e. without a government label) [70]. A number of national stakeholders have identified illicit tobacco trade as a prominent challenge to tobacco control efforts in the country, including due to its impact on tobacco consumption among younger population groups [71].

To address illicit trade, the Islamic Republic of Iran ratified the Protocol to Eliminate Illicit Trade in Tobacco Products in 2018 [72], representing a milestone in the country's efforts to eliminate the problem of illicit tobacco. The Protocol supplements the WHO FCTC with a comprehensive tool to counter and eventually eliminate illicit trade in tobacco products and to strengthen legal dimensions for international health cooperation. The Islamic Republic of Iran has adopted several measures to combat illicit trade including requiring tobacco product packing to indicate the origin of the product and if it can be legally sold in the country, a tracking and tracing system, monitoring and collecting data on cross-border tobacco trade, requiring the confiscation of illicit tobacco products are destroyed, among other measures. Still, in 2020 the Ministry of Health and Medical Education of the Islamic Republic of Iran reported that in 2019, 400 million illicit cigarettes were seized and noted an increasing trend in illicit trade [60].

The purpose of the investment case is to quantify the current health and economic burden of tobacco use in the Islamic Republic of Iran (in the context of WHO FCTC measures that are currently in place), and to estimate the impact that implementing new WHO FCTC measures—or strengthening existing ones—would have on reducing this burden.

A static model was developed to conduct the investment case and to perform the methodological steps in **Figure 4**. This methodology has been used for previous national WHO FCTC investment cases under the FCTC 2030 project.

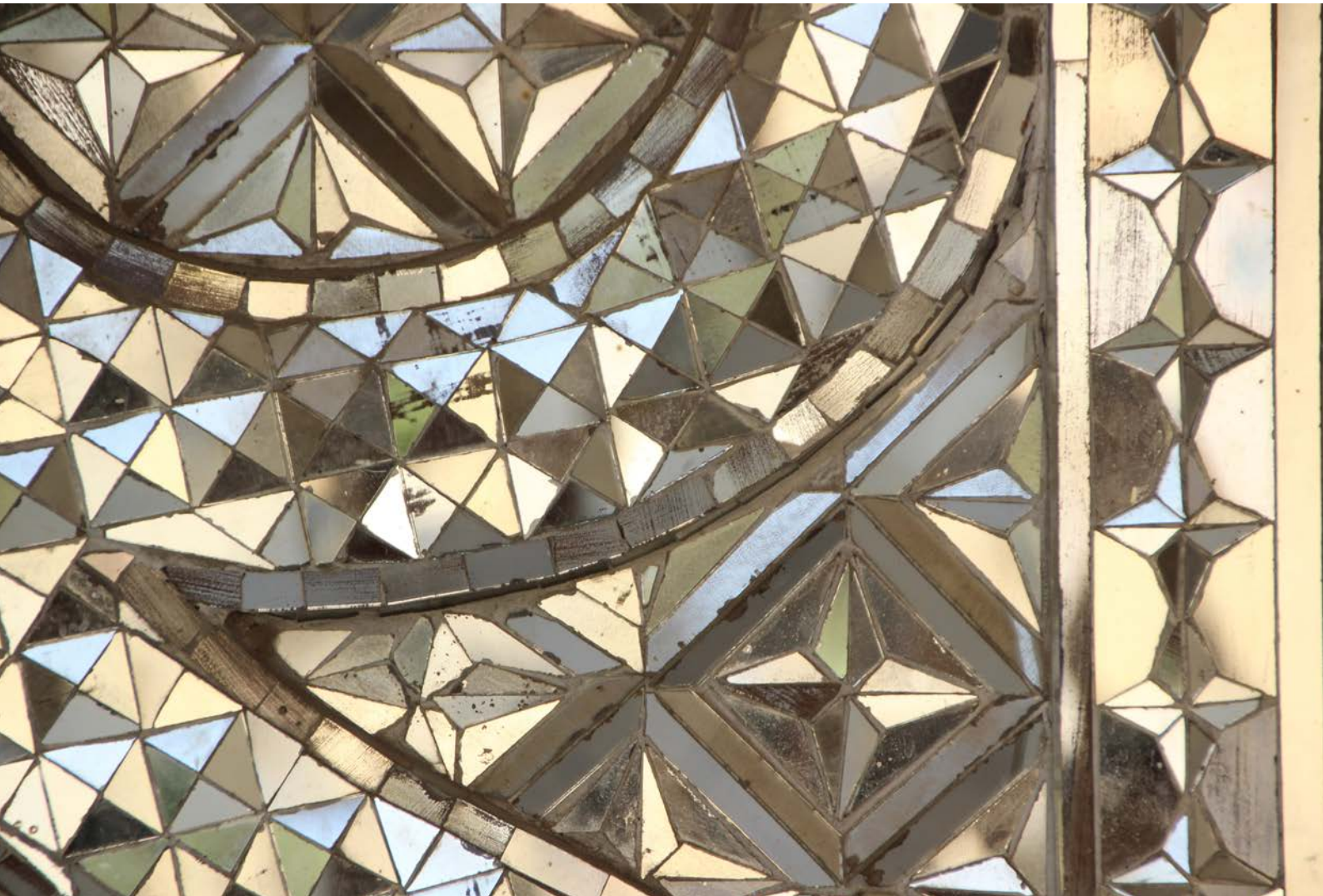
The tools and methods used to perform these steps are described in this report's annex and methodology. Interested readers are also referred to this report's separate *Technical Appendix*[11] for a more thorough account of the methodology. The investment case team worked with the Ministry of Health and Medical Education and other stakeholders in the Islamic Republic of Iran to collect national data inputs for the model. Where data was unavailable from government or other in-country sources, the team utilized publicly available

11 Available upon request.

national, regional, and global data from sources such as WHO, the World Bank database, the Global Burden of Disease study by the Institute for Health Metrics and Evaluation (IHME), and academic literature.

Within the investment case, costs and monetized benefits are reported in constant 2020 Iranian rials (IRR) and discounted at an annual rate of 5 percent.

Photo: © Freepik



3. Methodology

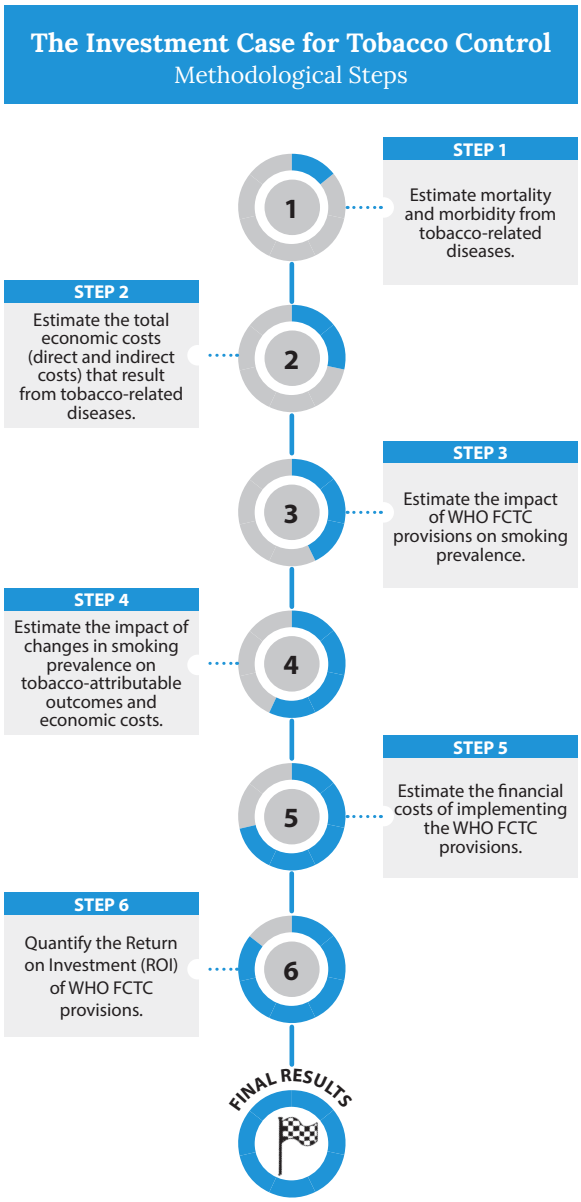
4. Results

4.1 The current burden of tobacco use: health and economic costs[12, 13]

In 2019, tobacco use caused an estimated 50,578 deaths in the Islamic Republic of Iran, 55 percent of which were premature, i.e. occurred among those under 70 years [73]. These deaths amount to 944,678 years of life lost (YLLs), which are lost productive years in which many of those individuals would have contributed to the workforce [73]. Monetizing YLLs due to tobacco use, the investment case identifies IRR 225 trillion in losses due to tobacco-attributable mortality.

While the costs of the tobacco-attributable mortality are high, the consequences of tobacco use begin long before death. As individuals suffer from tobacco-attributable diseases (e.g., cardiovascular disease, respiratory conditions, cancers), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by smoking cost the government more than 67 trillion IRR in 2019

Fig. 4: Building the FCTC investment case



12 In assessing the 'current burden' of tobacco use, the economic costs of tobacco-attributable mortality include the cost of deaths due to any form of exposure to tobacco (including smoking, secondhand smoke, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for health-care expenditures, absenteeism, and presenteeism. While other forms of tobacco may also cause losses in these categories, no data is available to precisely ascertain those losses.

13 Modelling for the investment case was done in 2021. The figures were adjusted per inflation in November 2023 using IMF data, available at: https://www.imf.org/en/Countries/IRN#countrydata

and caused Iranians to spend 54 trillion IRR in out-of-pocket (OOP) health-care expenditures. Private insurance and non-profit institutions serving households spent 15 trillion IRR on treating tobacco-attributable diseases in 2019. In total, health-care expenditures attributable to smoking amounted to more than 136 trillion IRR.

In addition to health-care costs, as people become sick, they are more likely to miss days of work (absenteeism) or to be less productive at work (presenteeism). In 2019, the cost of excess absenteeism due to tobacco-related illness was 34 trillion IRR and the cost of presenteeism due to cigarette smoking was nearly 105 trillion IRR.

In total, tobacco use caused almost 501 trillion IRR in economic losses in 2019, equivalent to about 0.5 percent of the Islamic Republic of Iran's 2019 GDP.[14] **Figure 5** summarizes the current social and economic burden of tobacco use and contextualizes the losses in the Islamic Republic of Iran. The burden of tobacco use in the Islamic Republic of Iran far exceeds the revenue the government currently collects from taxing tobacco products. Tobacco-attributable social and economic losses are about 5.0 times larger than the collected tobacco tax government revenue. There are more than 96 million IRR in losses per adult smoker.

14 The investment case considered the the Islamic Republic of Iran 2019 GDP value of 105 quadrillion IRR (equivalent to about US$2.5 trillion or EUR 2.3 trillion).

Given the dominance of multinational corporations in the tobacco trade and the high-profit margins on cigarettes, much of the profit from tobacco sales in the Islamic Republic of Iran leaves the country and goes into the pockets of international shareholders.

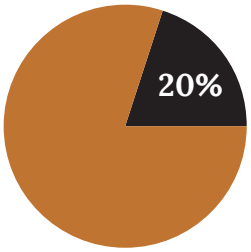
Fig. 5: Contextualizing the burden of tobacco use in the Islamic Republic of Iran in 2019*

Tobacco costs the Islamic Republic of Iran 501 trillion IRR every year, equivalent to 0.5% of annual GDP

Losses per adult smoker

96 million IRR

Government tobacco tax revenue as a % of the tobacco burden



* The tax revenue comparison is provided for context and is not meant to suggest that taxes should be increased to levels that equalize revenue with the tobacco burden. Government tobacco tax revenue (101 trillion IRR in 2019) is from WHO Global Tobacco Control Report 2021.

