Policy Paper: Excise Tax on Cigarettes in the 2025/26 Budget

1. SUMMARY

This note contains policy proposals on tobacco taxation from NDRI for the federal budget for FY 2025/26.

Nepal is currently facing a challenging economic environment. Domestic revenues are below target, leading to a 10 percent reduction in the budget ceiling for 2024/25. Exports are down, resulting in a trade deficit of NPR 1.4 trillion by the end of the financial year. Domestic and external debt levels are rising, and most of the debt is being spent on debt servicing. The government must take bold steps to respond to increasing revenues and support the Nepalese economy.

Experience from last four years proves that raising tobacco tax (Excise) is an effective way to raise revenues. Excise tax rises on tobacco in the 2021/22 and 2022/23 budgets have led to an NPR 10.2 billion boost to revenue collections, and there has been no evidence of negative impact on consumers or industry. The combined pre-inflation price increase from excise rises was just 1.06 rupees per cigarette on the most popular brand. The industry continues to generate significant profits, and Surya Nepal Private Limited (SNPL), the largest tobacco company in Nepal, has maintained an A1+ credit rating every year since the tax increase. There has been no impact on the levels of illicit trade: NDRI estimated that in 2021, less than 1% of packets had illegally entered the country.

However, the government was reluctant to increase the excise duty in the fiscal budget 2023/24 and 2024/25; a choice which is being seen to impact the level of excise collection for the year. Despite only a slight increase in the excise duty rate in both years, the projected excise duty collection for the 2023/24 budget was NPR 38 billion. However, the revised collection amounted to only NPR 31 billion. For the 2024/25 budget, the projected excise duty collection is NPR 35 billion, a target that now seems highly unlikely to be met given the current pace of revenue collection.

Tobacco taxation on cigarettes is still an underutilised resource. Despite taking positive steps in the FY 2021/22 and FY 2022/23, tobacco taxation all together remains at 41 percent. Nepal has the lowest level of tobacco tax in the region, well behind Pakistan's rate of 52 percent, the next closest amount. In India, tax as a percentage of the retail price is 58 percent, far higher than that of Nepal. If Nepal matched the level of tax to India, the country could see an NPR 36 billion increase in domestic revenues. The country's wide-scale tobacco use is a significant cost to the economy and currently outweighs any benefits of revenue collections. NDRI analysis estimates that revenue collections from tobacco taxation only covers 75 percent of the costs to the economy tobacco use generates.

There is widespread support for increasing the rates of tobacco taxation. 3 in 4 people nationally (70 percent) support an increase in tobacco taxes, including over half of smokers (56 percent). Within parliament, there is cross party support for stronger government action. Senior figures across all the major parties, including Pushpa Kamal Dahal have pledged their support for further increases to tobacco tax levels.

NDRI recommends that tobacco excise rates increase by at least 35 percent this year. A 35 percent increase could generate an additional NPR 10.5 billion in revenue. This is equivalent to over 2 percent of the estimated budget deficit. This would directly help with the government's

plans for the next budget year, funding the building much needed municipal hospitals at the local level or other major development priorities. Adopting a more ambitious target of a 60 percent rise could lead to an extra NPR 17 billion, covering almost 3 percent of the estimated budget deficit, and unlocking a even greater number of possible projects.

NDRI recommends replacing the current, complex 5-tier system with a more straightforward 3-tier system. Consumption in the first two tiers is very low, and they could be collapsed upwards with minimal impact on consumers. If enacted alongside a 35 percent rise in tobacco excise rates, revenue would rise by a further NPR 180 million. Reducing the number of tiers would prevent tobacco companies from repositioning cigarette products in the lower tiers and reduce government administration costs. This could also set in motion a process to gradually move to a uniform system, eventually reducing the remaining three tiers to just one single rate of tax.

NDRI also recommends increasing the excise duty on emerging tobacco products such as hookahs and e-cigarettes, and advocates for their inclusion under the scope of health hazard taxation. Consumption of these new forms of tobacco is growing in Nepal, with demand being primarily driven by young people. 47% of hookah users and 58% of e-cigarettes consumers are aged between 15-24. To protect the health of future generations, these new forms of tobacco must be included under the existing regulations and face similar levels of taxation to deter youth smoking. This has the support of the public: over two thirds of respondents (69 percent) supported including hookah under existing tobacco regulations.

