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INVESTMENT CASE FOR TOBACCO CONTROL IN EL SALVADOR

The Case for Investing in WHO FCTC Implementation

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The Case for Investing in WHO FCTC Implementation in El Salvador

Prepared by
Ministry of Health, El Salvador
United Nations Development Programme
WHO FCTC Secretariat
Pan-American Health Organization

Report
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Acronyms and Abbreviations

Acronym	Caption
CPTA	Centers for the Prevention and Treatment of Addictions – Centros para la Prevención y el Tratamiento de la Adicción
ENAT	El Salvador's 2014 National Survey of Alcohol and Tobacco. Encuesta Nacional de Alcohol y Tabaco 2014 de el Salvador
FCTC	WHO Framework Convention on Tobacco Control
Fosalud	Fondo Solidario para la Salud
GDP	Gross Domestic Product
GYTS	Global Youth Tobacco Survey
ISSS	Salvadorian Institute for Social Security. Instituto Salvadoreño del Seguro Social
Minsal	Ministry of Health of El Salvador. Ministerio de Salud
MOH	Ministry of Health
NCDs	Non-communicable diseases
PAHO	Pan-American Health Organization
ROI	Return on investment
RTI	Research Triangle Institute
SAF	Smoking Attributable
SDGs	Sustainable development goals
UNDP	United Nations Development Programme
US$	United States Dollars
WHO	World Health Organization

2016

Economic Summary

1

In 2016 tobacco use cost El Salvador

or about **$9** per cigarette pack consumed.

2

El Salvador only recouped

10%

of that loss through cigarette tax revenue, leaving it with a

$237 million

shortfall.

2016

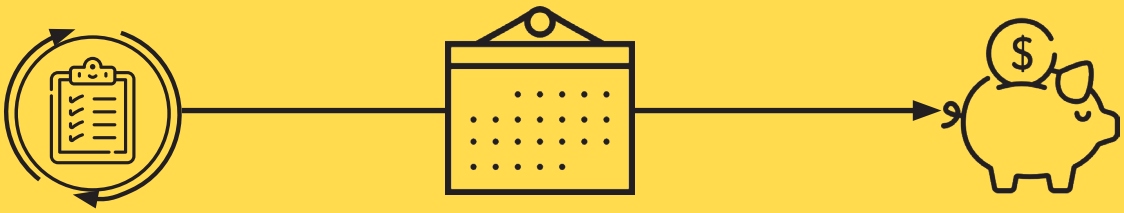
Economic Summary

3

Over the next **15 years**, El Salvador could reduce economic losses due to tobacco by over

$838 million (or 26%)

if it implements and enforces seven recommended WHO FCTC demand-reduction measures.



7 FCTC measures + **15 years** = **$838m reduction**

1. Executive Summary

In El Salvador, around 31 people die every week due to illnesses associated with tobacco use. 46 percent of those deaths occur in individuals younger than 70. More work must be done to reverse the tobacco epidemic, and make progress towards UN Sustainable Development Goal (SDG) target 3.a to strengthen implementation of the WHO Framework Convention on Tobacco Control (WHO FCTC) and reduce premature mortality from NCDs by one-third by 2030.

Tobacco use imposes a high economic burden on countries, not only due to the high costs of medical care needed to treat illness attributable to tobacco use, but also due to economic productivity losses since individuals who use tobacco are more likely to die prematurely during their prime working years, and to miss days of work due to illness (absenteeism) or to work at a reduced capacity while at work (presenteeism, smoking breaks). In addition, individuals, families, and governments are liable for the high cost of healthcare to treat tobacco-attributable diseases.

El Salvador has one of the lower rates of tobacco use in the Latin American region. However, in order to continue to reduce the health and economic burden of tobacco, it must strengthen its implementation of WHO FCTC demand-reduction policy measures that can further bend the prevalence curve. To this end, some of the measures that El Salvador should act include: 1) implement more stringently bans on smoking in all public places to protect people from tobacco smoke; 2) enact a comprehensive ban on all forms of tobacco advertising, sponsorship and promotion; 3) increase taxes on tobacco products; 4) improve the effectiveness of large pictorial warning labels by refreshing the content displayed on packages; 5) implement plain packaging for tobacco products; 6) support measures to treat tobacco dependence and facilitate cessation by training health professionals to provide brief advice to quit smoking, and 7) establishing a national quitline.

For this investment case in el Salvador, an analysis was carried out to evaluate:

i. The health and economic current burden of tobacco use in El Salvador
ii. The impact that implementing additional tobacco-control measures can have on El Salvador's health and economy.
iii. The yearly cost of implementing and enforcing each prioritized tobacco control intervention
iv. The expected health and economic benefits each year of each prioritized tobacco control intervention, as well as a comprehensive package.

The impact of implementing tobacco control measures could have on tax revenue for the government was also analyzed and the extent to which illicit trade undermines revenue and health goals was assessed.

Each year, tobacco use costs the El Salvador economy millions in economic losses.

Tobacco use caused US$263.6 million in economic losses in 2016, the equivalent of about 1% of GDP. Tobacco-related health expenditures totaled US$115.6 million, and El Salvador incurred US$148 million in economic losses that were attributable to premature mortality, absenteeism, presenteeism, and smoking breaks.

Enacting new and more stringent tobacco-control policies measures would:

- **Save lives and reduce the incidence of disease.** Fully implementing and enforcing all seven priority tobaccocontrol measures would reduce smoking prevalence, and save 6,739 lives over the next 15 years (or 449 lives annually).
- **Increase the productivity of the workforce, growing GDP.** Applied as a whole, the tobacco-control measures would lead to significant productivity gains over 15 years, as a result of decreased numbers of Salvadoreans 1) dropping out of the workforce due to premature mortality, 2) missing days of work due to illness, and 3) working at a reduced capacity due to excess work breaks for smoking.
- **Lead to savings through avoidance of direct medical costs to treat diseases.** By preventing the onset of cardiovascular disease, diabetes, respiratory infections, cancer, and other smoking-attributable diseases, the tobacco-control measures will avert US$371.3 million in healthcare expenditures over 15 years (US$24.8 million annually), 66 percent of which the government would have been responsible for.
- **Provide total economic benefits (US$838.5 million) that significantly outweigh the costs (US$19.5 million).** Comparing the costs and benefits of each tobacco control measure, it was found that the gains from implementing all interventions but the quitline will exceed their costs over the 15-year period. Rotating pictorial warning labels would have the highest return on investment (ROI): every dollar invested generates 146 dollars in return. Enacting more stringent bans on advertising has the next highest ROI (144), followed by raising taxes and plain packaging (126), increasing enforcement of smoke-free public places (71), and scaling up offering of brief advice to quit tobacco (21). The costs of implementing quitlines exceed their benefits; however, quitlines play a key role in reducing smoking prevalence.

Offering cessation services builds a robust foundation of support for those seeking to quit tobacco use.

The ROI for the "brief advice to quit tobacco" intervention is lower than for other WHO FCTC-demand reduction measures, and the costs of a quitline exceeds the benefits. However, both interventions lay a strong foundation for future cessation infrastructure. This infrastructure—e.g., increasing access and affordability of nicotine replacement therapy—can be implemented later and it would amplify the impact of existing cessation services. Providing assistance to those who would like to quit a deadly product, but cannot do so on their own, is an important service: especially given that implementing other demand-reduction policy measures will motivate more people to quit.

Raising taxes on tobacco would generate more revenue for the government over the next 15 years.

- **Gradually increasing tobacco taxes until they meet the WHO FCTC obligation for the tax share to represent 75 percent of the retail price would generate US$51 million in extra revenue** over 15 years, or about US$3.4 million annually.
- The impact of raising taxes on illicit trade was not examined. However, the government can implement proven interventions to reduce illicit trade, including "track and trace" systems.

Illicit trade of cigarettes contributes to tobacco use, and lowers tax revenue collection from taxes on tobacco. It has not been possible to obtain transparent estimations of the size of illicit trade, but based on available information, if illicit trade had been completely eliminated in 2016:

- **Smokers would have consumed 4.2 million fewer packs of cigarettes,** a 14 percent reduction in total cigarette consumption within the country.
- **Smokers would have purchased 2.8 million more licit packs,** meaning the government of El Salvador would have collected $3.4 million more in tax revenue.

These investment case results show that there is an opportunity to reduce the health and economic burden of tobacco through preventative actions that target tobacco smoking. By investing *now* in the health of its population, the government of El Salvador can save lives, increase its revenue stream, and generate strong economic gains.

2. Introduction

In El Salvador, about 10 percent of individuals 15 and older currently smoke some form of tobacco [1]. This means thatnearly half a million Salvadorans are at a substantially increased risk of morbidity and early mortality from cancer, cardiovascular disease, respiratory illnesses, and many other tobacco-attributable diseases. In 2016, tobacco was responsible for the deaths of 1,624 Salvadorans [2], meaning 31 lives lost every week. Therefore, more work must be done to reverse the tobacco epidemic. Strengthening implementation of WHO FCTC demand-reduction measures (Sustainable Development Goal (SDG) target 3.a) would enable El Salvador to make significant progress towards reducing premature mortality from NCDs by one-third by 2030 (SDG target 3.4).

In addition to the immense toll tobacco has on human health and wellbeing, it also imposes a substantial economic burden on countries. Worldwide, health care expenditures to treat diseases and injuries caused by tobacco totaled nearly six percent of global health expenditures [3]. Further, tobacco use can reduce productivity by permanently or temporarily removing individuals from the work force due to poor health [4]. When individuals die prematurely, the labor output that they would have produced in their remaining years is lost. In addition, individuals with poor health are more likely to miss days of work (absenteeism) and, when they are at work, to operate at a reduced capacity (presenteeism, smoking breaks) [5, 6].

El Salvador signed the WHO Framework Convention on Tobacco Control (FCTC) in 2004 and ratified it 10 years later on July 21, 2014 (1). As of 2011, El Salvador had enacted many of the policies designed to reduce tobacco use that are obligated under the WHO FCTC, including bans on smoking in all public places and closed working areas to protect people from tobacco smoke; mandating that tobacco product packages carry large health warnings and messages describing the harmful effects of tobacco use, and; banning tobacco advertising, promotion, and sponsorship on major forms of media, although publicity at points of sale is allowed.

By legislating and funding these important measures, El Salvador has set the stage for curbing the tobacco epidemic. However, success is not guaranteed, as the impact from these measures depends on concerted and coordinated efforts from multiple sectors of government and cooperation of other actors, in line with the implementation of WHO FCTC COP Guidelines on Article 5.3, which protect public policies from commercial and other interests of the tobacco industry. Opportunities exist to strengthen existing efforts. Intensifying existing policies and implementing new measures can draw the prevalence curve further downward, and generate additional health and economic gains. Additionally, El Salvador has not signed the WHO FCTC Protocol to Eliminate Illicit Trade in Tobacco Products.