Figure 6 illustrates the share of the economic burden attributable to tobacco-attributable mortality, workplace costs, and health-care costs. **Figure 7** and **Figure 8** illustrate the annual health losses that occur due to tobacco use.

Fig. 6: Breakdown of the share of the economic cost of tobacco-attributable mortality, workplace costs, and healthcare costs in the Islamic Republic of Iran (trillions IRR) in 2019

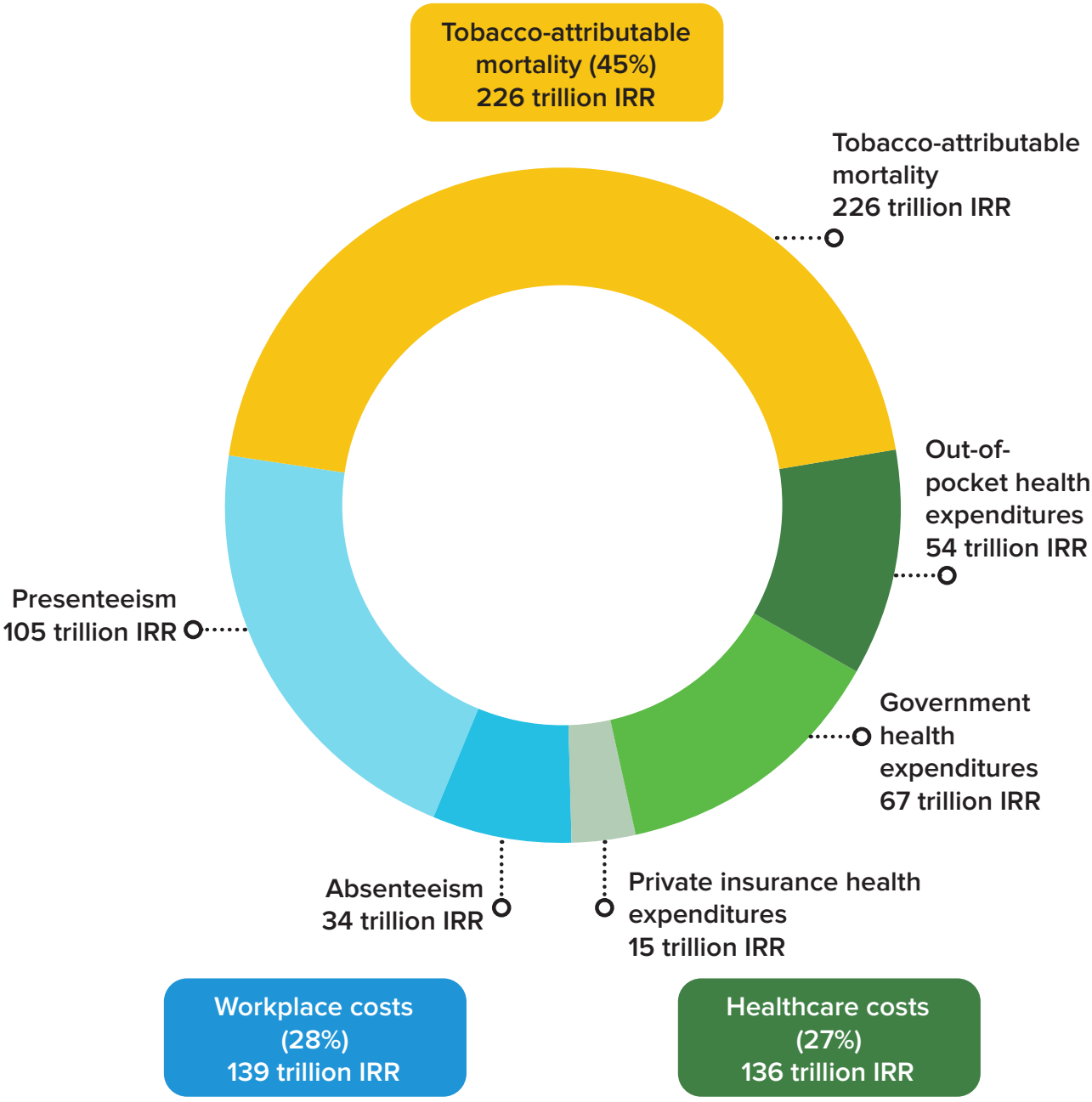


Fig. 7: Tobacco-attributable deaths by disease in the Islamic Republic of Iran, 2019 (*Source:* Results are from the IHME Global Burden of Disease Results Tool. Other causes include oesophageal cancer, Alzheimer's disease and other dementias, larynx cancer, cervical cancer, pancreatic cancer, bladder cancer, liver cancer, prostate cancer, breast cancer, colon and rectum cancer, stomach cancer, leukaemia, aortic aneurysm, peptic ulcer disease, subarachnoid haemorrhage, lip and oral cavity cancer, gallbladder and biliary diseases, other pharynx cancer, kidney cancer, atrial fibrillation and flutter, multiple sclerosis, nasopharynx cancer, peripheral artery disease, rheumatoid arthritis, otitis media, and age-related macular degeneration.)

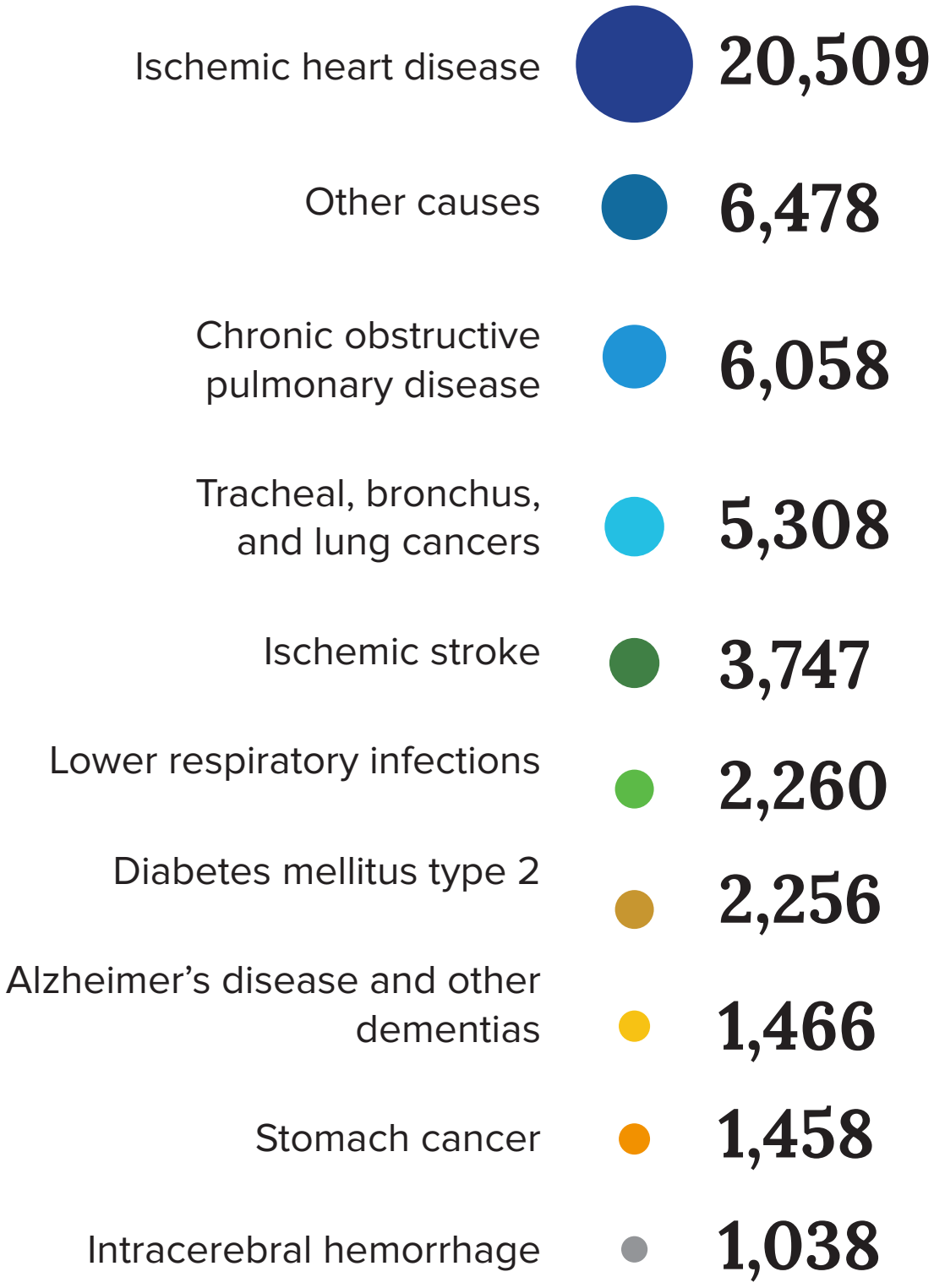
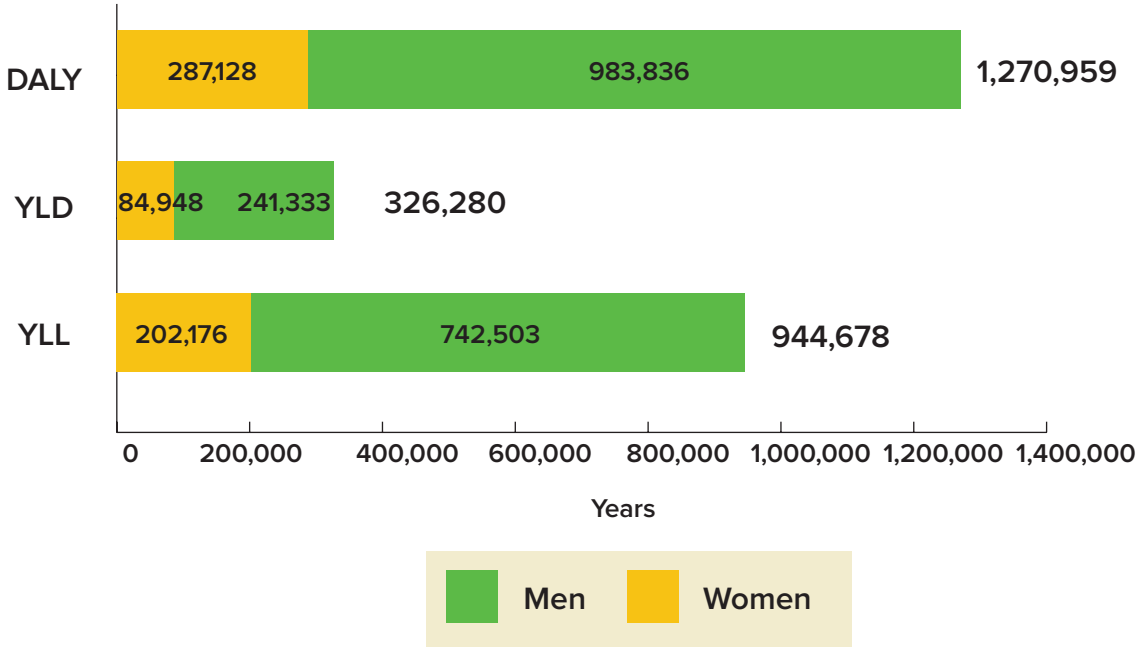


Fig. 8: Tobacco-attributable DALYs, YLDs, and YLLs in the Islamic Republic of Iran, by gender, 2019



YLDs are "years lived in less than ideal health…[YLDs are] measured by taking the prevalence of a [disease] condition multiplied by the disability weight for that condition. Disability weights reflect the severity of different conditions." YLLs are "calculated by subtracting the age at death from the longest possible life expectancy for a person at that age." Disability-adjusted life years (DALYs) "equal the sum of YLLs and YLDs. One DALY equals one lost year of healthy life." Source: IHME. (2018). Frequently asked questions. Available at: http://www.healthdata.org/gbd/faq#What%20is%20a%20DALY .