Increasing excise tax on tobacco is a win-win situation: it provides revenue for the Ministry of Finance, as well as improving public health and reducing burden on the healthcare system.

2. CONTEXT

Tobacco use is a major public health problem in Nepal that has both economic and public health consequences. Nepal has one of the highest smoking rates in the South Asia region and highest number of deaths from smoking. The most recent figures show that tobacco was responsible for nearly one in nine deaths in Nepal (11 percent)[1]. In comparison, the number in India (where the rate of taxation on tobacco is higher) was lower that rate at 9.5 percent[2].

The problem is likely to only get worse without firm government action. An NDRI survey found that over 1 in 3 respondents (39 percent) believe the government has the largest responsibility to control tobacco use.[3] Despite positive steps in recent years, tobacco prices are still low and affordable to most of the public, contributing to a high prevalence rate (34%). Analysis by NDRI found that the level of affordability on cigarettes has remained close to constant over the past 4 years, despite the significant increases in taxation, due to national incomes rising at an equal rate.[4]

[1] IHME (2021). *https://vizhub.healthdata.org/gbd-results/*

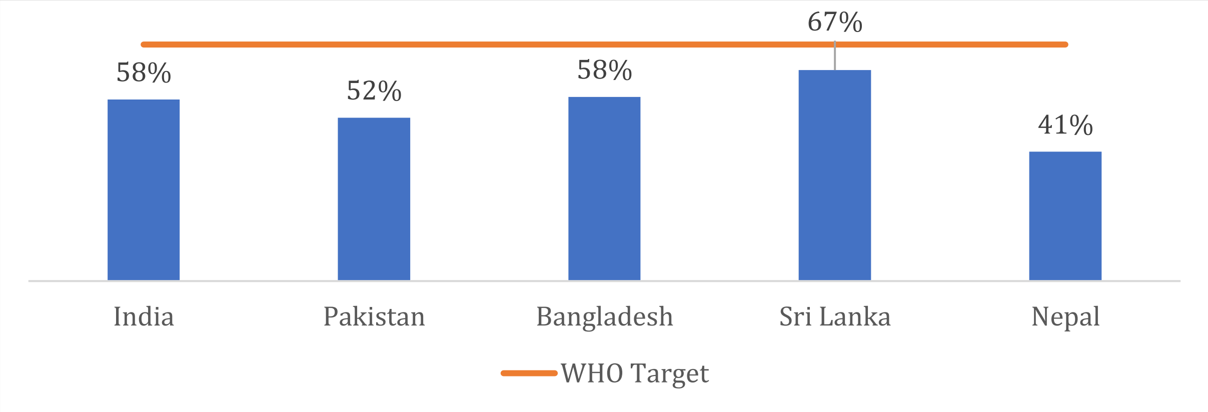
2 World Health Organisation (2018). *Factsheet 2018 India*.

[3] NDRI (2024). National Survey on Socio-Economic and Policy. Aspects of Tobacco Use in Nepal.

[4] NDRI (2024). National Survey on Socio-Economic and Policy. Aspects of Tobacco Use in Nepal.

Tax rates on tobacco are still very low compared to neighbouring countries and international recommendations. Even with the increases in excise tax on tobacco in FY2021/2022 and FY2022/2023, overall tax as a percentage of the retail price in Nepal is still one of the lowest in region at 41 percent. This is especially stark compared to the rates of taxation in neighbouring countries; in India, tax is 58 percent of the retail price, and in Sri Lanka, it is 67 percent. The WHO recommendation is a minimum of 75 percent.

Figure 1: Regional comparison of tobacco tax as a percentage of cigarette retail price



Source: Data for India, Pakistan, Bangladesh and Sri Lanka taken from the most recent WHO data (2022) on taxes as a percentage of price on the most sold brand of cigarettes, data for Nepal calculated from NDRI estimates using data from 2024

Nepal, like many countries, is currently facing an uncertain fiscal situation. Revenues are below target, the trade deficit is rising, and inflation has nearing double digits. The government has already had to cut the budget for FY2024/25 by 10 percent due to falling revenues.

The high tobacco use in the country is adding further pressure to the economy. NDRI estimates that in the financial year 2022/23 the direct and indirect economic costs linked to tobacco use in Nepal was NPR 45.4 billions[5]. This is equal to approximately 1 percent of total GDP. In the same year, revenues from tobacco taxation totalled NPR 31.2 billion, meaning they only covered 68.7 percent of the cost to the economy tobacco use made.