Intensifying existing policies and implementing new measures can draw the prevalence curve further downward, and generate additional health and economic gains in El Salvador.

El Salvador has been selected along with 14 other countries to participate in the WHO FCTC 2030 project. The project aims to provide direct assistance to country Parties that have demonstrated considerable motivation to move forward in tobacco control. As part of this project, a mission was undertaken in El Salvador to carry out an initiate the investment case. The mission was led by the Ministry of Health of El Salvador and the Solidarity Fund for Health (Fosalud) and included the WHO FCTC Secretariat, the Pan American Health Organization / World Health Organization and the United Nations Program for Development Programme (UNDP). A national technical working group was formed, which verified and approved the underlying methodology and data. Given these considerations, a joint programming mission to El Salvador was undertaken to launch an investment case. The mission was led by El Salvador's Ministry of Health, and included regional WHO, PAHO advisors, and the UNDP El Salvador country office. A technical working group was formed, which vetted and approved the methodology and underlying data.

The WHO FCTC investment case consists of two components: an economic analysis and an institutional and context analysis (ICA). The economic component analyzes the current burden of tobacco use, and the expected return on investment (ROI) from implementing policy measures that are obligations under the WHO FCTC and Appendix 3 of the WHO Global Action Plan on the Prevention and Control of NCDs 2013–2020. It identifies the measures that can produce the largest health and economic returns for El Salvador. In turn, the ICA illustrates that policy decisions are rarely based on economic data alone. Through key informant interviews, the ICA aims to uncover the most promising policy pathways (e.g., areas of consensus, political appetite and opportunity) as well as challenges to implementation. The ICA assesses the feasibility of the policy options from the economic modelling and suggests ways to increase the likelihood of implementation and enforcement.

In consultation with the Government of El Salvador (GoES), seven policy measures or interventions to reduce demand for smoking were selected in order to assess the potential health and economic benefits that El Salvador could derive from implementing—or intensifying—them. These demand-reduction measures are as follows:

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

2. **Enforce bans on smoking in all public places to protect people from tobacco smoke.** (WHO FCTC Article 8)

3. **Improve the effectiveness of large warning labels by refreshing the content that is displayed on packages.** (WHO FCTC Article 11: Guidelines for Implementation)

4. **Implement plain packaging.** (WHO FCTC Article 11: Guidelines for Implementation)

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

6. **Support reducing tobacco dependence and cessation by training health professionals to provide brief advice to quit smoking and by establishing a national telephone quitline.** (WHO FCTC Article 14)

7. **Establish a free national quitline.** (WHO FCTC Article 14)

In addition to these policies, the investment case also considers the impact that raising tobacco taxes would have on government revenue, and the extent to which illicit trade currently undermines revenue collection and facilitates tobacco use prevalence.

This report presents findings from the investment case's economic analysis. **Section 3** provides background on the burden of tobacco use. **Section 4** examines the current state of implementation of WHO FCTC demand-reduction measures, and examines target goals to reduce tobacco use. **Section 5** briefly summarizes the methodology for the economic analysis (see Annex for more detail). **Section 6** reports the main findings of the economic analysis, including the extent to which tobacco use drains El Salvador's health and economy, and the ability of WHO FCTC demand reduction policies to restore health and catalyze economic gains. **Section 7** presents the results of the tax revenue and illicit trade analysis.

3. Current Tobacco Use in El Salvador

According to El Salvador's 2014 National Survey of Alcohol and Tobacco (ENAT), 35.1 percent of all adults aged 18 and above have smoked a cigarette at some point in their lives [7]. About one in four people who have ever tried smoking are current cigarette smokers, meaning they have smoked at least once in the last 30 days. No information is available on the use of other tobacco products (e.g., cigars, cigarillos, pipes, smokeless tobacco products).

The prevalence of smoking does not vary significantly by level of education, however, when considering smoking prevalence by sex, there is a great disparity in consumption between men and women. Men are more likely to try smoking, and are more than twice as likely as women to become current smokers after trying smoking. According to ENAT, 59 percent of men have smoked in their lifetime and about 17 percent are current smokers. In comparison, 16 percent of women have ever used tobacco and only two percent are current smokers (see **Figure 1**).

For the adult population aged 18 and above, those aged 25 to 34 have the highest current smoking prevalence at 10.9 percent. Prevalence then decreases with age (see **Figure 2**).

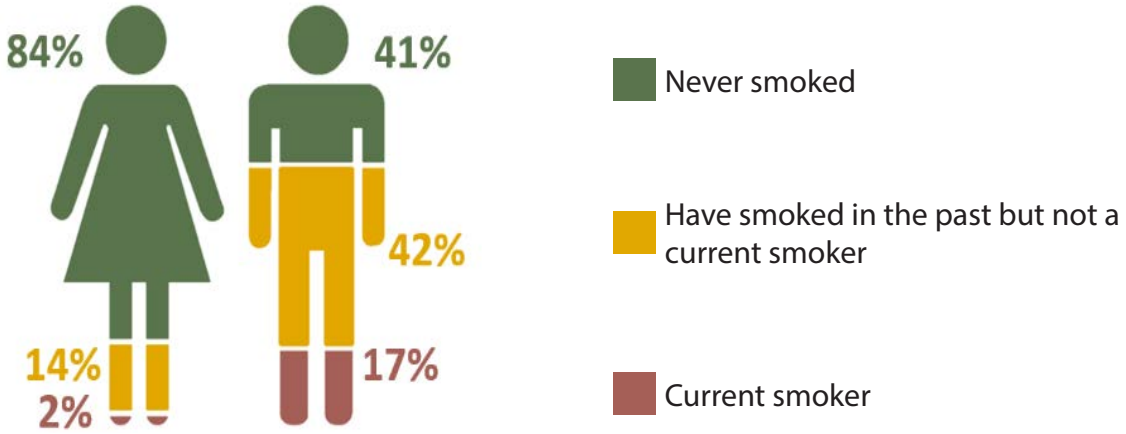


Fig. 1: Adult prevalence of tobacco use, by sex

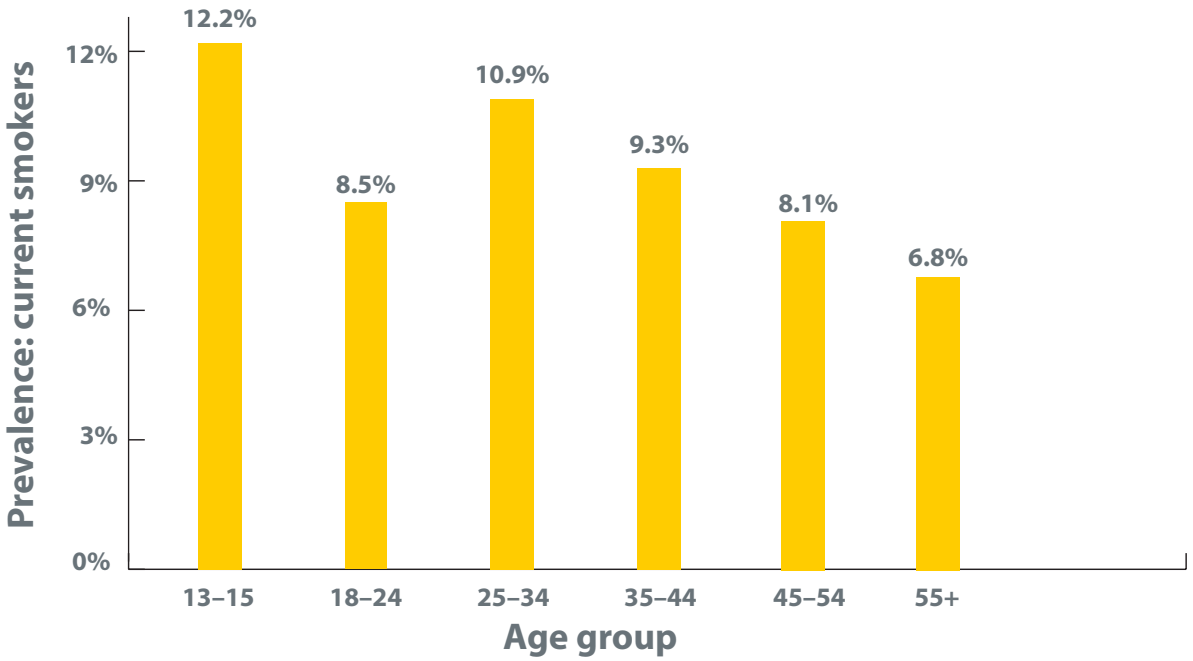


Fig. 2: Prevalence of current smokers, by age group
Data sources: Age 13–15, 2015 GYTS; Ages 18+, 2014 ENAT*
*(*Survey only incorporated children enrolled in school)*

With respect to smoking intensity, the average number of cigarettes smoked per day is 3.63 in El Salvador. Almost half of all smokers consume between one and five cigarettes per day, while at the high end, six percent consume 11–20 cigarettes daily [7]. Within the last year, 57 percent of adult current smokers reported attempting to quit [7]. Among those who tried, four out of five attempted to do so more than once.

Low access to—and awareness of—smoking cessation services was reflected in the 2014 ENAT, which identified that less than three percent of all smokers had requested help from a health professional to stop smoking in the last year, and that 85 percent of current smokers had not heard about the existence of treatment facilities offering cessation services [7].

4. Current WHO FCTC Implementation Status

El Salvador currently has a set of tobacco policies in place to reduce demand for tobacco products and protect the health of its population. The 1988 Health Code Decree Number 955 was the first to place limitations on tobacco advertising and mandated health warnings on cigarette packages [8]. Since that time, El Salvador has implemented a dozen laws and policies relating to the control of tobacco. Although legislated, some tobacco control laws face implementation challenges.

Smoking Ban in Public Places

El Salvador has legislated a nearly total **ban on smoking in public places and in closed places of work**. The Tobacco Control Law establishes that no person shall smoke or keep lit tobacco in any closed public or public area, such as places of work, health facilities, schools, public transit, parks, government buildings, and movie theaters. The law does authorize the establishment of smoking areas, however, the criteria to do so are onerous.

Despite the strength of the law, some compliance challenges exist. In 2015, 40 percent of youth aged 13 to 15 reported being exposed to tobacco smoke in indoor public spaces within the last week [9], and the 2014 ENAT showed that nearly 17 percent of adult non-smokers had been exposed to second hand smoke in public places [7].

Starting in 2014, the El Salvador Ministry of Health (MINSAL) and Solidarity Fund for Health (Fosalud) have taken several actions to improve compliance with the smoking ban. They have conducted periodic inspections, provided training to government agencies and civil society groups, and assisted in placing no smoking signs. Despite these actions, compliance challenges persist.