4.2 Implementing policy measures that reduce the burden of tobacco use

The WHO FCTC provides a framework for tobacco control measures to be implemented by Parties at national and international levels to reduce continually and substantially the prevalence of tobacco use and exposure to tobacco smoke. Through the full implementation of the tobacco control measures in the WHO FCTC, the Islamic Republic of Iran can secure significant health and economic returns, and begin to reduce the IRR 501 trillion in annual economic losses from tobacco use.

The next two subsections present the health and economic benefits that result from four key WHO FCTC policy actions: 1) to increase tobacco taxation to reduce the affordability of tobacco products; 2) to implement plain packaging of tobacco products; 3) to promote and strengthen public awareness of tobacco control issues; and 4) to scale up of brief advice to quit for tobacco users in primary care clinics.

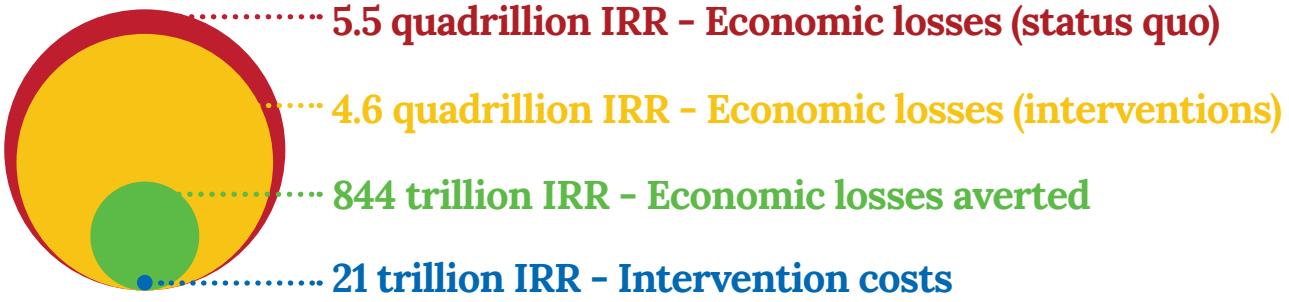
4.2.1 Health benefits—lives saved

The full implementation of the WHO FCTC in the Islamic Republic of Iran (inclusive of all four of the measures listed above) would lower the prevalence of tobacco use, leading to substantial health gains for the country. Implementing the package of four WHO FCTC policy actions that are the focus of this investment case would reduce the prevalence of cigarette smoking by 28 percent (in relative terms) over 15 years, saving 129,913 lives from 2023-2037, or about 8,661 lives annually.

4.2.2 Economic benefits—costs averted

Implementing the package of four key WHO FCTC policy actions would result in the Islamic Republic of Iran avoiding 15 percent of the economic loss that it is expected to occur from tobacco use over the next 15 years. **Figure 9** illustrates the extent to which the Islamic Republic of Iran can mitigate the economic losses it would incur under the status quo.

Fig. 9: Tobacco-related economic losses over 15 years, 2023-2037:

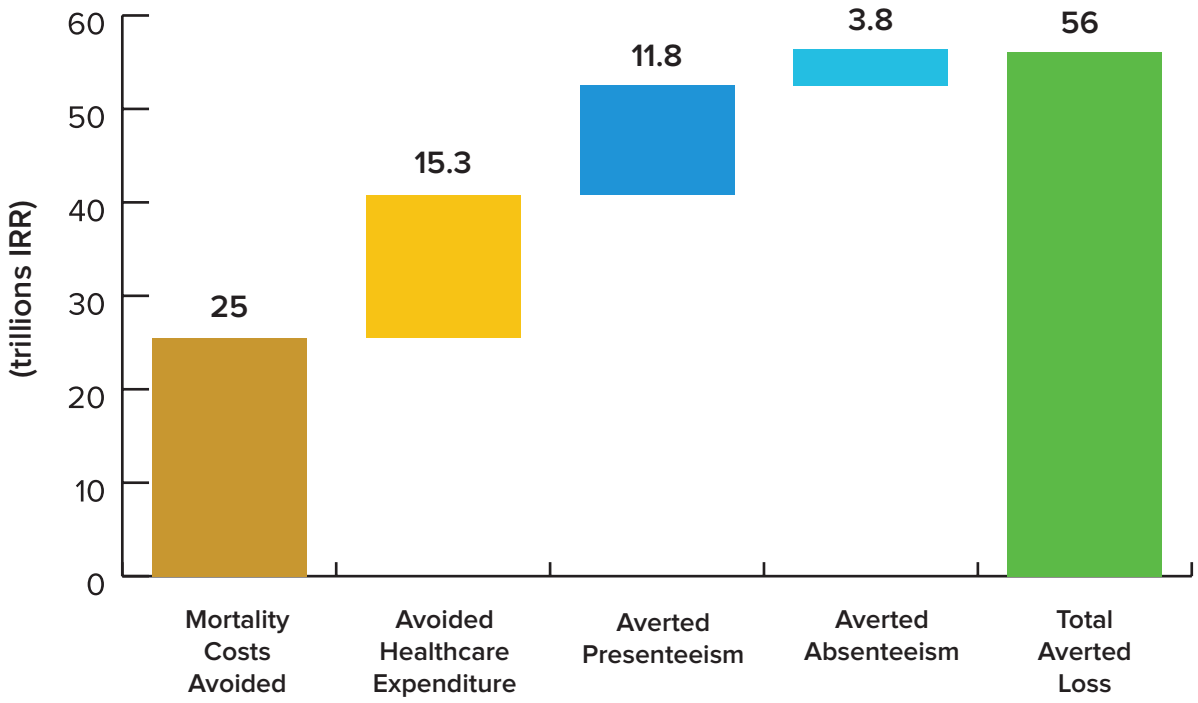


In total, over 15 years the Islamic Republic of Iran would save about 844 trillion IRR that would otherwise be lost if the package of four key WHO FCTC policy actions is not implemented. This is equivalent to around 56 trillion IRR in annual avoided losses.

With better health that would arise from the implementation of the WHO FCTC, fewer individuals would need health-care services due to tobacco-related diseases, resulting in direct cost savings to the government and citizens. Better health also leads to increased productivity. Fewer working-age individuals leave the workforce prematurely due to death. Workers miss fewer days of work (absenteeism) and are less hindered by health complications while at work (presenteeism).

Figure 10 breaks down the sources from which annual avoided costs accrue from implementation of the package of four WHO FCTC policy actions. The largest annual avoided costs result from averted tobacco-attributable mortality (25 trillion IRR). The next highest source is avoided health-care expenditures (15.3 trillion IRR) followed by reduced presenteeism (11.8 trillion IRR) and reduced absenteeism (3.8 trillion IRR).

Fig. 10: Sources of annual avoided economic costs as a result of implementing the tobacco control policy package in the Islamic Republic of Iran*

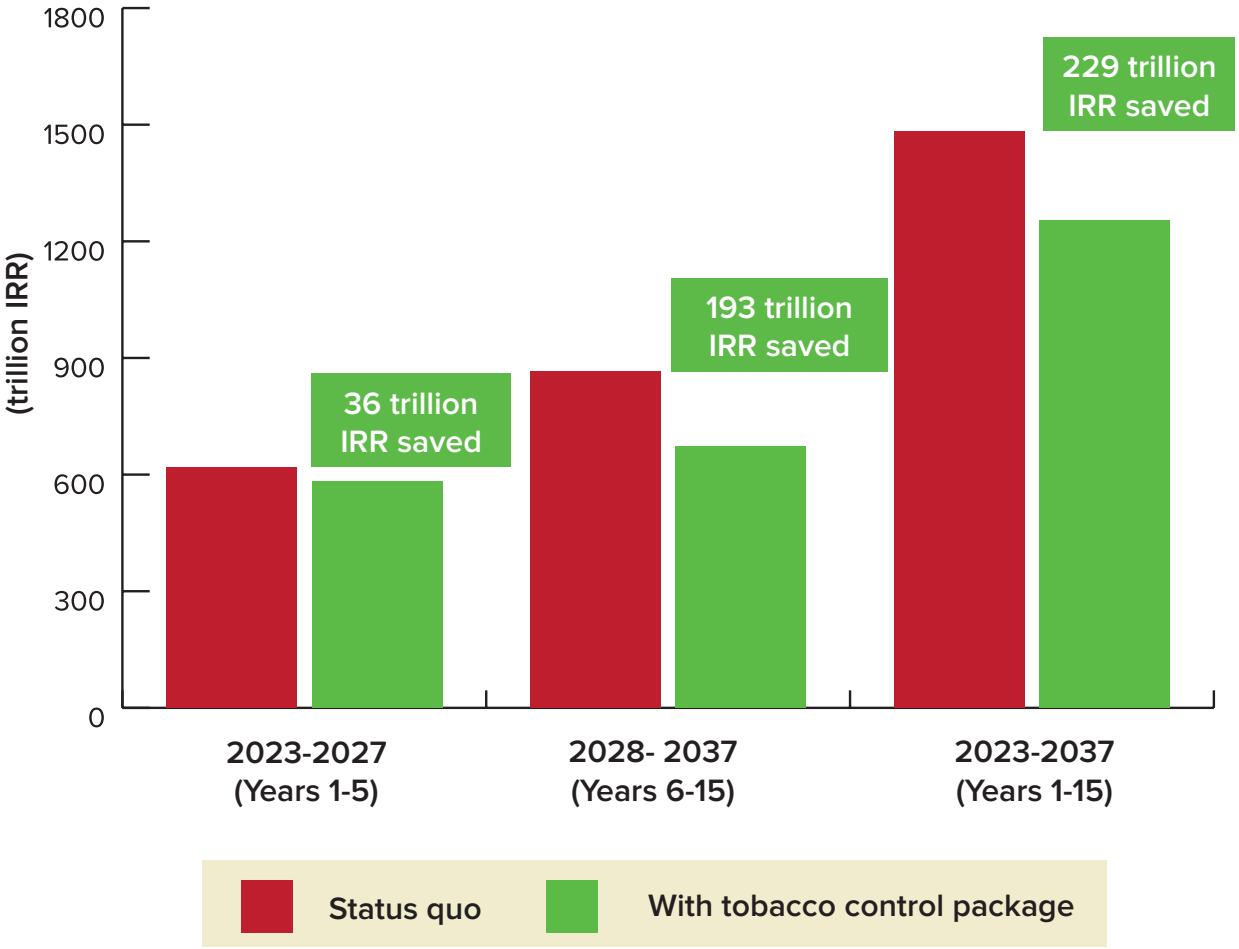


*Figures subject to rounding

Implementing the package of four WHO FCTC policy actions examined in the investment case will reduce medical expenditure both for citizens and the government. Presently, total annual private and public annual health-care expenditures in the Islamic Republic of Iran is about 5.9 quadrillion IRR annually [74], and 2.3 percent of this amount is directly related to treating disease and illness due to tobacco use [75] (≒ 136 trillion IRR).

Year-on-year, the package of interventions would lower tobacco use prevalence, leading to less illness, and consequently less health-care expenditure (see **Figure 11**). Over the 15-year time horizon of the analysis, the package of interventions averts 229 trillion IRR in health-care expenditures, or 15.3 trillion IRR annually. Of these savings, 50 percent would go to the government and 39 percent would go to individual people who would have had to make OOP payments for health care. The remainder of savings would go to private insurance and other sources of health-care expenditures. From reduced health-care costs alone, the government would expect to save about 114 trillion IRR over 15 years. Simultaneously, the government would successfully reduce the health expenditure burden that tobacco imposes on Iranians through OOP payments, supporting efforts to reduce economic hardship on families. For families with tobacco users who quit, spending that would have been on tobacco products or health care, could instead be invested in nutrition, education, and other productive inputs to secure a better future.

Fig. 11: Private and public health-care costs (and savings) in the Islamic Republic of Iran over the 15-year time horizon, 2023-2037



4.2.3 The return on investment

While the health gains from strengthening tobacco control in the Islamic Republic of Iran are by themselves enough to justify the cost of the interventions, the economic gains that will also accrue make the case for WHO FCTC implementation even stronger.