TAPS

The Tobacco Control Law regulates tobacco **advertising, promotion and sponsorship**. These activities are largely banned in El Salvador, but some important exceptions exist. For instance, advertising is allowed at the place of sale. Vendors advertise tobacco as long as at least half of the surface area is covered with health warnings that have been approved by MINSAL.

GYTS found that over half of youth age 13–15 have been exposed to point of sale tobacco advertising within the last month [9]. The Tobacco Control Law also prohibits the promotion of tobacco through the distribution of free tobacco products; competitions, raffles, and other contests that offer prizes that promote tobacco consumption; and through the distribution of promotional items. Last, tobacco companies are completely banned from sponsoring any type of event or activity. Despite these regulations, there is evidence that there are problems with compliance with reports of tobacco advertising and the distribution of promotional items in unauthorized places. In fact, one in ten Salvadoran children report owning some sort of tobacco company promotional item [9] .

Tobacco Cessation Services and Infrastructure

Tobacco cessation services and infrastructure are relatively undeveloped. Free cessation services are currently provided at five Centers for Prevention and Treatment of Addiction (CPTA), which are located within the country's five primary hospitals. While cessation success rates are reported to be high (70% success) for those who attend the centers, uptake is low, with only 292 smokers accessing services in 2016 [10].

To date, smoking cessation services, including ensuring that health personnel offer brief advice to smokers to quit, have not been established at the primary care level. A regional telephone quitline is operational, and staffed by trained cessation professionals. Its number is advertised within tobacco-control mass media campaigns. However, it is not toll-free, and is not used widely, receiving an average of 766 incoming calls annually from 2015–2017. Accessibility and affordability of nicotine replacement therapies is reported to be a challenge.

Tax System

El Salvador has a mixed-**excise tax system**. However, the total cost of these taxes falls below the WHO FCTC obligation to make the tax share equivalent to 75 percent of sale price[1]. El Salvador levies an excise tax of US$0.0225 for each cigarette; for loose tobacco products this amount is assessed per gram. An ad valorem tax is applied at a rate of 39 percent of the suggested retail price. For cigarettes, these taxes are equivalent to about 52.5 percent of the total price.

Warning Labels and Packaging

Graphic warning labels must cover at least 50 percent of the surface area of tobacco packaging in El Salvador, which is the level recommended by the WHO FCTC. The warnings must include text in Spanish and graphic images warning of the harmful effects of tobacco. 57.2 percent of adult smokers and 43.3 percent of youth smokers have thought about quitting due to these warning labels and 40.3 percent of non-smokers considered these warnings in deciding not to start smoking [7, 9].

However, the current graphic warning label has not been updated since 2014 and may be losing its saliency. **Plain packaging** of tobacco products—neutral colors without branding or logos—is not currently mandated. A law requiring the implementation of plain packaging would offer El Salvador another tool to reduce tobacco companies' opportunities to market products.

Anti-tobacco Campaigns

The law mandates that MINSAL, together with the Ministry of Education, must conduct an annual **mass media campaign** warning of the harmful effects of tobacco use and the benefits of quitting. Fosalud also conducts health education campaigns that cover tobacco use. Run annually since 2010, the campaigns have highlighted various topics, including the consequences of secondhand smoke; the process for reporting violators of the public smoking ban and the smoking in closed working areas; the effects of tobacco use during pregnancy, and; the consequences of continuing to use tobacco. The campaigns are promoted across multiple forms of media: television, radio, billboards, newspapers, magazines, and on the Internet. Nearly 60 percent of students age 13–15 report having seen one of these campaign messages within the last 30 days.

1 The Implementation Guidelines of Art. 6 of the WHO FCTC recommend that selective taxes on tobacco consumption represent at least 70% of the final consumer price. The WHO FCTC also recommends that, considering the selective taxes on consumption and the value added tax, this should represent at least 75% of the final price to the consumer.

Table 1 summarizes the existing state of WHO FCTC demand reduction policies analyzed in the Investment Case and compares them against the WHO FCTC target goals for each measure. *Within the investment case, where El Salvador has not yet met the WHO FCTC target goal, the impact that reaching that goal would have on tobacco consumption, population health, and the economy was analyzed.*

Table 1: Summary of the current state of WHO FCTC demand measures in El Salvador, and target goals modelled in the Investment Case

FCTC Demand-Reduction Measure	Baseline	Target
Establish 100% smoke-free environments by banning smoking in public places and closed working facilities in order to protect people from exposure to tobacco smoke	Smoking is currently banned in indoor public and closed working areas, however compliance is reported to be a challenge with as many as 40 percent of youth between ages 13–15 having been exposed to second-hand smoke in public places in the last week.	Strengthen enforcement and compliance to achieve 100% smoke-free indoor public spaces and closed working facilities.
Enact comprehensive bans on all forms of advertising, promotion and sponsorship	Advertising is banned except for at the point of sale. Promotional materials and activities are largely banned bat not completely as recommended by FCTC. Sponsorships of any kind are not allowed. There are significant violations of bans on advertising and promotions.	Expand the law to ban advertising at point of sale and all forms of promotion. Strengthen implementation of existing laws to achieve full compliance.
Increase taxes to increase the sales price of tobacco products	Taxes currently represent 52.5 percent of the retail price of an average priced pack of cigarettes.	Scale up excise taxes in order to reach a tax share that represents 75% of the retail price of tobacco.
Mandate that tobacco product packages carry large health warnings and messages describing the harmful effects of tobacco use	50 percent of tobacco packaging must be covered by graphic warning labels; however, the current set of warnings have not been updated since 2014.	Regularly rotate the content of graphic warning labels so that they continue to resonate with tobacco users.

Table 1 (continued): Summary of the current state of WHO FCTC demand measures in El Salvador, and target goals modelled in the Investment Case

FCTC Demand-Reduction Measure	Baseline	Target
Mandate plain packaging of all tobacco products	There is no law that currently mandates plain packaging of tobacco products.	Enact a law allowing the implementation of plain packaging of tobacco products
Raise public awareness about tobacco-control issues through available communication tools: Mass media campaigns	Mass media tobacco control campaigns have been run annually since 2010, and are widely promoted on television, radio, and billboards, and in print.	El Salvador is currently meeting FCTC recommendations to run targeted, high frequency public education campaigns, with revolving content, over multiple mass-media platforms.
Provide support for reducing tobacco dependence and cessation: Offer brief advice to quit tobacco at the primary care level	Tobacco cessation services are currently not integrated at the primary care level.	Introduce tobacco cessation services at the primary care level, training health personnel to identify and help smokers utilizing the "5-A's" process—Ask, Advise, Assess, Assist, Arrange.
Provide support for reducing tobacco dependence and cessation: National Quitline	A regional telephone quitline is in operation but not toll-free, and use is low.	Establish a national quitline to reach a larger share of smokers.

*In this table, the "baselines" originate from information compiled by the Solidarity Fund for Health, established in the biannual implementation report of the WHO FCTC 2018 and the Report on the assessment mission of implementation of the WHO FCTC 2016.

5. Methods

The objectives of the WHO FCTC Investment Case are to quantify the current health and economic burden of tobacco use in El Salvador; estimate the impact that implementing tobacco measures would have on reducing the burden; and provide analysis of other impacts—e.g., tax revenue—that may factor into government decisions to implement tobacco control measures.

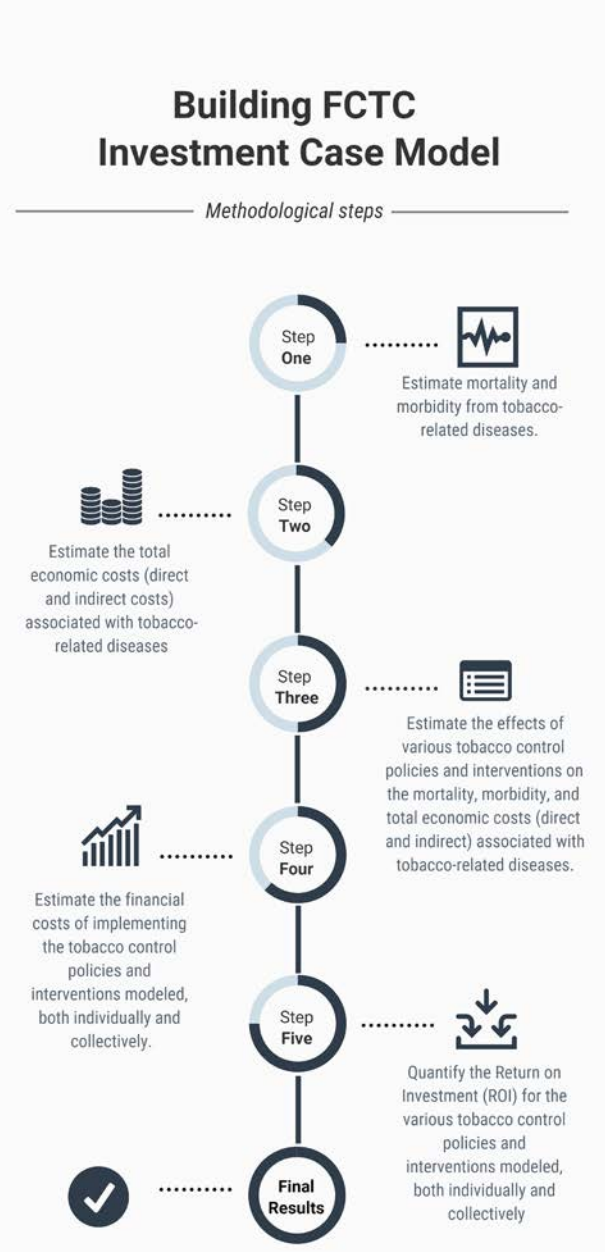
The investment case consists of the following steps:

1. Estimate the mortality and morbidity from tobacco-related diseases;
2. calculate the economic costs of smoking (direct and indirect costs);
3. estimate the impact of tobacco-control measures on lowering mortality, morbidity, and economic costs due to smoking;
4. estimate the financial costs to the government of implementing and enforcing the policy measures, and;
5. quantify the return on investment (ROI) of each selected policy measure.

The tools and methods used to perform these steps are described in this report's **Methods Annex**. Interested readers are also referred to this report's Technical Appendix for a more thorough account of the methodology.

Costs and monetized benefits are reported in constant 2017 United States dollars.

Fig. 3: Investment Case: Methodological Steps



6. Results

6.1. The health and economic burden of tobacco use[2]

Tobacco use undermines economic growth. In 2016, tobacco use caused 1,624 deaths in El Salvador, 46 percent of which occurred in Salvadorians under age 70. As a result, El Salvador lost productive years in which those individuals would have contributed to the economy, and to social and economic well-being. The economic losses due to tobacco-related premature mortality are estimated at US$91.3 million.

While the costs of premature mortality are steep, the consequences of tobacco use begin well before death. As individuals begin to acquire tobacco-attributable diseases (e.g., CVD, cancer, COPD), expensive medical care is required to treat them. Spending on medical treatment for illnesses caused by tobacco use cost the government US$76.7 million in 2016, with El Salvador's citizens picking up an additional US$32.2 million in out-of-pocket healthcare expenditures, and private insurance covering US$6.7 million. Moreover, as individuals become sick, they are more likely to miss days of work (absenteeism) or to acquire illnesses or diseases that cause them to be less productive at work (presenteeism). The costs of excess absenteeism due to tobacco-related illnesses are estimated at US$10.4 million, and the costs of presenteeism are US$27.1 million.

Finally, even in their healthy years, working smokers are less productive than non-smokers. Smokers take on average 10 minutes more in breaks per day than non-smoking employees [11]. If 10 minutes of time is valued at the average workers' salary, the compounding impact of 280,027 employed daily smokers taking ten additional minutes per day for smoke breaks is equivalent to losing US$19.2 million in productive output annually.

In total, smoking siphoned US$263.6 million from El Salvador's economy in 2016, the equivalent of about 1 percent of El Salvador's gross domestic product that year.

2 In this section, the economic costs of premature mortality include the cost of premature deaths due to any form of exposure to tobacco (including of smoking, second-hand smoke, and the use of other types of tobacco products). Only smoking-attributable (not tobacco- attributable) costs are calculated for healthcare expenditures, absenteeism, presenteeism, and smoking breaks. While other forms of tobacco use may also cause losses in these categories, they are not estimated within the investment case.

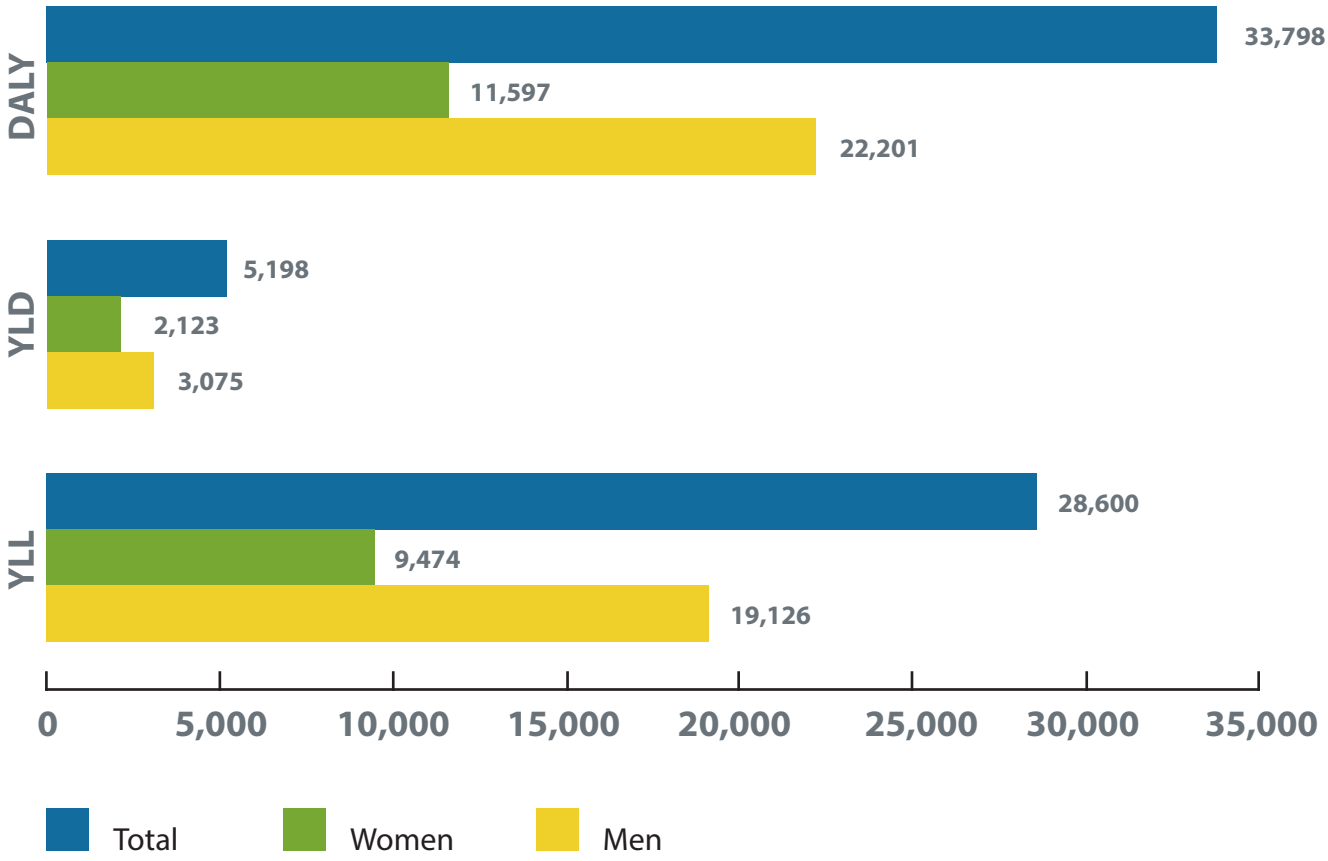


Fig. 4: Smoking-attributable YLLs, YLDs, and DALYs, 2016, by gender
(Data source: IHME Global Burden of Disease [2])

Credit: © Rene Aguiluz

The current burden of tobacco use: health costs

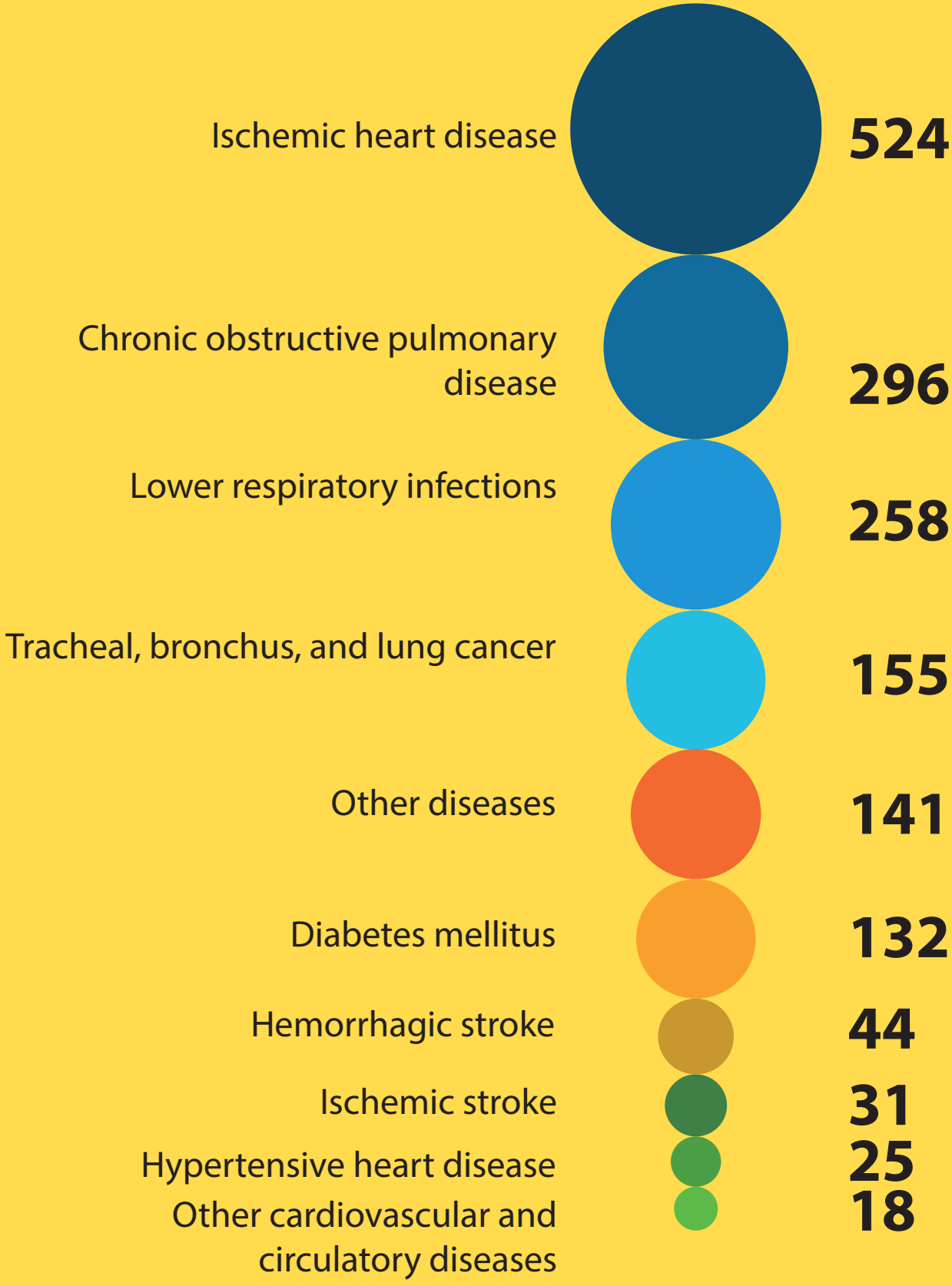
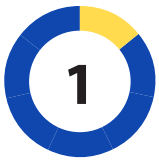


Fig. 5: Tobacco-attributable deaths by disease, 2016 *(Data source: IHME Global Burden of Disease [2])*

6.2. Implementing policy measures that reduce the burden of cigarette smoking[3]

By implementing new WHO FCTC policy measures, or intensifying existing ones, El Salvador can secure significant health and economic returns, and begin to reduce the US$263.3 million in direct and indirect economic losses that occur due to tobacco use.

This section presents the health and economic benefits that result from policy actions to:



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

Enforce bans on smoking in all public places to protect people from tobacco smoke. (WHO FCTC Article 8)

Improve the effectiveness of large warning labels by refreshing the content that is displayed on packages.
(WHO FCTC Article 11: Guidelines for Implementation)

Implement plain packaging.
(WHO FCTC Article 11: Guidelines for Implementation)

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

Support reducing tobacco dependence and cessation by training health professionals to provide brief advice to quit smoking and by establishing a national telephone quitline. (WHO FCTC Article 14)

Establish a free national quitline. (WHO FCTC Article 14)

3 All impacts in this section are on reducing the health or economic costs of smoking. While some WHO FCTC demand-reduction measures (e.g., raising taxes, or graphic warning labels) may have an impact on other forms of tobacco use, we have not quantified them here, have not been quantified here. Therefore, in this section, all results refer to reductions in the smoking-attributable burden that can occur as a result of implementing WHO FCTC demand-reduction measures.