An investment is considered worthwhile from an economic perspective if the gains from making it outweigh the costs. A return on investment (ROI) analysis measures the efficiency of the tobacco investments by dividing the economic benefits that are gained from implementing the WHO FCTC tobacco control investments by the costs of the investments.

For this investment case, the ROI for each intervention was evaluated in the short-term (five years), to align with planning and political cycles, and in the medium-term (15 years) to align with the original timeframe allotted for the SDGs. The ROI was also evaluated for the full package of four WHO FCTC policy actions. Total benefits (avoided economic losses due to tobacco-attributable mortality, health-care expenditures, and diminished workplace productivity) are a measure of which interventions are expected to have the largest impact.

Table 2 displays costs, benefits, and ROIs by intervention, as well as for all interventions combined. With the exception of training health professionals to provide brief advice to quit tobacco use (an individual-level intervention with higher initial personnel costs), most interventions deliver an ROI greater than one within the first five years, meaning that even in the short-term the benefits of implementing the package of recommended policy actions outweigh the costs. Depending on the intervention, over the first five years, the government will gain economic benefits ranging from between 0.8 to 164 times its investment. Given the long-term nature of many tobacco-related illnesses, with disease often only developing after years of tobacco use, the ROIs for each intervention continue to grow over time, reflecting the compounding gains from planning and development stages to full implementation.

Table 2: Return on investment, by tobacco control policy/intervention in the Islamic Republic of Iran (IRR trillions), 2023-2027 and 2023-2037

Return on investment, by tobacco control measure	First 5 years (2023-2027)			All 15 years (2023-2037)		
	Total Costs (trillions)	Net Benefits (trillions)	ROI	Total Costs (trillions)	Net Benefits (trillions)	ROI
Tobacco control package* *(all policies/interventions implemented simultaneously)*	**7.8**	**134**	**17**	**21**	**844**	**41**
Increase cigarette taxation[15] to reduce the affordability of tobacco products *(WHO FCTC Article 6)*	0.4	62	164	0.8	397	467
Implement and enforce bans on smoking in public places to protect people from exposure to tobacco smoke *(WHO FCTC Article 8)*	0.5	20	38	1.2	143	124
Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns *(WHO FCTC Article 12)*	3.1	57	18	7.5	390	52
Scale up of brief advice to quit for tobacco users in primary care clinics *(WHO FCTC Article 14)*	2.9	2.3	0.8	9.3	36	4

* The combined impact of all interventions is not the sum of individual interventions. To assess the combined impact of interventions, following Levy and colleagues' (2018), "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PRi and PRj, (1-PR ii) x (1-PR j) [is] applied to the current smoking prevalence [76]. The costs of the tobacco package include the costs of the examined policies, as well as programmatic costs to implement and oversee a comprehensive tobacco-control programme.

15 Raise taxes to what is considered in the *WHO Report on the Global Tobacco Epidemic, 2021* as a high-level of achievement, which is for total taxes to represent at least 75 percent.

Over the 15-year period, increasing taxes on cigarettes is expected to have the highest return on investment (467:1).[16] The return will be even higher with increasing tax on all tobacco products. Implementing plain packaging is expected to have the next highest return on investment (124:1), followed by promoting and strengthening public awareness of tobacco control issues (52:1), and scaling up of brief advice to quit for tobacco users in primary care clinics (4:1).

16 Rounded to the nearest whole number.

5. Examining additional impacts

The investment case examines how increasing taxes would impact equity by summarizing an equity analysis conducted by Raei et al. (2021) [77]. In addition, it examines what contribution stronger WHO FCTC implementation would make towards the Islamic Republic of Iran's fulfilment of SDG Target 3.4

5.1 Equity analysis: benefits for lower-income populations of increasing cigarette taxes

A common misperception is that taxes on tobacco products may disproportionately harm poor tobacco users, since the tax burden represents a higher proportion of their income than that of wealthier tobacco users. However, evidence shows that the poor actually stand to benefit most from raised cigarette taxes [78]. Relative to richer smokers, lower-income smokers are more likely to quit smoking when taxes are increased [36], meaning they benefit from subsequent decreases in tobacco-related health problems, and resulting medical costs which can be financially catastrophic. In Lebanon [79], for example, a 50 percent increase in cigarette prices was projected to prevent 23,000 households from falling into poverty over 50 years, and that same level of increase was found to avert catastrophic health expenditures for 1.83 million individuals in India, 440,000 in Bangladesh, and 350,000 in Viet Nam [80].

In the Islamic Republic of Iran, an analysis conducted by Raei et al. (2021) analysed the impact of a 75 percent increase in the price of cigarettes on tobacco-attributable deaths, government tax revenue, and patient OOP health-care spending [77]. A 75 percent increase in price is similar to the first six years of tax increases modeled in the investment case and thus similar results would be expected during that time period.

The equity analysis conducted by Raei et al. [77] divides the Islamic Republic of Iran's population into five equal groups by income, where quintile 1 is composed of the poorest 20 percent of the population, and quintile 5 is composed of the wealthiest 20 percent. Unlike most countries, where smoking prevalence is higher among the poor, in the Islamic Republic of Iran the middle quintile and the second wealthiest quintile have the greatest number of smokers (21 percent), compared to 16 percent among the poorest quintile.

Table 3 and **Figure 12** summarize the results of the analysis by Raei et al. [77]. Over the course of six years, the 75 percent increase in price would prevent 21,559 deaths among the poorest income quintile compared to 39,973 among the wealthiest quintile. Thus, 11 percent of the averted deaths are among the poorest 20 percent of the population. When prices increase, the government's tax revenue increases. The poorest quintile pays for just 12 percent of the additional excise tax revenues, while the third through fifth quintiles each contribute more than 20 percent.

When individuals quit smoking in response to an increase in price, they are less likely to seek care for tobacco-attributable diseases. Raei et al. (2021) found that the modeled tax increase resulted in significant savings in OOP health-care costs, with 9 percent of these savings accruing to the poorest 20 percent of the population. OOP health-care expenditures can push households into poverty. By reducing the number of individuals smoking, the price increase is expected to prevent 17,244 cases of poverty, all of which are among the poorest two income quintiles. In addition, fewer OOP health-care expenditures mean that fewer households experience catastrophic health expenditures (defined as 20 percent or more of a household's expenditures). The analysis finds that 56,287 catastrophic health-care expenditures will be averted due to the tax increase, with 73 percent of these occurring in the poorest two income quintiles [77].

Fig. 12: Deaths averted over a lifetime by tax increase in the Islamic Republic of Iran, by income quintile during the first 6 years of tax increases that are modeled, 2023-2027

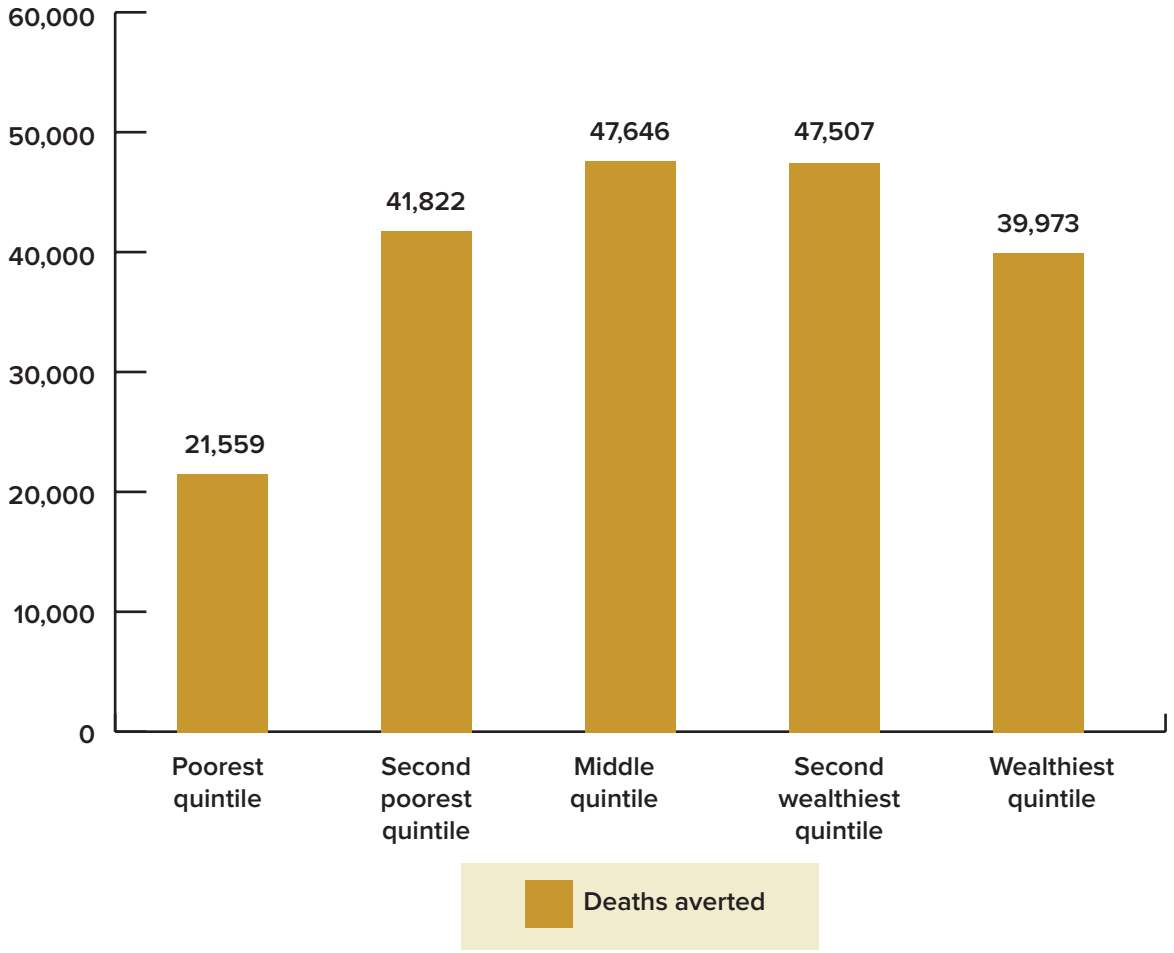


Table 3: Socio-economic impacts of tax increase in the Islamic Republic of Iran, by income quintile during the first 6 years of tax increases that are modeled, 2023-2027

	Poorest quintile	Second poorest quintile	Middle quintile	Second wealthiest quintile	Wealthiest quintile
Deaths averted over the lifetime	21,559	41,822	47,646	47,507	39,973
Percentage of additional tax revenue borne by quintile	12%	17%	24%	25%	21%
Percentage of savings in tobacco-attributable OOP payments	9%	20%	24%	25%	22%
Poverty cases averted	5,418	11,826	0	0	0
Catastrophic health-care expenditure cases averted	12,912	28,452	14,922	0	0

Source: Raei et al. (2021) [77].

5.2 The Sustainable Development Goals and the WHO FCTC

Implementing the package of four WHO FCTC policy action will support the Islamic Republic of Iran to meet SDG Target 3.a to strengthen implementation of the WHO FCTC. Moreover, acting now will contribute to the Islamic Republic of Iran's efforts to meet SDG Target 3.4 to reduce by one third premature mortality from NCDs by 2030: the measures would contribute the equivalent of around 9.4 percent of the needed reduction in mortality for the Islamic Republic of Iran to achieve SDG Target 3.4.

The WHO FCTC is an accelerator for sustainable development, and its implementation will benefit the achievement of many SDGs, including those outside of the health and well-being domain [80]. For example, stronger tobacco control will contribute to the reduction of poverty and inequalities (SDGs 1 and 10, respectively) and economic growth (SDG 8).

SDG Target 3.4

By 2030 the WHO FCTC measures would contribute the equivalent of around 9.4 percent of the needed reduction in mortality for the Islamic Republic of Iran to achieve SDG Target 3.4.