6.2.1. Health benefits – Lives saved

Enacting the WHO FCTC demand-reduction measures as a complete policy package would lower the prevalence of smoking, leading to substantial health gains. Enacting the package and ensuring that each policy measure is stringently enforced would reduce the prevalence of cigarette smoking by 48.3% percent over 15 years, helping to save 6,739 lives from 2018–2033, or 449 lives annually.

6.2.2. Economic benefits

Implementing the package of interventions would result in El Salvador avoiding 26 percent of the economic losses that it is expected to incur from smoking over the next 15 years. **Figure 6** illustrates the extent to which El Salvador can shrink the economic losses that it is expected to incur if no measures are taken.

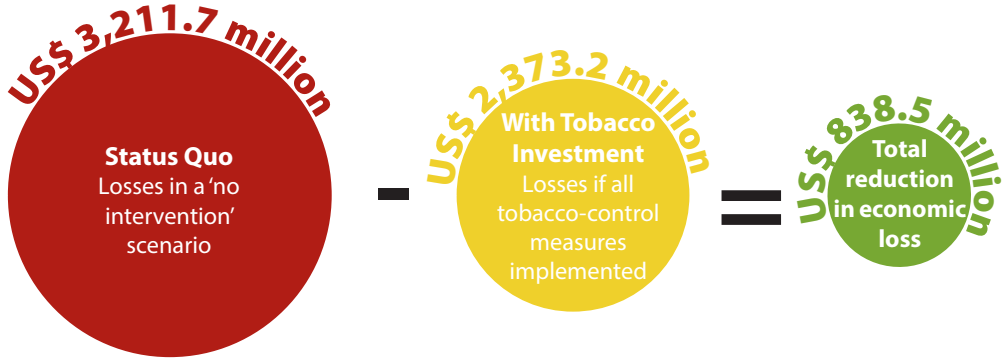


Fig. 6: Tobacco-related economic losses over 15 years: What happens if El Salvador does nothing, versus if the government implements tobacco measures to reduce demand for smoking?

In total, over 15 years El Salvador would save US$838.5 million that would otherwise be lost if it does not implements the package of tobacco measures analyzed as part of this study. On average, that is the equivalent of about US$55.9 million in annual avoided economic losses.

The avoided economic losses derive from lowering direct and indirect costs of tobacco use. With better health, fewer individuals need to be treated for complications from disease, resulting in direct cost savings to the government. In addition, better health leads to increased worker productivity. Fewer working-age individuals leave the workforce prematurely due to death. Laborers miss fewer days of work (absenteeism) and are less hindered by health complications or illness while at work (presenteeism). Finally, because the prevalence of smoking declines, employed smokers take fewer breaks while at work.

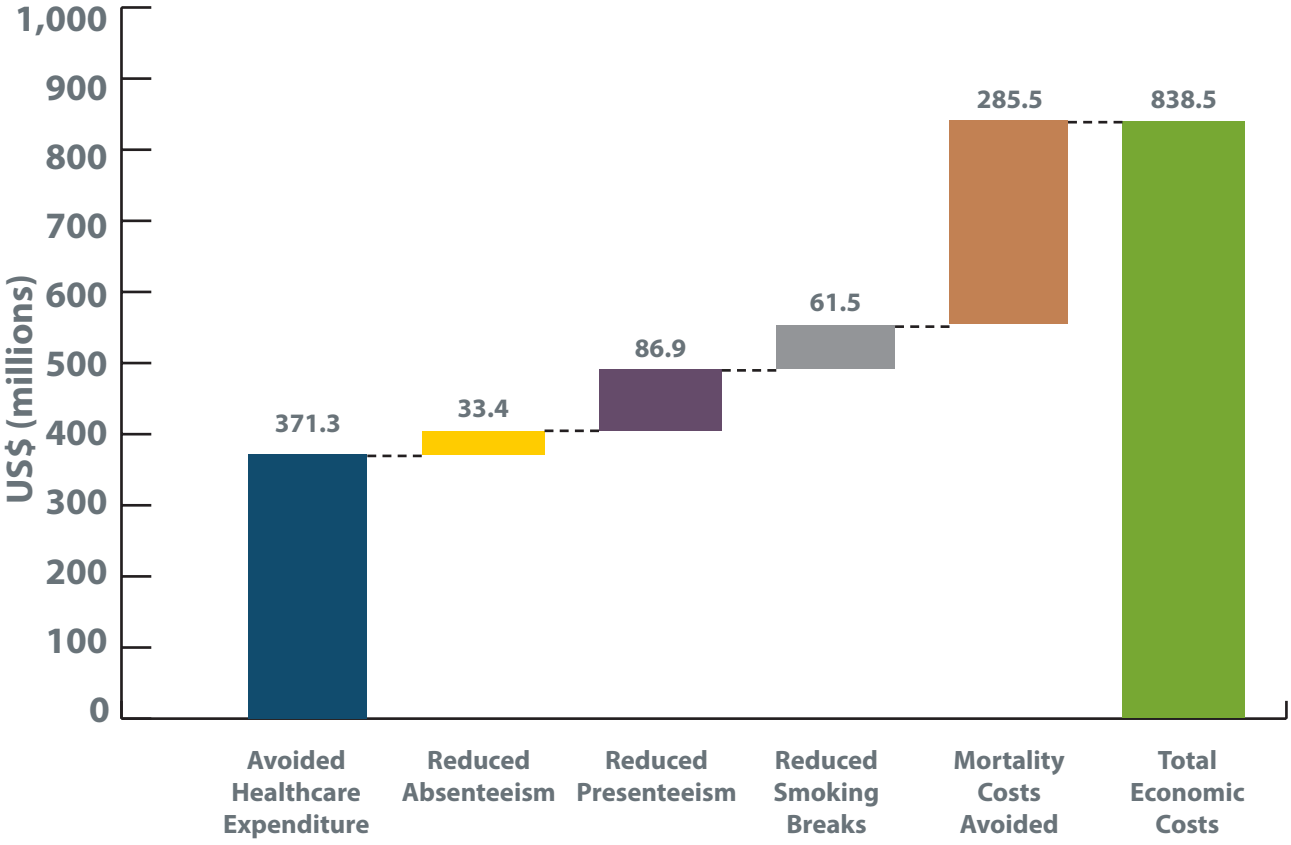


Fig. 7: Sources of direct and indirect economic savings as a result of implementing the tobacco policy package

Figure 7 breaks down the sources from which annual savings accrue. The annual largest savings result from avoided healthcare expenditures (US$371.3 million). The next highest source of savings is derived from preventing the removal of working-age individuals from the labor force (US$285.5 million), followed by reduced presenteeism (US$86.9 million), reduced smoking breaks (US$61.5 million), and reduced absenteeism (US$33.4 million).

Importantly, implementing the package of tobacco measures reduces medical expenditure for both citizens and for the government. Presently, private and public annual health care expenditures in El Salvador are about US$1.8 billion [12], of which an estimated 6.5 percent is directly related to treating disease and illness due to tobacco use (≈US$116.2 million).

Year-over-year, the package of interventions lowers smoking prevalence, which leads to less illness, and consequently less healthcare expenditure. Over the time horizon of the analysis, the package of interventions averts US$371.3 million in healthcare expenditures, or US$24.8 million annually, (see **Figure 8**), with 66 percent of those savings accruing to government, 28 percent to individual citizens who would have paid out-of-pocket for healthcare, and the remainder to other voluntary healthcare pay schemes. Thus, government stands to save about US$246.2 million over 15 years.

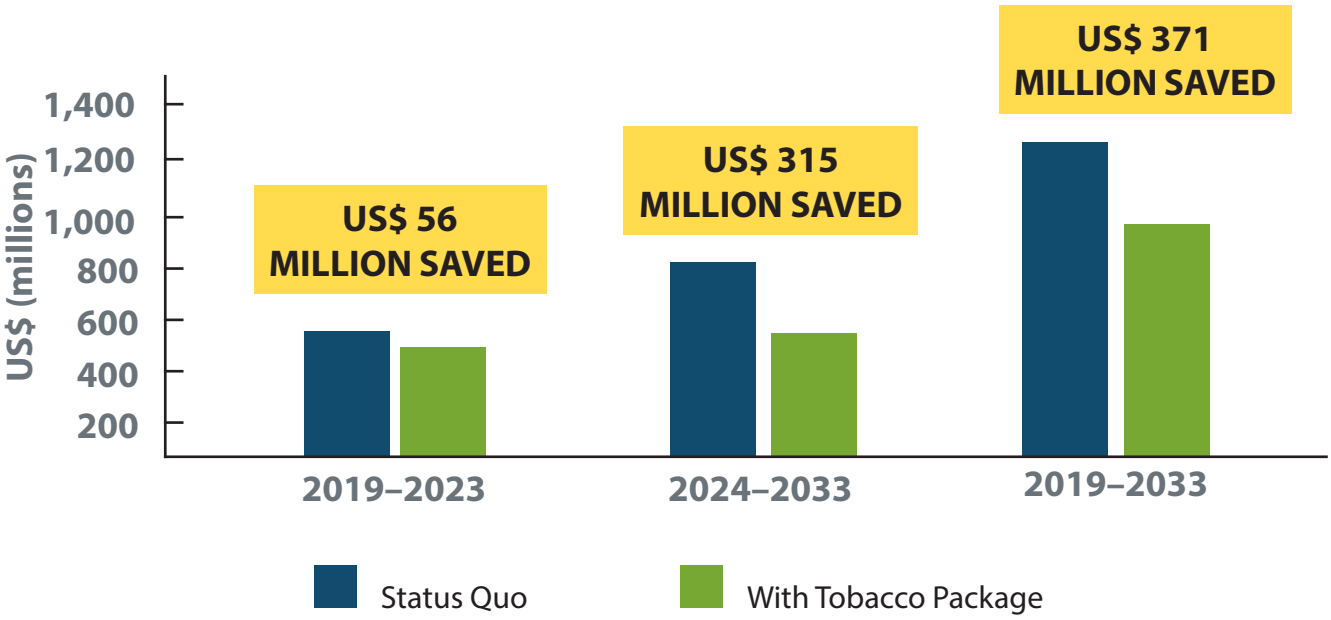


Fig. 8: Private and public healthcare costs (and savings) over the 15-year time horizon

6.2.3. The Return on Investment

An investment is considered worthwhile if the gains from making the investment outweigh the costs. A return on investment (ROI) analysis measures the efficiency of the tobacco control investments by dividing the economic benefits that are gained from implementing the WHO FCTC specific tobacco control measures established in the WHO FCTC measures, by the costs of the investments. For the investment case the ROI for each intervention was evaluated in the short-term (period of five years) and in the medium-term (period of 15 years). The ROI shows the best return on investment for each intervention, and for the full package of measures. Net benefits 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 together. With the exception of quitlines, all interventions have a positive ROI within the first five years, meaning that the government will recoup anywhere from six to 39 times its investment, depending on the intervention. The ROIs for each intervention continue to grow over time, reflective of the increasing effectiveness of policy measures as they move from planning and development stages, to full implementation.

	First 5 years (2019–2023)			All 15 years (2019–2033)		
	Total Costs (million US$)	Net Benefits (million US$)	ROI	Total Costs (million US$)	Net Benefits (million US$)	ROI
Refresh graphic warning labels	0.7	28.5	**39**	1.5	220.8	**146**
Bans on advertising, promotion and sponsorship	0.7	28.4	**39**	1.5	220.1	**144**
Plain Packaging	0.8	31.4	**38**	1.9	234.3	**126**
Increase tobacco taxes	0.7	24.9	**35**	1.5	193.5	**126**
Enforce bans on smoking in public places	1.5	26.6	**18**	2.9	205.9	**71**
Cessation: Brief Advice to Quit	0.9	5.1	**6**	3.2	65.9	**21**
Cessation: Quitline	2.0	0.2	**0.1**	7.0	2.8	**0.4**
Package (combined interventions)	7.4	126.8	17	19.5	838.5	43

Table 2: Return on investment, by WHO FCTC demand-reduction measure (US$)

Over 15 years, rotating graphic warning labels on tobacco products would have the highest return on investment: for every dollar invested, one can expect to see US$146 in return. Enacting more stringent bans on advertising has the next highest ROI (144), followed by raising taxes and plain packaging (126), increasing enforcement of smoke-free public places (71), and scaling up health providers offering brief advice to quit tobacco (21). The costs of implementing quitlines exceed their benefits.

The ROI of cessation interventions is lower than for other WHO FCTC-demand reduction measures. However, training health care workers to deliver brief advice to quit smoking, and establishing a national quitline lay the foundation for future cessation infrastructure that will bring greater returns to these interventions later on. As more Centers for Prevention and Treatment of Addiction are built, specialist treatment will become more widely available. In addition, as the affordability and accessibility of nicotine replacement therapy (NRT) improves, smokers will have medication to assist them to quit. Built later, this secondary infrastructure will offer health providers and quitlines additional tools to assist smokers to make quit attempts, and stay tobacco free.

In addition, if health system reach improves, and more adults attend a primary care clinic each year, more smokers can be reached, further amplifying the return on investment.

Regardless of the ROI, however, providing assistance to those who would like to quit a deadly product, but cannot do so on their own, is an important service, consistent with the SDG imperative of leaving no one behind. This is especially critical that implementing other demand-reduction policy measures will motivate more people to quit smoking.

Credit: © Robert Easton

7. Other tobacco issues

7.1. Tobacco taxes: A win-win for health and government revenue

For this investment case, the impact of increasing excise taxes on the number of cigarettes that would be sold within the formal market, as well as the impact on government-collected tax revenues was projected. Within the analysis, the impact of doubling the specific excise tax by 2024, and implementing additional incremental tax increases each year through 2033 until taxes equal 75 percent of the retail price of cigarettes was analyzed.

Raising cigarette taxes would result in significant government revenue gains. Ramos-Carbajales and colleagues estimate the price elasticity of cigarettes in El Salvador to be ≈ -0.9 [13], meaning a 10 percent increase in price is expected to result in a nine percent decrease in consumption. While at the high end of observed elasticities in developing countries, people's purchasing behaviors still remain somewhat unresponsive to price changes: so while some people quit smoking or reduce consumption, the addictive properties of tobacco mean that many more people still continue to smoke. Under the described tax increase pattern and elasticity, licit cigarette consumption would drop from the present day amount of about 22.3 million packets annually, to 14.2 million over the course of the next 15 years.

Even though fewer cigarettes are being consumed, they are being purchased at higher tax rates. Thus, government revenue increases, with the government of El Salvador adding an expected US$51 million[4] in revenue over 15 years, or about US$3.4 million annually—compared to if no tax increases had been enacted at all.

7.2. Illicit trade

It was not possible to obtain transparent estimations of the size of illicit commerce, since there are only very few independent size estimations for illicit trade in El Salvador. It is estimated that around 22.4 million packs of cigarettes were bought on the licit market in El Salvador in 2017, generating over US$27 million in tax revenue for the government.

Euromonitor and CID Gallup estimate that the illicit market represents between 24–31 percent[5] of all cigarette consumption in El Salvador, with illicit products largely originating from Asia and

4 Discounted value.
5 Various studies have shown inconsistencies in Euromonitor's illicit trade methodology and estimates. The Ministry of Health El Salvador requested that these figures be used given that more accurate data is not available. Findings should be cautiously interpreted given the lack of definitive data on the size of the illicit market, and the price of illicit cigarettes in El Salvador.

trafficked into the country through Guatemala [10]. Taking the low end of that range, if 24 percent of all cigarettes consumed in El Salvador are obtained illicitly, then over seven million packs of cigarettes were purchased in 2017 that were not subject to government taxes.

Illicit cigarette packaging may contravene requirements to display graphic warning labels, undermining a key government policy designed to reduce smoking. In addition, smokers who purchase packs of cigarettes pay lower prices, with some reports suggesting that illicit cigarettes sell for about one-third of the cost of licit cigarettes in El Salvador [10]. Smokers who purchase cigarettes on the illicit market pay lower prices, eliminating the incentive to quit or to reduce smoking when prices are raised on the licit market via tax increases. On the other hand, the government loses out on the tax revenue that it would have received if the smokers had purchased their cigarettes on the licit market.

In this investment case it is estimated that if illicit trade didn't exist in 2016, and all smokers faced the same price, smokers would have consumed 4.2 million fewer packs of cigarettes, a 14 percent reduction in total cigarette consumption within the country.

In addition, while facing higher prices on the licit market would reduce consumption, not all smokers who previously made purchases on the illicit market would completely quit, meaning that some purchases that previously occurred on the illicit market would occur within the licit market. If illicit trade were completely eliminated, it was estimated that about 2.8 million more packs would be purchased licitly, meaning the government of El Salvador would collect 3.4 million more dollars in tax revenue.

Several proven measures, including ensuring all forms of participants in the tobacco supply chain are licensed, implementing "track and trace" systems to monitor the flow of tobacco products, intensifying enforcement at borders and ports, and conducting public campaigns to raise awareness about the harms caused by illicit trade can all contribute to reducing the flow of illicit products [14]. Joining the FCTC Protocol to Eliminate Illicit Trade in Tobacco Products represents an opportunity for El Salvador to unite with countries globally to fight illicit trade.

8. References

1. World Health Organization, *El Salvador – Tobacco Country Profile, in WHO report on the global tobacco epidemic, 2017*. 2017.
2. IHME, *The Global Burden of Disease Results Tool,* I.o.H.M.a.E. (IHME), Editor. 2016.
3. Goodchild, M., N. Nargis, and E. Tursan d'Espaignet, Global economic cost of smoking-attributable diseases. Tobacco Control, 2018. **27**(1): p. 58-64.
4. Chaker, L., et al., *The global impact of non-communicable diseases on macro-economic productivity: a systematic review*. Eur J Epidemiol, 2015. **30**(5): p. 357-95.
5. Anesetti-Rothermel, A. and U. Sambamoorthi, *Physical and mental illness burden: disability days among working adults*. Popul Health Manag, 2011. **14**(5): p. 223-30.
6. Wang, P.S., et al., *Chronic medical conditions and work performance in the health and work performance questionnaire calibration surveys*. J Occup Environ Med, 2003. **45**(12): p. 1303-11.
7. *Encuesta Nacional de Alcohol y Tabaco 2014*. 2014, Fosalud, El Salvador Ministerio de Economía.
8. Government of El Salvador, National Law 1988 - Health Code, Decree No. 955. 1988: San Salvador.
9. Global Youth Tobacco Survey Fact Sheet El Salvador 2015. 2015, World Health Organization, Centers for Disease Control and Prevention, El Salvador Ministry of Education, Fosalud.
10. EuroMonitor International. *Tobacco in El Salvador*. 2018; Executive Summary].
11. Berman, M., et al., *Estimating the cost of a smoking employee*. Tob Control, 2014. **23**(5): p. 428-33.
12. Ross, H., *Controlling Illicit Tobacco Trade: International Experience.* 2015, Prepared for the Economics of Tobacco Control Project¸ School of Economics, University of Cape Town and Tobacconomics, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago: online.
13. Ramos-Carbajales, A., M. Gonzalez-Rozada, and H. Vallarino, [*Demand for cigarettes and tax increases in El Salvador*]. Rev Panam Salud Publica, 2016. **40**(4): p. 237-242.
14. Ross, H., *Measures to Control Illicit Tobacco Trade*. 2015, University of Cape Town; UIC Institute for Health Research and Policy.
15. Pichon-Riviere, B., Augustovski, Alcaraz, Reynales-Shigematsu,Pinto, CastilloRiquelme,Torres, Osorio, Hauyanay, Munarriz, Miera-Juárez, Gallegos-Rivero, Puente, Navia-Bueno, Caporale, *Economic impact of smoking on health systems in Latin America: A study of seven countries and its extrapolation to the regional level*. Rev Panam Salud Publica, 2016. 40(4)(Thematic issue on economics of tobacco control in the Americas).
16. Jamison, D.T., et al., Appendix 3: *Global health 2035: a world converging within a generation*. Salud Publica Mex, 2015. **57**(5): p. 444-67.

17. Baker, C.L., et al., *Benefits of quitting smoking on work productivity and activity impairment in the United States, the European Union and China, in Int J Clin Pract*. 2017.
18. Levy, D.T., et al., *The Impact of Implementing Tobacco Control Policies: The 2017 Tobacco Control Policy Scorecard*. J Public Health Manag Pract, 2018.
19. Chipty, T. *Study of the Impact of the Tobacco Plain Packaging Measure on Smoking Prevalence in Australia*. 2016 4/16/2018]; Available from: https://www.health.gov.au/internet/main/publishing.nsf/content/491CE0444F7B0A76CA257FBE00195BF3/$File/PIR%20of%20Tobacco%20Plain%20Packaging%20-%20with%20Addendum.pdf
20. *Tobacco Interventions for Appendix 3 of the Global Action Plan for Non Communicable Diseases*. 2017, World Health Organization.
21. Goodchild, M., A.M. Perucic, and N. Nargis, *Modelling the impact of raising tobacco taxes on public health and finance, in Bull World Health Organ*. 2016. p. 250-7.
22. Hitchman, S.C., et al., *Changes in Effectiveness of Cigarette Health Warnings Over Time in Canada and the United States, 2002–2011*. Nicotine Tob Res, 2014. **16**(5): p. 536-43.
23. *Costing Tool – User Guide - Scaling Up Action against Noncommunicable Diseases: How Much Will It Cost?* 2012, World Health Organization.
24. Joossens, L., et al., *How Eliminating the Global Illicit Cigarette Trade Would Increase Tax Revenue and Save Lives*. 2009, Bloomberg Philanthropies and the Bill and Melinda Gates Foundation: online.
25. Blecher, E., et al., *Euromonitor data on the illicit trade in cigarettes, in Tob Control*. 2015: England. p. 100-1.
26. Joossens, L., *Vietnam: smuggling adds value*. Tob Control, 2003. **12**(2): p. 119-20.
27. Maldonado, N., et al., *Measuring illicit cigarette trade in Colombia*. Tob Control, 2018.
28. Brown, J., et al., *An analysis of purchase price of legal and illicit cigarettes in urban retail environments in 14 low- and middle-income countries, in Addiction*. 2017. p. 1854-60.
29. Levy, D.T., et al., *Modeling the impact of smoking-cessation treatment policies on quit rates.* Am J Prev Med, 2010. **38**(3 Suppl): p. S364-72.
30. Centers for Disease Control and Prevention, *Best Practices for Comprehensive Tobacco Control Programs—2014*. 2014, Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health: Atlanta: U.S.
31. National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and, H., *Reports of the Surgeon General, in The Health Consequences of Smoking-50 Years of Progress: A Report of the Surgeon General*. 2014, Centers for Disease Control and Prevention (US): Atlanta (GA).
32. Centers for Disease Control and Prevention, *Telephone Quitlines: A Resource for Development, Implementation, and Evaluation*. 2004, Department of Health and Human Services, Centers for

Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health: Atlanta, GA: U.S.