6. Conclusion and recommendations

Each year, tobacco use costs the Islamic Republic of Iran IRR 501 trillion in economic losses and causes substantial human development losses. Fortunately, as the investment case shows, there is an opportunity to reduce the health, social and economic burden of tobacco in the Islamic Republic of Iran. Enacting the four key WHO FCTC policy actions would save 8,661 lives each year and reduce the incidence of disease, leading to savings from averted medical costs and averting productivity losses.

In economic terms, these benefits are substantial, adding up to 281 trillion IRR over the next 15 years. Importantly, the economic benefits of strengthening tobacco control in the Islamic Republic of Iran greatly outweigh costs of implementation (845 trillion IRR in benefits versus 21 trillion IRR in costs).

By investing now in the package of four WHO FCTC policy actions modeled in the investment case, the Islamic Republic of Iran would not only reduce tobacco consumption, improve health, reduce government health expenditures and grow the economy, but would also reduce hardships faced by many Iranians. The country can also reinvest savings from government health-care expenditures and revenue from increased tobacco taxes into national development priorities such as universal health coverage and other social protection measures, as well as COVID-19 response and recovery efforts.

Based on the findings of this investment case, these key actions for the Islamic Republic of Iran are recommended to be pursued simultaneously:

1 Commit to fully implement the WHO FCTC in the Islamic Republic of Iran

As a Party to the WHO FCTC, the Islamic Republic of Iran has undertaken to fully implement the Convention. The WHO FCTC is an evidence-based treaty that sets out a clear blueprint for action to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke. The Islamic Republic of Iran is encouraged to commit to fully implement the treaty, with a focus on the recommendations made for Parties in the Global Strategy to Accelerate Tobacco Control: Advancing Sustainable Development through the Implementation of the WHO FCTC 2019–2025, in relevant WHO FCTC implementation guidelines, in WHO FCTC Needs Assessment reports and in this investment case.

Through the FCTC 2030 project, the WHO FCTC Secretariat's flagship development assistance project, the Islamic Republic of Iran is receiving support to take policy actions towards the full implementation of the treaty. As a FCTC 2030 project country, the Islamic Republic of Iran is accessing technical and financial resources, including intensive support from the WHO FCTC Secretariat, WHO and UNDP.

2 Given the effectiveness of tobacco taxation, strengthen tobacco tax structures and increase tax rates (WHO FCTC *Article* 6)

The Islamic Republic of Iran is encouraged to reform its tobacco taxation structure to substantially raise the tax share of the retail price of tobacco in accordance with recommendations made by WHO in the *WHO Technical Manual on Tobacco Tax Policy and Administration* [48] and the WHO FCTC implementation guidelines for Article 6 [49]. It is also encouraged to substantially raise the total tax share of the retail price of tobacco to meet or exceed 75 percent of the retail price (considered in the *WHO Report on the Global Tobacco Epidemic, 2021* as a high-level of achievement) [4].

The introduction of a specific tobacco excise tax is recommended because it is more difficult for the tobacco industry to manipulate and easier for authorities to implement [48], [82]. Additionally, uniform specific excise taxes or mixed tax structures that rely on specific excise

taxes are the most likely to lead to higher prices [48]. Similarly, Parties to the Convention should consider specific or mixed excise tax systems a minimum specific tax floor [49]. Tobacco taxes should aim to reduce affordability, including by increasing at a rate that outpaces inflation and income growth [82]. By making tobacco products less affordable, tobacco taxes can reduce tobacco use prevalence, thus reducing the heath burden on Iranians and averting tobacco-related health-care expenditure and economic loss.

Furthermore, raising excise taxes on tobacco products is expected to generate additional public revenue that can be re-invested in tobacco control or achieving universal health coverage. Importantly, lower-income groups are expected to receive the most financial benefits.

It is also recommended to ensure robust tobacco taxation policies are in place for all types of tobacco available for sale and purchase.

Similar recommendations are found in a report on tobacco tax reform in the Islamic Republic of Iran conducted in 2022 (unpublished), approved by Ministry of Health and Medical Education and Ministry of Economic Affairs and Finance. The report includes recommendation to implement a specific excise tax on tobacco, to make sure the tax outpaces inflation and income growth [83]. This report includes modelling of a specific excise tax on tobacco that would reduce smoking prevalence by 30 percent over five years by 2027. To achieve this reduction, findings of the report suggest that when considering inflation the total tax rate for domestic cigarette brands should be equal to 73 percent of the retail price, and for domestically produced international cigarette brands, it should be equal to 63 percent of the retail price [83].

There is clear evidence that raising cigarette prices through increased taxes is a highly effective measure for reducing smoking among youth, young adults, and people from lower socioeconomic communities. Increasing the price of tobacco will have benefit for these vulnerable populations.

3

Take action to strengthen, implement and enforce the other three key WHO FCTC policy actions modeled in this investment case by:

- considering the implementation of plain packaging to reduce the appeal of tobacco packaging and to make health warnings more prominent (WHO FCTC Guidelines for implementation of Article 11 and WHO FCTC Guidelines for implementation of Article 13).

- promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke including secondhand smoke, addiction, and the benefits of cessation. The Islamic Republic of Iran can consider implementing regular national mass media campaigns which should be researched, tested with a targeted audience and evaluated for impact [52] to address attitudes towards smoking that persist in the Islamic Republic of Iran [84] (WHO FCTC Article 12).
- continuing to promote cessation of tobacco use and treatment of tobacco dependence by expanding the training of health professionals to provide brief advice to quit tobacco use. Further gains would be possible with the provision of additional support to tobacco users, such as offering specialized tobacco dependence treatment services, and/or internet based quit support and making pharmacotherapies more widely available (free of cost if possible) (WHO FCTC Article 14).

4 Ensure enforcement of the ban on all forms of tobacco advertising, promotion, and sponsorship (TAPS) (WHO FCTC *Article* 13)

While not modeled in the investment case, there is opportunity to improve enforcement of the TAPS ban in the Islamic Republic of Iran. The Islamic Republic of Iran should strengthen enforcement of the ban on advertising at point of sale and appearance of tobacco products on television and/or films and advertising and promotion online and on social media.

5 Ensure smoke-free public places and workplaces to protect people from the harms of tobacco smoke (WHO FCTC *Article* 8)

While not modeled in the investment case, the Islamic Republic of Iran should ensure smoke-free policies are monitored and enforced to protect the public from tobacco smoke. The Islamic Republic of Iran should ensure compliance of the smokefree policies in all places, including restaurants, and cafés where compliance is low. The Islamic Republic of Iran should ensure fees and penalties are imposed on both smokers and establishments in accordance with national law. The Islamic Republic of Iran should also consider strengthening the mechanism for fees and penalties and increasing the amount.

6 Implement measures to protect public health policies from the commercial and other vested interests of the tobacco industry (*WHO FCTC Article* 5.3)

The tobacco industry remains one of the biggest challenges to the full implementation of the WHO FCTC globally and there is an urgent need to shield policy-making processes from its interference. There is a strong tobacco industry presence in the Islamic Republic of Iran consisting of growing and manufacturing tobacco and previous existence of a government-owned tobacco company. Overcoming and fully inhibiting tobacco industry interference is required for successful implementation of the WHO FCTC.

It is recommended for the Government of the Islamic Republic of Iran to continue efforts to successfully issue a code of conduct prescribing standards in accordance with WHO FCTC Article 5.3 for public officers, service providers, contractors and consultants involved in setting or implementing public health policies for effective tobacco control. An additional code of conduct should be considered for the members of the NHCCT with the aim of preventing industry interference in the work of this body. If necessary, such code of conduct should be accompanied with additional due diligence requirements to protect the NHCCT from the vested interest of the tobacco industry. Efforts to raise awareness among public officials of the need to avoid conflicts of interest involving government and industry are also encouraged and can be undertaken in collaboration with tobacco control civil society groups in the Islamic Republic of Iran.

7 Strengthen multisectoral coordination for tobacco control in the Islamic Republic of Iran and encourage the participation of civil society in WHO FCTC implementation (*WHO FCTC Articles* 5.2(*a*) *and* 4.7)

The Islamic Republic of Iran is recommended to ensure that the NHCCT has sufficient resources and a comprehensive mandate to mobilize and drive a whole-of-society response to tobacco. The government should support more engagement of media and civil society, as appropriate, to achieve progress in full implementation the WHO FCTC. The NHCCT should also enhance collaboration between and commitment from all relevant stakeholders to support the enforcement of existing tobacco control measures as well as to adopt new ones.

Action to strengthen the NHCCT can be guided by the joint Convention Secretariat-UNDP publication, National Coordinating Mechanism for Tobacco Control: Toolkit for Parties to Implement Article 5.2(a) of the WHO FCTC [85].

8 Support health-promoting and economically viable alternatives to tobacco growing and manufacturing (*WHO FCTC Articles 17 and 18*)

Tobacco production remains an issue in the Islamic Republic of Iran and around the world, particularly for tobacco farmers who often become ill from handling tobacco leaves (i.e. 'Green Tobacco Sickness') and suffer from exploitative contracts with the tobacco industry. Tobacco farming in the Islamic Republic of Iran has also been found to be associated with negative environmental effects, including on-site emissions, terrestrial ecotoxicity, and aquatic acidification [59]. Moreover, the large and growing amount of land under tobacco cultivation represents an opportunity cost for the national agriculture and food sector.

It is recommended that the Ministry of Agriculture within the Iranian government develop policies and implement programmes to implement Article 17 of the WHO FCTC, which calls on Parties to promote healthy and economically viable alternatives to tobacco growing and manufacturing. Alternatives exist and have been explored through pilot projects in other countries, but no work of this kind is underway in the Islamic Republic of Iran. The Islamic Republic of Iran could work with international specialized agencies such as the UN Conference on Trade and Development and the Food and Agriculture Organization to strengthen research and support in regard to sustainable alternatives. The Government of the Islamic Republic of Iran should also consult the Policy options and recommendations on economically sustainable alternatives to tobacco growing (in relation to Articles 17 and 18 of the WHO FCTC) during policy development to support economically viable and sustainable alternatives are promoted for tobacco growers, workers or sellers [61].

9 Fully implement the Protocol to Eliminate Illicit Trade in Tobacco Products, including by building capacity to combat illicit trade (*Protocol and WHO FCTC Article 15*)

It is recommended that the Islamic Republic of Iran moves forward with the full implementation of the Protocol to Eliminate Illicit Trade in Tobacco Products. The Islamic Republic of Iran became a Party to the Protocol in 2018. Priorities for implementation should be capacity building for enforcement officers dealing with illicit tobacco, improved due diligence procedures for businesses planning to engage in supply chain of tobacco and tobacco products, improved cooperation and information sharing with relevant national and international partners, and the transparent confiscation and destruction of illicit tobacco that is seized [60].

Similar recommendations are found in a report on tobacco tax reform in the Islamic Republic of Iran conducted in 2022 (unpublished), approved by Ministry of Health and Medical Education and Ministry of Economic Affairs and Finance. The report includes recommendations to monitor illicit trade and implement the provisions of the Protocol inclusive of a track and trace system [83]. As of August 2023, investment case interviews indicated that the tracking code has been inserted on cigarette packs and is in progress for water-pipe packaging.

10 Identify opportunities to link the implementation of the WHO FCTC with wider sustainable development strategies in the Islamic Republic of Iran.