33. Duke, J.C., et al., T*he Impact of a State-Sponsored Mass Media Campaign on Use of Telephone Quitline and Web-Based Cessation Services, in Prev Chronic Dis*. 2014.
34. Mann, N., et al., *Comparing the New York State Smokers' Quitline Reach, Services Offered, and Quit Outcomes to 44 Other State Quitlines, 2010 to 2015*. Am J Health Promot, 2018. **32**(5): p. 1264-1272.
35. *Treating tobacco use and dependence: 2008 update U.S. Public Health Service Clinical Practice Guideline executive summary*. Respir Care, 2008. **53**(9): p. 1217-22.
36. North American Quitline Consortium, *Tobacco Cessation Quitlines: A Good Investment to Save Lives, Decrease Direct Medical Costs and Increase Productivity, in NAQC Issue Paper*. 2009.

9. Methodology Annex

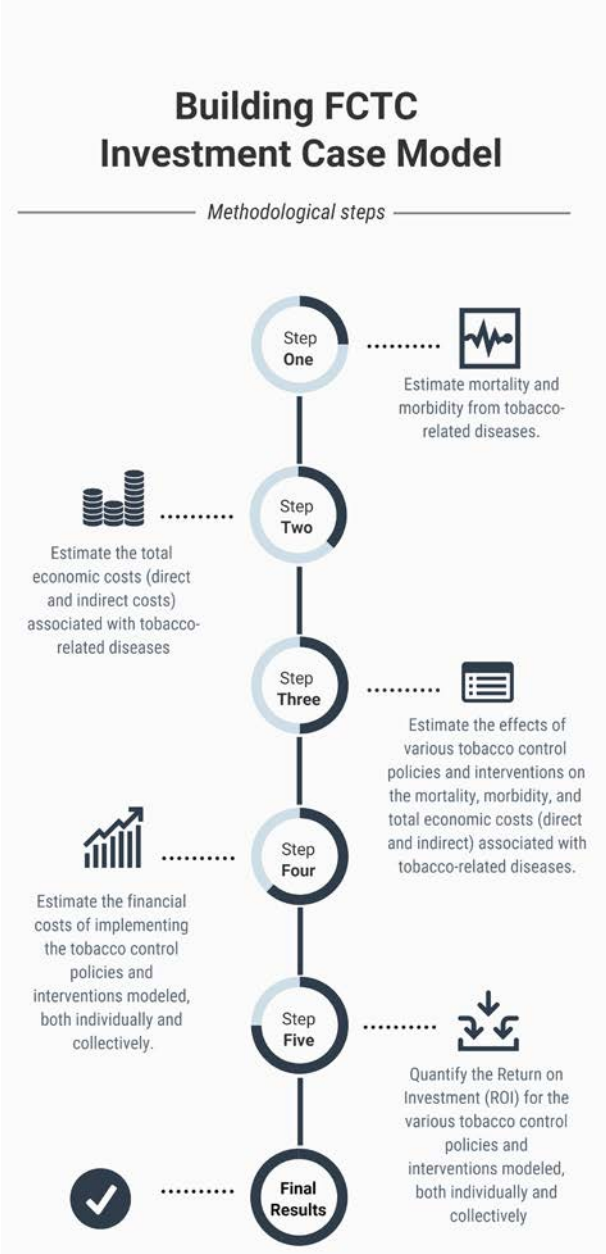
The objectives of the WHO FCTC Investment Case are to quantify the current health and economic burden of tobacco use in El Salvador; estimate the impact that implementing tobacco measures would have on reducing the burden; and provide analysis of other impacts—e.g., tax revenue—that may factor into government decisions to implement tobacco control measures.

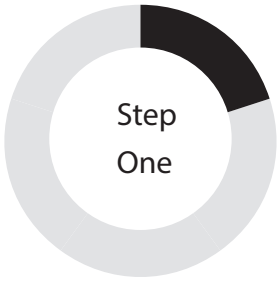
The investment case consists of the following steps:

1. Estimate the mortality and morbidity from tobacco-related diseases;
2. calculate the economic costs of smoking (direct and indirect costs);
3. estimate the impact of tobacco-control measures on lowering mortality, morbidity, and economic costs due to smoking;
4. estimate the financial costs to the government of implementing and enforcing the policy measures, and;
5. quantify the return on investment (ROI) of each policy measure.

The tools and methods used to perform these steps are described below. Interested readers are referred to this report's Technical Appendix for a more thorough account of the methodology. Costs and monetized benefits are reported in constant 2017 United States dollars.

Fig. 9: Building the FCTC Investment Case





9.1. Estimating the health and economic burden of tobacco use

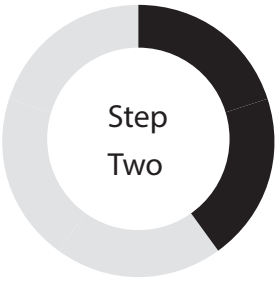
Estimates of the current health burden of tobacco use (step 1) were obtained by accessing El-Salvador-specific data on tobacco attributable mortality and morbidity from the 2016 Global Burden of Disease Study (GBD). The study estimates the extent to which smoking and exposure to second-hand smoke contribute to incidence of—and death from—27 diseases.

Next, the total economic costs of disease and death caused by tobacco use, including direct and indirect costs were calculated (step two). Direct refers to tobacco-attributable healthcare expenditures (e.g., hospitalization and physician costs, medication costs). Indirect refers to labor-force productivity costs that result from death or disease, including the cost of premature mortality, absenteeism, presenteeism, and smoking breaks.

To calculate direct costs (i.e. healthcare expenditures) associated with tobacco use, total healthcare expenditures were multiplied by the Smoking-Attributable Fraction (SAF) of healthcare expenditures. Healthcare expenditure data was obtained from publicly available WHO databases. The SAF is based on information obtained from Pichon et al., (2016), who estimated smoking to account for between 5.2-12.7 percent of total healthcare expenditures in seven Latin American countries [15]. Based on these estimates, the SAF for El Salvador is adjusted to 6.5 percent.

Indirect costs represent the monetized value of lost time, productive capacity, or quality of life as a result of tobacco-related diseases. Indirect costs accrue when individuals are removed from the workforce during their prime working years due to **premature death**; miss more days of work (**absenteeism**) or are less productive at work due tobacco-related illnesses (**presenteeism**), or; take additional breaks during working hours in order to smoke.

Taking into account the number of individuals engaged in the workforce, the value of a year of life lost due to premature mortality was calculated at 1.4 times GDP, following the "full income approach" employed by Jamison et al (2013) [16]. Absenteeism losses are obtained by multiplying the number of excess days of absenteeism due to smoking by workers' average daily salary, where smokers are expected to miss an additional 2.6 days of work each year compared to non-smokers [11]. Presenteeism losses are obtained similarly, under research that shows that smokers in China, the US, and five European countries experience about 22% more impairment at work because of health problems compared to never-smokers [17]. Lost productivity due to smoking breaks is valued under the conservative assumption that working smokers take 10 minutes of extra breaks per day [11].



9.2. Estimating the impact of implementing tobacco measures

To analyze the impact of policy measures on reducing the health and economic burden of smoking, the investment case employs two scenarios. In the Baseline scenario, current efforts are "frozen", meaning no change occurs from the tobacco measures that El Salvador currently has in place, through the year 2033 at the end of the analysis. The Baseline scenario looks at what happens if El Salvador continues the status quo, and year-over-year incurs the economic costs that were calculated in step one. In the Target scenario, El Salvador implements new tobacco measures or intensifies existing ones, in order to reduce the prevalence of smoking. The difference in health and economic outcomes in the two scenarios represents the gains that El Salvador can achieve by taking targeted actions to reduce tobacco use.

The impacts of enforcing smoke-free air laws, implementing plain packaging, and intensifying advertising bans are derived from Levy et al (2018) [18] and Chipty (2016) [19], as adapted within the Tobacco Use Brief of Appendix 3 of the WHO Global NCD Action Plan 2013-2020 [20]. The impact of raising taxes on the prevalence of tobacco use is determined by the "prevalence elasticity", or the extent to which individuals stop—or reduce—smoking as a result of price changes. Following research that shows prevalence elasticity is approximately one-half of price elasticity [21], a -0.46 prevalence elasticity was utilized within the analysis [13]. Finally, estimates of "wear out" of health warnings are derived from Hitchman et al. (2014), who found that a composite score measuring the effectiveness of health warning labels across four measures—noticeability, conveyance of harm, motivation to quit, and ability to cause to forgo a cigarette—fell by 25 percent over five years when warning labels were not refreshed [22]. The impacts of "cessation" interventions are described separately, in sections below.

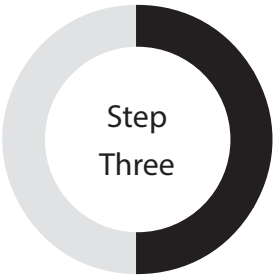
Table 3 displays the impact sizes used within the investment case analysis. Additional information on their derivation can be found in the Technical Appendix.

Within the analysis, it is assumed that implementation or intensification of new tobacco-control measures does not take place until year three of the analysis. With the exception of taxes—the impact of which is dependent on the timing of increases in tax rates—and cessation—the impact of which is immediate when call centers or trained doctors provide advice to smokers—the full impact of the measures is phased in over a five-year period. The phase-in period follows WHO assumptions [23] 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.