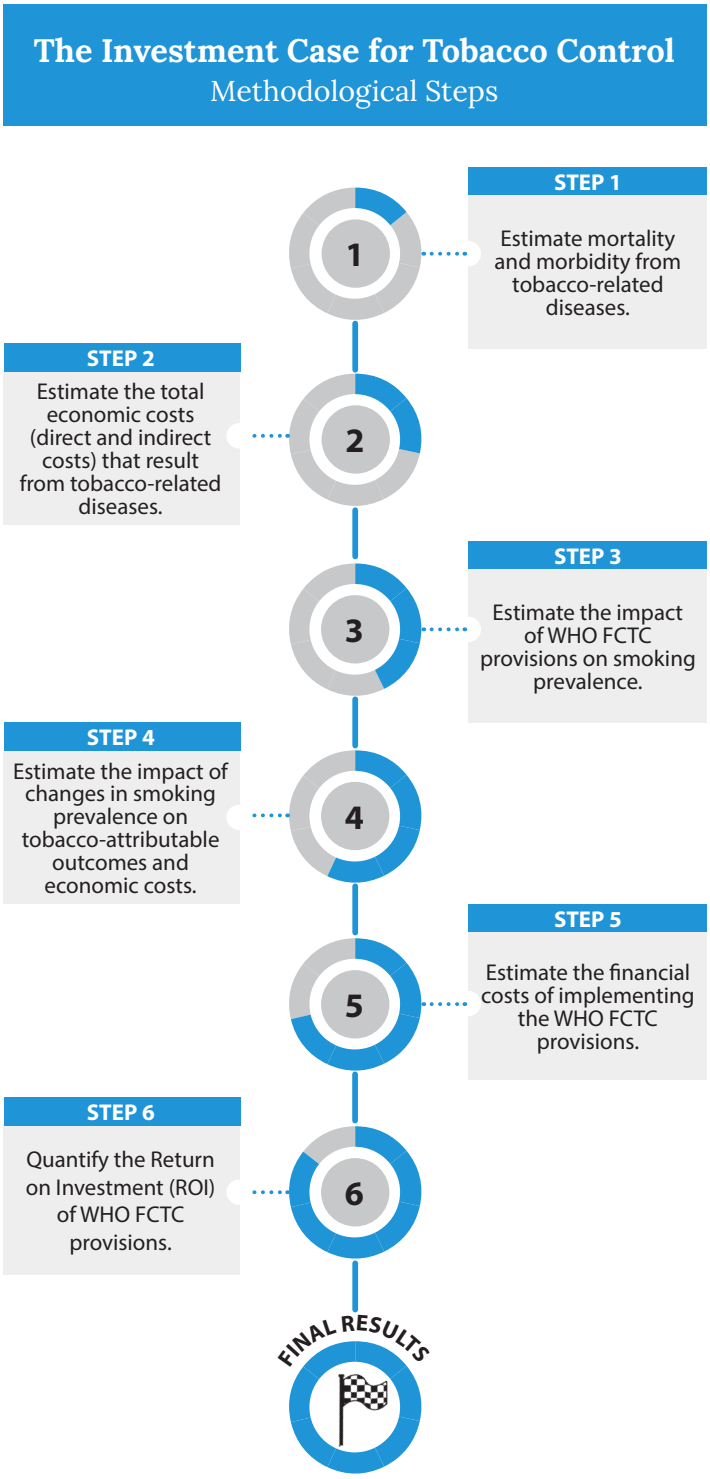
With the vast health, economic, social and environment costs of tobacco, the case is clear: implementing the WHO FCTC is a powerful means for the Islamic Republic of Iran to improve the lives of citizens, achieve the SDGs, and better the conditions and future of the country. All sectors have a role to play in tackling tobacco use, and the benefits of full WHO FCTC implementation will enrich all aspects of life in the Islamic Republic of Iran. The Government of the Islamic Republic of Iran should prioritize the implementation of the WHO FCTC in sustainable development strategies.

Annex: Methodology

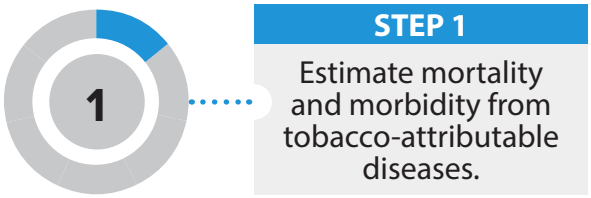
A1.1 Overview

The economic analysis consists of two components: 1) assessing the current burden of tobacco use and 2) examining the extent to which WHO FCTC provisions can reduce the burden. The first two methodological steps depicted in **Figure A1** are employed to assess the current burden of tobacco use, while methodological steps 3-6 assess the impact, costs, and benefits of implementing or intensifying WHO FCTC provisions to reduce the demand for tobacco. The tools and methods used to perform these methodological steps are described in detail below.

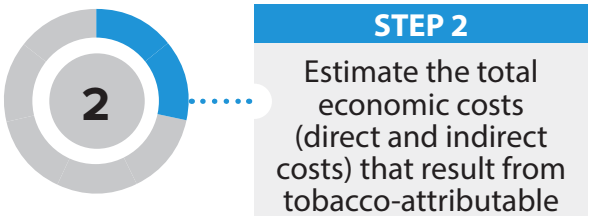
Fig. A1: Steps in the FCTC investment case



A1.2 Component one: current burden



The current burden model component provides a snapshot of the health and economic burden of tobacco use in the Islamic Republic of Iran in the most recent year for which data is available. The investment case model is populated with country-specific data on tobacco-attributable mortality and morbidity from the 2019 Global Burden of Disease Study (GBD) [5], [86]. The study estimates the extent to which smoking and secondhand tobacco smoke exposure contribute to the incidence of 37 diseases, healthy life years lost, and deaths, across 195 countries.



Next, the model estimates the total economic costs of disease and death caused by tobacco use.[17, 18] The total economic costs include tobacco-attributable healthcare expenditures, the value of lost human life due to tobacco-attributable mortality, and workplace productivity losses: absenteeism and presenteeism.

Healthcare expenditures – Health-care expenditures include smoking-attributable public (government-paid), private (insurance, individual out-of-pocket (OOP)), and other health-care expenditures. The proportion of health-care costs attributable to smoking was obtained using the formula for estimating smoking attributable fraction (SAF) of health-care expenditures from Goodchild et al. (2018) [6]. The SAF for the Islamic Republic of Iran is estimated at 2.3 percent. To calculate the share of smoking-attributable health-care expenditures borne by

17 In assessing the current burden of tobacco use, the economic costs of mortality include the cost of deaths due to any form of exposure to tobacco (including smoking, secondhand smoke exposure, and the use of other types of tobacco products). Only smoking-attributable (not tobacco-attributable) costs are calculated for healthcare expenditures, absenteeism and presenteeism. While other forms of tobacco may also cause losses in these categories, no data is available to precisely ascertain those losses.

18 All diseases are assumed to decrease in proportion to smoking prevalence when the decrease in prevalence occurs. While the model overestimates how quickly health benefits will accrue for some diseases, for example cancers—recent evidence suggests notable declines in the risk of lung cancer incidence begin two to five years after smoking prevalence decreases [87]. On the other hand, the risk of incidence of other diseases, for example cardiovascular disease (CVD), declines significantly in the years immediately following quitting [88].

public, non-profit, and private entities, it was assumed that each entity incurred smoking-attributable health-care costs in equal proportion to the entity's contribution to total health expenditure. Health-care expenditures were obtained from the WHO Global Health-care Expenditure Database (GHED) [74]. The latest year for which data are available in WHO GHED is 2019. To obtain 2020 values, we took the average annual increase in health-care expenditures in the Islamic Republic of Iran over the past 10 years and applied that increase to the 2019 health-care expenditure values.

Workplace costs and the cost of lost human life – Workplace costs and the cost of lost human life represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-attributable diseases. The cost of lost human life accrues when tobacco use causes mortality, eliminating the unique economic and social contributions that an individual would have provided in their remaining years of life. Workplace costs accrue when tobacco use results in productivity losses. Compared to non-tobacco users, individuals who use tobacco are more likely to miss days of work (absenteeism) and to be less productive at work due tobacco-related illnesses (presenteeism).

- *The economic cost of premature mortality due to tobacco use* — Tobacco-attributable mortality was monetized using a "value of a statistical life" (VSL) measure. VSL is a measure of individuals' willingness to pay for small changes in the risk of death and it is commonly used in economic evaluations of health programmes and policies to monetize health outcomes [89]. Few studies have assessed VSL in low- and middle-income countries [90]. We extrapolated a country-specific estimate of VSL following guidance from the *Reference Case Guidelines for Benefit-cost analysis in Global Health and Development* [89], estimating the value of one additional year of life for the Islamic Republic of Iran at 463 million IRR (value of a statistical life year (VSLY)). Using GBD data on the age at which tobacco-attributable deaths occur, the model calculates the total number of years of life lost due to tobacco, across the population. Each future year of life is multiplied by VSLY to calculate the cost of tobacco-attributable mortality.

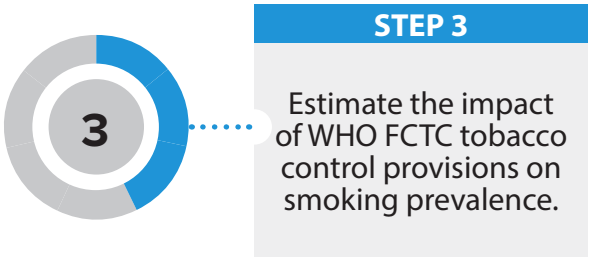
- *Productivity costs* — Productivity costs consist of costs due to absenteeism and presenteeism, and are counted only among employed cigarette smokers. The model uses estimates from academic literature on the number of extra working days missed due to active smoking (2.9 days per year) [91]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the United States, and five European countries experience about 22 percent more impairment at work because of health problems compared to never-smokers – losses equivalent to about 7.5 days of work [92]. The number of employed smokers is multiplied by days of work missed due to absenteeism or presenteeism by the average daily country wage to obtain estimates of losses.

A1.3 Component two: policy/intervention scenarios

This component estimates the effects of WHO FCTC measures on mortality and morbidity, as well as on total economic costs (direct and indirect) associated with tobacco use.

A static model using a population attributable fraction (PAF) approach was used to estimate the total impact of the tobacco control measures. In the model, aside from smoking prevalence, variables do not change throughout the 15-year time horizon. The model follows a population that does not vary in size or makeup (age/gender) over time in two scenarios: a status quo scenario in which smoking prevalence remains at present day rates, and an intervention scenario in which smoking prevalence is reduced according to the impact of tobacco control measures that are implemented or intensified. Published studies have used similarly static models to estimate the impact of tobacco control measures on mortality and other outcomes [93], [94].

Within the investment case, mortality and morbidity, as well as economic costs that are computed in the intervention scenario are compared to the status quo scenario to calculate the extent to which tobacco control measures can reduce health and economic costs.



Selection of key WHO FCTC measures modeled within the investment case align with the Global Strategy to Accelerate Tobacco Control [95] developed following a decision at the Seventh session of the Conference of the Parties (COP7) to the WHO FCTC. Under Objective 1.1 of the Strategy, priority is given to enabling action to accelerate WHO FCTC implementation, including effective forms of technical and financial assistance to support Parties in the identified priority action areas. This includes Parties giving priority to, among other things, the implementation of price and tax measures (WHO FCTC Article 6) and time-bound measures of the Convention. The time-bound measures include creating smoke-free public places and workplaces (WHO FCTC Article 8), prominent health warnings on tobacco packaging (WHO FCTC Article 11) and comprehensive bans on tobacco advertising, promotion, and sponsorship (TAPS) (WHO FCTC Article 13).

In addition, given the importance of awareness in behaviour change and shaping cultural norms, the investment cases includes promoting and strengthening public awareness of tobacco control issues, including the health risks of tobacco use and tobacco smoke, addiction,

and the benefits of cessation (WHO FCTC Article 12). Effect sizes for the WHO FCTC demand reduction measures are obtained from the literature. The impact of implementing plain packaging and promoting and strengthening public awareness of tobacco control issues, are derived from Levy et al. (2018) [76] and Chipty (2016) [96], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013-2020 [97], and adjusted based on assessments of the Islamic Republic of Iran's baseline rates of implementation. The impact of basic evidence-based tobacco cessation in the form of brief advice to quit offered to tobacco users by health-care professions in primary care settings is from Levy et al. 2010 [98].