Table 3: Impact size: Relative prevalence reduction over 15 years, by FCTC demand-reduction measure

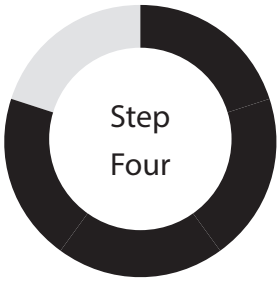
FCTC demand-reduction measure	Relative reduction in prevalence of current smokers
Strengthen compliance with 100% smoke-free environments	9.9%
Enact comprehensive bans on advertising, promotion, & sponsorship	10.6%
Increase taxes on cigarettes	15.4%
Refresh the content of large health warning on cigarette packages	10.6%
Implement plain cigarette packaging	9.3%
Run a mass media campaign to promote awareness about tobacco control	**Already fully implemented √**
Cessation support: Offer "brief advice" to quit tobacco	4.6%
Cessation support: Establish a free national quitline	1.9%
Tobacco Package (all policies)	**48.3%**

*The combined impact of all interventions is not the sum of individual interventions. Levy and colleagues' (2018) [18] methodology to account for overlapping policy effects was followed. (Source: own elaboration, based on study results).



9.3. The financial costs of implementing tobacco control measures

With the exception of the cessation interventions, 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 tool are found elsewhere [23]. Briefly, the 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 Tool estimates the cost of surveillance, human resources—for program management, transportation, advocacy, and enacting and enforcing legislation—, trainings and meetings, mass media, supplies and equipment, and other components. Costs are sourced from the WHO CHOICE Costing study, and are converted to 2017 US$ using consumer price indices from the World Bank database.



9.4. The Return on Investment (ROI)

If the benefits (avoided economic costs) from implementing an intervention exceed the cost (financial costs) of the intervention, investing in taking action is considered efficient. The return on investment (ROI) analysis measures the efficiency of tobacco-control investments by dividing the monetary value of health gains from investments by their respective costs. The ROI represents the following: for every dollar that the government invests in tobacco control measures, how many dollars can it expect to receive in return?

9.5. Analysis of tax revenue, illicit trade, and cessation interventions

9.5.1. Taxes – impact on revenue and smoking prevalence

An Excel module to analyze the impact of cigarette taxes on consumption and tax revenue was built. The Tool imitates El Salvador's mixed excise tax system, and employs Goodchild, Perucic, & Nargis' (2016) [21] methodology to calculate the impact of tax increases on cigarette consumption and revenue. All tax increases are assumed to be real increases and to be fully passed on to the consumer.

Data on the price of the most sold brand of cigarettes (≈US$2.00), the number of cigarette packs licitly sold (22.3 million in 2017), and details on the tobacco tax structure was obtained from El Salvador's Ministry of Finance. El Salvador levies a 39 percent ad valorem tax on the suggested retail price to the consumer; a specific excise tax of US$0.45 dollars on each 20-pack of cigarettes; and a 13 percent value added tax on the final price to the consumer, less the ad valorem tax.

The price elasticity of cigarettes is obtained from a study published in the Pan American Journal of Public Health. The study was conducted by Ramos-Carbajales, Gonzalez-Rozada, & Vallarino (2016) [13], who estimate the price elasticity of cigarettes consumption to be -0.92. Prevalence elasticity is obtained following Goodchild and colleagues' assumption that the prevalence elasticity is one half of the price elasticity (-0.46). In order to account for concerns that tax increases may cause individuals to switch to the illicit market, where they will continue to smoke, a scenario in which 24 percent[6] of those who would have quit (based on the prevalence elasticity) actually continue to smoke was modeled. Current smoking prevalence among adult men and women was obtained from El Salvador's latest National Alcohol and Tobacco Survey [7].

6 Euromonitor states that illicit consumption currently represents 24 percent of all consumption in El Salvador. Because there is no evidence of how many people will switch to the illicit market given a tax raise, a 24 percent is used to illustrate a "dampening" effect on the ability of tax increases to depress smoking prevalence, given the option to continue smoking less expensive products available on the illicit market. This example is for illustration and to address country concerns about the impact of illicit trade on policy outcomes. It should not be taken as indicative of what will occur if taxes increase. Also of note, this is not taken into account in the revenue projections, only for smoking prevalence.

9.5.2. Illicit trade

The investment case relies on the methodology of Joosens et al., (2009) to calculate lost revenue due to illicit trade and the decline in cigarette consumption that would occur if illicit trade were eliminated. The underlying equations are detailed in full within the appendix of their report [24]. It was not possible to obtain transparent estimates of the size of the illicit market. Euromonitor estimates that the illicit market comprises around 24 percent of all cigarette consumption [10]. While various studies have shown inconsistencies in Euromonitor's illicit trade methodology and estimates [25], the investment case uses it's figures here for lack of more accurate data.

Price is not always the dominant consideration for why smokers purchase cigarettes; perceptions about quality [26], and attributes such as flavor [27] also play a role. Indeed, these factors may impart enough value that illicit cigarettes sell for a higher price than licit cigarettes. Indeed, recent evidence from nine low- and middle income countries shows that in some countries the median price of illicit cigarettes is higher than the median price for licit cigarettes [28]. In El Salvador, no information is available on the price of illicit cigarettes. Thus, for this analysis Joosen and colleagues' [24] assumption that illicit cigarettes are sold at a discount that is equivalent to two-thirds of the share of taxes in the retail price was followed.

9.5.3. Offering brief advice to quit tobacco use

An Excel module to analyze the costs and impact of scaling up brief advice to quit tobacco use at the primary care level was built. Brief advice—consisting of an intervention in which health providers ask about tobacco use status, advise tobacco users to quit, assess their willingness to make a quit attempt, assist them to make the quit attempt, and arrange for follow-up—is currently rarely offered at the primary care level in El Salvador.

The number of smokers who benefit from the intervention is dependent on how many are identified in as smokers in primary care visits and counselled. Per data obtained from the MoH, 42 percent of adults visit a primary health clinic each year, and it is assumed smokers do so in equal proportion. The number of smokers reached depends on the number of trained health providers. Following WHO's recommended health provider to population ratio (4.45:1000), one health professional can effectively serve about 225 people. The benefits of receiving advice to quit from a healthcare provider are estimated using methodology developed by Levy and colleagues (2010) [29]. Briefly, receiving advice to quit from health professionals is expected to increase the number of quit attempts in the population that receives the advice by 60 percent over baseline levels. Data on the percent of Salvadorians who attempt to quit each year (57.3%) and the number of tries that they make was obtained from ENAT [7].

To cost a scale up of the intervention, the expenditures to train health personnel, as well as the cost of the primary-care-level outpatient visits during which smokers will receive the intervention was assessed. A a gradual scale-up in the training of the existing health workforce was assumed, where about 80 percent of the workforce is trained to offer brief advice by 2024. Per-person training costs are assumed to be US$35, based on information obtained from the El Salvador MoH. The cost of a primary-care-level outpatient visit is US$7.32[7]. It was assumed that the average outpatient visit is around 10 minutes, and that, on average, the tobacco intervention takes 15 minutes. Following WHO CHOICE methodology, the cost of those extra 15 minutes is a 34 percent add-on to the original cost. Each smoker receives a "How to Quit" leaflet (US$0.33).

9.5.4. Establishing a national quitline

An Excel module to analyze the costs and impact of implementing a national smoking cessation telephone quitline was developed. Quitlines have been shown to be effective at increasing smoking cessation behaviors by numerous studies [30, 31].

The impact of a national quitline on population-level smoking rates in a country is determined by the reach of the quitline (e.g. the number of smokers who use the quitline) and the effectiveness of the quitline (e.g. what proportion of quitline clients successfully quit smoking) [32]. The average annual reach of quitlines in the U.S. is around 1% annually [30, 31, 33, 34].

A gradual scale-up in annual quitline reach for El Salvador was asumed, with El Salvador achieving 1% annual reach within five years of establishing a national telephone quitline. The annual number of quitline clients was forecasted by multiplying annual estimates of adult smokers in El Salvador by annual expected quitline reach. Estimated annual reach gradually increases from 0% at the beginning of the model to 1% within 5 years. From model year 6 through 15, quitline reach is expected to remain at 1% annually.

The effectiveness of quitline services is based on previously published quit rates for cessation counseling. Published studies have reported quit rates for cessation counseling in the U.S. of 16.2%, which is 50% higher than the rate of quitting with no counseling. When nicotine replacement therapy is used along with counseling, the quit rate increases to 22.1% [35]. Follow-up evaluation surveys among quitline participants at seven months after receipt of counseling from the quitline has shown similar quit rates for quitline clients in the U.S. [36]. For the quitline module, a quit rate of 19.2% was used, which is average of the two quit rates reported in the literature for counseling described previously (16.2% and 22.1%).

7 WHO CHOICE estimate – Updated to 2017 USD using consumer price index data from the World Bank Database

To estimate the number of quitline clients who quit smoking, the total number of annual quitline clients expected was multiplied by the quit rate of 19.2%. For this analysis, no relapse was assumed, meaning that those quitline clients who quit smoking after using the program are permanently removed from the adult smoking population in El Salvador. For each year in the model, adjust the annual total number of adult smokers in El Salvador is adjusted by removing those quitline clients who permanently quit smoking from the adult smoking population in El Salvador. Adult smoking prevalence, the number of total adult smokers in El Salvador, and the annual number of quitline clients was recalculated based on the value of the annual quitline reach parameter for each model year.

To cost implementing a national telephone cessation quitline, both the operational costs of running the quitline as well as promotional costs were assessed. In 2006, national funding for quitlines in the U.S. was US$1.10 per smoker [36]. First, the quitline funding per smoker was adjusted for inflation in the U.S. between 2006 and 2018, resulting in an estimate of US$1.38 per smoker. Next, the U.S. estimate of quit line funding per smoker was adjusted to be relevant for El Salvador by factoring in lower human resource costs. The resulting model parameter value for quitline funding for El Salvador is US$0.74 per smoker annually. To forecast annual operational costs for a national quitline, the estimated annual number of quitline clients for each year in the model was multiplied by US$0.74.

Quitlines are highly dependent on mass media promotion to make smokers aware of the quitline and prompt them to call the quitline for assistance with quitting. Promotion of quitlines is often done by adding tagging or information to other media efforts, such as TV commercials, radio ads, or outdoor signs. Because quitline media promotion is often done as part of larger media campaigns, it can be difficult to isolate the exact cost of quitline promotion. General guidelines and recommendations for new quitlines advise a 1:1 ratio between quitline promotional costs and operational costs [32].

Based on the recommended 1:1 ratio between quitline promotional costs and operational costs, the annual promotional costs for the quitline that are equal to the forecasted annual operational costs for each year in the model was estimated. For the model, this results in average annual quitline operational costs of nearly US$330,000 annually, with an additional US$330,000 in promotional costs required, for a total annual quitline cost of around US$660,000. These costs represent the total costs of operating a national telephone quitline that provides cessation services to approximately 1% of the adult smokers in El Salvador each year.

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