Except for taxes – the impact of which is dependent on the timing of increases in tax rates (see below) – and the brief cessation advice intervention – the impact of which is guided by rates of training for primary health-care providers (see also below) – the full impact of the demand reduction policy measures is phased in over a five-year period. The phase-in period follows WHO assumptions [99] that two years of planning and development are required before policies are up and running, followed by three years of partial implementation that are reflective of the time that is needed to roll out policies, and work up to full implementation and enforcement.

Tobacco taxes. The impact of cigarette tax increases on revenue and cigarette use prevalence was estimated using an Excel-based tool developed to analyse the impact of tax increases on a fixed population cohort. The tool is populated with data, including on current cigarette smoking prevalence, the tax structure and applied tax rates, cigarette prices, demand elasticities, and inflation and income projections (see **Table A1**).

Table A1: Key parameters used in the tax revenue analysis

Parameter name	Value	Source
Price elasticity of demand	-0.46	Raei et al (2020). Impact of simulated cigarette excise tax increase on its consumption in the Islamic Republic of Iran [100]
Prevalence elasticity of demand	-0.18	Raei et al (2020). Impact of simulated cigarette excise tax increase on its consumption in the Islamic Republic of Iran [100]

Parameter name	Value	Source
Income price elasticity of demand	0.36	Homaie Rad (2021). Quality and quantity of price elasticity of cigarette in the Islamic Republic of Iran [101]
Income prevalence elasticity of demand	0.18	Assumption – half of income elasticity
Projected real income growth rate*	2.1%	International Monetary Fund (2020). Real GDP Growth - Annual percent change [102]

* Projected real income growth is used as a proxy for wage growth. The International Monetary Fund projects [102] real GDP growth at an average of 2.1 percent annually through 2026.

The investment case analysis examines a hypothetical increase in cigarette prices. **Table A2** breaks down cigarette pack price analysed from 2023 to 2027 under the described scenario. For the main investment case analysis, additional real price increases averaging 6.7 percent annually are modeled from 2028 to 2037.

Table A2: Projected cigarette pack price in the tax increase scenario (IRR, in real terms)

Price component	2023	2024	2025	2026	2027
Final consumer price*	540,000	540,000	638,103	728,985	801,690

* Figures subject to rounding.

The impact of tax increases on revenue and cigarette use prevalence is dependent on prevailing elasticities: the extent to which individuals change use of a product (e.g., decrease consumption or quit) because of changes in the price of a tobacco product. Changes are calculated following Joosens and colleague's (2009) [103], who use a log-log function to ensure large price increases do not result in implausible reductions in consumption or prevalence. Below, **Equation A1** provides an example of calculations to ascertain the impact of a change in price on smoking prevalence, considering changes in income.

Equation A1: The impact of changes in price on smoking prevalence

$$\Delta SP_i = SP_{i-1} * ((EXP\left(\varepsilon p * LN(op_{np})\right)) - 1 - \left[\frac{1+\epsilon_i\left(\frac{GDP_2-GDP_1}{GDP_2+GDP_1}\right)}{1-\epsilon_i\left(\frac{GDP_2-GDP_1}{GDP_2+GDP_1}\right)}\right]$$

Where:
SP = smoking prevalence (# of smokers) in year i
Ɛp = prevalence elasticity
Op_np = the ratio of the old price of a pack of cigarettes to the new price after tax increases
Ɛi = income elasticity
GDP = Gross domestic product in year

There are several limitations to the tax analysis. First, the tax tool assumes that the price and tax structure of the most sold brand of cigarettes is representative of the market, and it does not incorporate other market segments (high or low-end cigarettes). More detailed models that account for switching between segments or between products (e.g., movement to hand-rolled cigarettes) would capture nuance helpful to framing tobacco tax policy and estimating impact. Second, the analysis assumes a full pass through the tax increases. This assumption reflects a "middle ground" approach, but the tobacco industry may increase or decrease prices in reaction to the price increase.

Brief advice to quit tobacco. We calculate the effect of scaling up the provision of brief advice to quit smoking at the primary care level. First, we calculate the baseline population quit rate (PQR, the percent of smokers who quit annually) drawing on previously published methods by Levy and colleagues (2010) [98]. The PQR is calculated (see **Equation A2**) using three parameters: quit attempts, treatment utilization rates (i.e. counselling, pharmaceutical therapy) and treatment effectiveness.

Equation A2: . Calculating Population Quit Rate, from Levy et al (2010) [102]

$$PQR = QA * \sum_{i=1\ldots4} (TxUse_i * TxEff_i)$$

Where:
PQR = Population quit rate
QA = % of smokers who make a quit attempt at least once annually
TxUse = the percent of those who make a quit attempt who use treatment category i
TxEff = The percent of those who use a given treatment who succeed in quitting annually (Treatment efficacy)
i = is one of four treatment categories: 1) no evidence-based treatment; 2) counselling; 3) pharmacological treatment (e.g. nicotine replacement therapy), or 4) both counselling and pharmacological therapy.

Again following Levy et al (2010), "to account for the effect of multiple quit attempts among those who fail at their first attempt, it was assumed that half of those that make at least one quit attempt per year go on to make a second attempt, and half of those [who make a second attempt] make one third, and so on," and that treatment effectiveness does not change based on whether it is a persons' first quit attempt or a succeeding one.

After establishing baseline PQR, we calculated how the population quit rate would change if provision of brief advice to quit at the primary care level became more prevalent. In this "intervention scenario", over the 15-year time horizon of the analysis, half of all primary health-care providers are trained to provide brief advice to quit to adult tobacco users—a value selected based on evidence of the current intervention coverage gap; on average, in low- and middle-income countries less than half (47.8 percent) of adult smokers who visit a health provider are advised to quit.[19] Once trained, it is assumed that the provider administers the brief advice when they encounter a patient who uses tobacco.

Taking into account the number of primary health-care providers in the country, the patient panel size per provider, adult smoking rates, and the percent of adult smokers who present within the health system for at least one primary care visit per year, in each year of the analysis we calculate the number of adult tobacco users who would encounter a newly trained health provider and receive the brief intervention—which increases the likelihood that an individual makes a quit attempt by 60 percent over baseline levels [98]. With increases in population quit attempts driven by the provision of brief advice, we recalculate PQR to estimate the number of smokers who quit as a result of the intervention. Data used to inform these calculations are shown in **Table A3**.

Table A3: Provision of brief advice – key parameters to calculate intervention impact

Parameter name	Value	Source
Population quit rate (PQR)		
Annual quit attempt rate (QA)	40.1%	Average values from the Global Adult Survey (GATS) of low- and middle-income countries (LMICs) conducted between 2009 to 2018 *
Increase (%) in QA as a result of receiving brief advice	60%	Levy et al (2010). Modelling the impact of smoking-cessation treatment policies on quit rates [98]
Treatment use (Tx Use)		
No evidence-based treatment	80.9%	Average values from GATS of LMICs conducted between 2009 to 2018 *
Pharmaceutical assistance	7.2%	Average values from GATS of LMICs conducted between 2009 to 2018 *

19 Analysts pulled data from GATS surveys conducted between 2009 to 2018 and averaged values from low- and middle-income countries.

Counselling	10.5%	Average values from GATS of LMICs conducted between 2009 to 2018 *
Both pharmaceutical assistance and counselling	1.4%	Average values from GATS of LMICs conducted between 2009 to 2018 *
Treatment effectiveness		
No evidence-based treatment	7%	Levy et al (2010). Modelling the impact of smoking-cessation treatment policies on quit rates [98]
Pharmaceutical assistance	15%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [104]**
Counselling	12%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [104]**
Both pharmaceutical assistance and counselling	22%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [104]**
% of adult smokers who visit primary care clinic annually	28%	Abrams et al (2010). Boosting population quits through evidence-based cessation treatment and policy [104]**
% of smokers who relapse after successfully quitting	60%	García-Rodríguez et al (2013). Probability and predictors of relapse to smoking: Results of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) [105]
Number of primary care health providers	34,374	WHO (2021). Global Health Observatory [106]***
Annual patient panel size per health provider (# of patients)	550	Altschuler et al (2012). Estimating a Reasonable Patient Panel Size for Primary Care Physicians With Team-Based Task Delegation [107]****

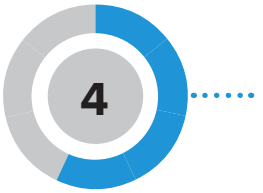
* Analysts pulled data from GATS surveys conducted between 2009 to 2018 and averaged values from low- and middle-income countries.
** Compared to quit attempts that are made with no assistance from any form of evidence-based therapy, pharmaceutical assistance is 100 percent more effective, counselling 60 percent more effective, and combined therapy 200 percent more effective
*** Sum of two indicators in the WHO Global Health Observatory (GHO) for the latest year for which information was available: 1) number of general physicians and 2) number of nursing personnel. Given that specific estimates for primary care nursing personnel are not given from the source, we assume the proportion of primary care nurses is the same as the proportion of generalist doctors to all doctors as given in the GHO.
**** Study results show that a primary care health provider working under a nondelegated model of care can reasonably care for a panel of 983 patients in a year and that in a conservative scenario where non-physician providers assume some responsibility for care patient panel sizes can expand to 1387 patients. In most countries, a nondelegated model of care is the status quo. However, in this analysis, nurses are trained to offer brief advice and assume some responsibility for administering it. Therefore, a patient panel size is likely to be somewhere in the range of 983 to 1,387 patients. We assume a panel size of 1,100 and that an individual practitioner on the team covers half of the patients (550) per year.

Summary: the impact of tobacco demand reduction measures. The impact sizes of all policy measures examined in the investment case are displayed in **Table A4**. Additional information on their derivation can be found in the *Technical Appendix*.[20]

Table A4: Impact size: Relative reduction in the prevalence of current smoking by tobacco control policy/intervention, over a period of five (2023-2027) and 15 years (2023-2037)

WHO FCTC Tobacco Policy/Intervention	Relative reduction in the prevalence of current smoking	
	First 5 years (2023-2027)	Over 15 Years (2023-2037)
Tobacco control package* *(all policies/interventions implemented simultaneously)*	**15.1%**	**28%**
Increase cigarette taxation to reduce the affordability of tobacco products *(WHO FCTC Article 6)*	6.3%	13.4%
Implement and enforce bans on smoking in public places to protect people from exposure to tobacco smoke *(WHO FCTC Article 8)*	2.4%	4.0%
Promote and strengthen public awareness about tobacco control issues and the harms of tobacco use through mass media information campaigns *(WHO FCTC Article 12)*	6.7%	11.2%
Scale up of brief advice to quit for tobacco users in primary care clinics *(WHO FCTC Article 14)*	0.3%	1.9%

*The combined impact of all interventions is not the sum of individual interventions. Following Levy and colleagues' (2018) "effect sizes [are applied] as constant relative reductions; that is, for policy i and j with effect sizes PRi and PRj, (1-PR ii) x (1-PR j) [is] applied to the current smoking prevalence" [76].



STEP 4

Estimate the impact of changes in smoking prevalence on tobacco-attributable outcomes and economic costs.

To analyse the impact of policy measures on reducing the health and economic burden of smoking, the investment case calculates and compares two scenarios. In the status quo scenario, current efforts are 'frozen', meaning that, through the year 2037 (end of the analysis), no change occurs from the tobacco control provisions that are currently in place. In the intervention scenario, the Islamic Republic of Iran implements new tobacco measures or

20 Available upon request.

intensifies existing ones, to reduce the prevalence of smoking. The difference in health and economic outcomes between the status quo and intervention scenarios represents the gains that the Islamic Republic of Iran can achieve by taking targeted actions to reduce tobacco use.

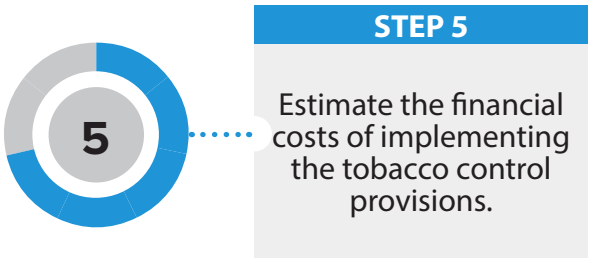
The marginal effects of the policies are calculated using the status quo scenario as the comparison group. To calculate marginal effects, the model subtracts the outcome (risk factor attributable deaths, healthcare expenditures, etc.) under the intervention scenario from the same outcome under the status quo scenario. The difference between the two outcomes is the amount of change in the outcome associated with the policy.

Marginal Effects = Outcome Base Scenario — Outcome Intervention Scenario

- **Health outcomes:** To calculate the reductions in mortality and morbidity due to implementation of the policy measures, forecasted changes in smoking prevalence are applied directly to the GBD risk factor attributable outcomes from the status quo scenario. This means that the model adjusts the risk factor attributable outcomes for mortality and morbidity as reported by GBD based on year-over-year relative changes in smoking prevalence for each outcome.

- **For healthcare expenditures,** the model applies forecasted annual relative changes in smoking prevalence for each intervention scenario to the SAFs. SAFs are adjusted in proportions equal to the relative change in smoking prevalence for each intervention scenario.

- **Workplace smoking outcomes** are recalculated substituting actual (status quo) smoking prevalence for estimated annual smoking prevalence for each of the intervention scenarios that are modeled.



The financial costs to the government of implementing new measures—or of intensifying or enforcing existing ones—is estimated using the WHO NCD Costing Tool. Full explanations of the costs and assumptions embedded in the WHO NCD Costing tool are available [99].

The Costing Tool uses a "bottom up" or "ingredients-based" approach. In this method, each resource that is required to implement the tobacco control measure is identified, quantified, and valued. The Costing Tool estimates the cost of surveillance, human resources—for programme management, transportation, advocacy, and enacting and enforcing legislation—trainings and meetings, mass media, supplies and equipment, and other components. Within the Costing Tool, costs accrue differently during four distinct implementation phases: planning (year 1); development (year 2); partial implementation (years 3-5); and full implementation (year 6 and onward).

Across these categories, the Costing Tool contains default costs from 2011, which are sourced from the WHO CHOICE costing study. Following Shang and colleagues, the Costing Tool is updated to reflect 2020 costs by updating several parameters: the US$ to local currency unit exchange rate (2020); purchasing power parity (PPP) exchange rate (2020); GDP per capita (US$, 2020); GDP per capita purchasing power parity (PPP, 2020); population (total, and share of the population age 15+, 2020); labour force participation rate (2020); gas per litre; and government spending on health as a percent of total health spending (2019) [108]. Unless government or other in-country parameters are received, data are from the World Bank database, with the exception of data on the share of government health spending and population figures. The share of government spending on health as a percent of total health spending is derived from the WHO Health Expenditures database, and population figures are from the UN Population Prospects.

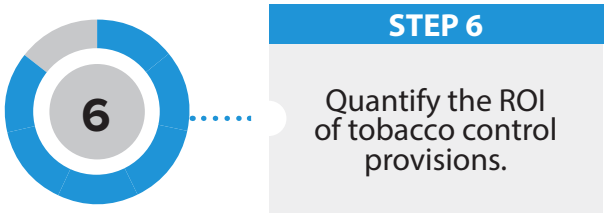
To cost the scale up of the provision of brief advice to quit tobacco use, the analysis adds to the programmatic costs embedded in the WHO Costing Tool by including costs to train health providers and the direct costs of the primary care visits in which the brief advice is administered. Over the 15-year time horizon of the analysis, half of all primary care health providers are trained to administer brief advice to quit tobacco.[21] Based on WHO's training package for treating tobacco dependence in primary care [110], we assume that training sessions last 2.5 days, are conducted with a maximum of 30 participants, and are led by a team of two facilitators. We further assume that the training occurs in person in a rented facility space. Costs of training include those to rent the facility,[22] pay facilitators, and provide per diems to facilitators and attendees, and we also assume that trainees (doctors and nurses) are compensated for their time at their wage rate.[23] Once trained, providers are assumed to provide brief advice if they encounter a patient who smokes. The cost of providing brief advice during primary care visits is based on modeled, country-specific estimates from WHO-CHOICE of the cost or primary care outpatient visits [112]. The derivation of these estimates is detailed elsewhere [113], but in overview, the estimates reflected the "hotel cost" of a 10-minute

21 The analysis assumes a 10 percent of health workers turn over annually [109].

22 Rental costs per square foot are obtained from the WHO Costing Tool with the room size estimated is based on square feet per person estimates for collaboration rooms [111].

23 Compensation costs for trainers, per diem estimates, and provider salaries are obtained from the WHO Costing Tool.

visit[24] to a health facility with beds. We updated the estimates to 2020 local currency units, using 2010 PPP conversion factors and local consumer price indices [114]. For the purposes of the investment case, administration of the 5A's (Ask, Advise, Assess, Assist and Arrange) brief intervention is assumed to take 10 minutes [115]. Following WHO CHOICE methodology, we estimate the cost of those extra 10 minutes as an extra 21 percent of the original cost of the primary care visit.



The return on investment (ROI) analysis measures the efficiency of tobacco control investments by dividing the discounted monetary value of health gains from investments by their discounted respective costs.

ROIs were calculated for each of the four tobacco control policies modeled, and for the four interventions together as a package. Estimates from Steps 3 and 4 were used to calculate ROIs at 5- and 15-year intervals.

$$\textbf{Return on investment (ROI)} = \frac{\text{Benefits of Intervention/Policy}}{\text{Costs of Implementing Intervention/Policy}}$$

24 The analysis assumes that the mean duration of a clinic visit is 10-minutes, following guidance from the WHO NCD Costing Tool.

A1.4 Equity analysis

The equity analysis draws on the study conducted by Raei et al. (2021), that analysed the impact of a 75 percent increase in the price of cigarettes on tobacco-attributable deaths, government tax revenue, and patient OOP health-care spending in the Islamic Republic of Iran [77]. As Raej et all's assumption of a 75 percent increase in price is similar to the first six years of tax increases modeled in this investment case, the results from Raei et al. are presented in the Section 4. For more information concerning the methodology used to compute the equity analysis, please see Raei et al. [77] .

A1.5 Summary of FCTC demand-reduction measure status

Figure 3 in the main text is based on data from the WHO Report on the Global Tobacco Epidemic, 2021 [4]. In the Figure, the level-of-implementation categories of "no/little implementation", "partial implementation", "moderate implementation", and "high implementation" are mapped to the descriptions in **Table A5**, as specified and further detailed in Technical Note I of the WHO report (see page 119).

Investment case analysts assigned scores between 0 to 3 for each demand reduction measure, depending on the level of implementation. For four measures—graphic warning labels, plain packaging, public awareness, and tobacco cessation—we assigned whole number scores (i.e. 0, 1, 2, or 3) that mapped to the four levels of implementation described above and detailed in **Table A5**. For increases in cigarette taxation, smoke-free public places and workplaces , and TAPs bans, we adjusted the level-of-implementation score creating a decimal value as follows:

- For 1) smoke-free public places and workplaces and 2) TAPS bans, we adjusted the score to account for reported levels of compliance in the *WHO Report on the Global Tobacco Epidemic* (Compliance Score). Following previously published assumptions by Levy and colleagues (2013), we assumed that respectively 25 percent and 50 percent of the effect of these measures depends on levels of compliance [116]. Thus, for a country with "moderate implementation" of TAPS bans but a compliance score (as detailed in the WHO Report on the Global Tobacco Epidemic) of 5 out of 10, we calculated the score as follows: Measure Score – (0.5*Compliance Score/10) = 2 – (0.5*(5/10) = 1.75. For countries that did not report a compliance score we assumed the average of compliance scores worldwide.
- For 3) cigarette taxation, all countries in which the total tax share equalled 75 percent or above received a score of 3. All countries below that mark were assigned a score as follows: 3*(Total tax share/0.75). Thus a country with a total tax share of 35 percent received a score of 1.4 (3*(.35/.75)).

Ultimately, most measures are weighted equally (counting as 3 points if fully implemented) except for plain packaging (counting as 1 point if fully implemented). Analysts selected 1 point for plain packaging because: 1) Unlike for the other measures, plain packaging operates on a 0,1 scale—either the measure is in place or it is not (i.e. there are no gradations of the policy—there is little benefit to mandating that half of the package is "plain" while the rest is open to colouring or other attributes); 2) In the WHO Report on the Global Tobacco Epidemic plain packaging is scored as a "star" on top of the graphic warning labels acting as a supportive add on to other labelling requirements.

The total score a country can receive for implementation of the key demand reduction measures (i.e. composite tobacco control score) is 19. A country with a composite tobacco control score of 12/19 may be said to have implemented about 63 percent of the WHO FCTC key demand reduction measures agenda.

Table A5: Definition of WHO FCTC implementation status level in Figure 3 (main text)

WHO FCTC demand reduction measure	No/little implementation	Partial implementation	Moderate implementation	High-level implementation
Increase cigarette taxation to reduce the affordability of tobacco products *(WHO FCTC Article 6)*	0% of retail price is tax, or no data is reported.	≥ 25% and <50% of retail price is tax.	≥ 50% and <75% of retail price is tax.	≥ 75% of retail price is tax.
Create smoke-free public places and workplaces to protect people from the harms of tobacco smoke *(WHO FCTC Article 8)*	Complete absence of ban, or up to two public places completely smoke-free, or no data is reported.	Three to five public places completely smoke-free.	Six to seven public places completely smoke-free.	All public places completely smoke-free (or at least 90% of the population covered by complete subnational smoke-free legislation).
Require tobacco packaging to carry graphic health warnings describing the harmful effects of tobacco use *(WHO FCTC Article 11)*	No warnings or small warnings, or data not reported.	Medium size warnings missing some appropriate characteristics or large warnings missing many appropriate characteristics.	Medium size warnings with all appropriate characteristics or large warnings missing some appropriate characteristics.	Large warnings with all appropriate characteristics.

WHO FCTC demand reduction measure	No/little implementation	Partial implementation	Moderate implementation	High-level implementation
Implement plain packaging of tobacco products *(WHO FCTC Guidelines for Implementation of Article 11 and WHO FCTC Guidelines for Implementation of Article 13)*	Plain packaging is not mandated.	-	-	Plain packaging is mandated.
Promote and strengthen public awareness about tobacco control issues and the addictive nature and harms of tobacco use through mass media information campaigns *(WHO FCTC Article 12)*	No national campaign conducted between July 2018 and June 2020 with a duration of at least 3 weeks, or no data is reported.	National campaign conducted with one to four appropriate characteristics.	National campaign conducted with five to six appropriate characteristics.	National campaign conducted with at least seven appropriate characteristics including airing on television and/or radio.
Enact and enforce a comprehensive ban on all forms of tobacco advertising, promotion, and sponsorship – TAPS *(WHO FCTC Article 13)*	Complete absence of ban, or ban that does not cover national television, radio and print media.	Ban on national television, radio and print media only.	Ban on national television, radio and print media as well as on some but not all other forms of direct and/or indirect advertising.	Ban on all forms of direct and indirect advertising (or at least 90% of the population covered by subnational legislation completely banning tobacco advertising, promotion and sponsorship).
Develop infrastructure to support tobacco cessation and treatment of tobacco dependence *(WHO FCTC Article 14)*	None, or no data are reported.	Nicotine Replacement Therapy (NRT) and/or some cessation services (neither cost-covered).	NRT and/or some cessation services (at least one of which is cost-covered).	National quit line, and both NRT and cessation services routinely cost-covered.

Source: Information in this table is based on the *WHO Report on the Tobacco Epidemic, 2021* [4].

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