Increasing the tax rate on tobacco is a win-win policy: it generates additional revenue for the Ministry of Finance and supports public health. With increased pressures, it is critical to find a way to raise much-needed revenue without excessively burdening the economy. Taxation on unproductive goods like tobacco provides this opportunity. Moreover, increasing tobacco taxation is good for public health: an increase in tobacco prices leads to a decline in tobacco consumption. In fact, increasing tobacco taxation is widely considered the most effective method to reduce consumption.

Other countries in the region are taking advantage of this approach, with significant raises to their rate of tobacco tax. In 2023, Pakistan raised their rate of Federal Excise Duty by 154 percent. Increases were also seen regionally in India and Sri Lanka. These countries

5 Direct costs are those related to the health care expenditure on smoking attributable diseases, while the indirect cost covers the productivity loss from morbidity and mortality linked to smoking. The estimated cost is only for smoking and excludes cost of smokeless tobacco.

estimate significant raises to their revenue collections due to these changes. If Nepal increased their rate of taxation to equal the current rate in India, the country could see more than 36 billion increase in domestic revenues.

There is significant support for increasing tobacco taxation. A national survey by NDRI found that 3 in 4 people (70 percent) in Nepal supported a rise in tobacco taxes, including over half of smokers (56 percent). Over 67% of the public supports equating Nepal's level of tobacco taxation to that of India's (58 %) and 63% of the public supports equating Nepal's tobacco taxation to the level of WHO recommendation (75%). Over 90 percent of respondents in the Kathmandu Valley wanted the government to take a firm approach tobacco epidemic, saying they would support the implementation of stricter rules and regulations against tobacco products in Nepal.[6] There is also cross-party support across parliament. 36 candidates, including 20 successfully elected as MPs, pledged to help curb tobacco use across Nepal, including backing an increase to the rate of taxation. This includes the Pushpa Kamal Dahal, and the General Secretary of Nepali Congress, Gagan Thapa, as well as other senior leaders across all the major parties including Nepali Congress, Maoist Centre and Communist Party of Nepal (Unified Marxist–Leninist).

3. IMPACT OF 2021/22 and 2022/23 EXCISE TAX INCREASE

In the FY 2021/22 and FY 2022/23 Nepal saw two years of consecutive growth in the rate of excise tax on tobacco. This has led to significant increases in revenues collected, while also having limited impact to industry and consumers. However, in the last two fiscal budget, the government was reluctant to increase the level of tobacco excise. This is likely to lead to a significant reduction the excise collection from tobacco this year.

In the FY2021/2022, the government enacted a 25 percent rise in excise duty and 20 percent rise in the Health Hazard Tax across all cigarettes. In the same year, revenues generated from tobacco rose to NPR 25.9 billion, a 5.5 billion increase compared to the previous year, or 27 percent. Despite the significant rise in revenues, the impact to consumers was limited. NDRI estimates that the tax rise led to a 0.7 Rupee increase in price per cigarette in the most consumed taxation category (assuming 100 percent of the tax increase is passed on to the consumer). Evaluation of the 2024 annual report released by SNPL, the largest cigarette company in Nepal, show that sales of cigarettes increased year-on-year by 10 percent leading to an increase in gross revenues also by 10 percent. This, combined with internal analysis by NDRI, suggests there was no impact on total consumption because of the tax increase.

The impact of the tax rise in FY2022/2023 also shows significant revenue benefits with limited impact to consumers. The government increased the excise duty by 17 percent on average across the 5 different cigarette tiers. The Ministry of Finance generated a total of NPR 30.6 billion in revenue, a 25 percent rise on the previous year. Again, there was no evidence to suggest that this increase has had a negative impact on industry or consumers. NDRI estimates that the 20 percent increase in taxation to the most consumed tax category has increased the

[6] Results from rapid survey conducted by Annapurna Media Network in November 2022 across different areas of Kathmandu valley. 95 percent of respondents wanted to see the new government take the tobacco epidemic seriously and 91 percent of respondents wanted to support the government in implementing strict rules and regulations against tobacco products in Nepal.

price per cigarette by 0.4 rupees. Given the Ministry of Finance revenue estimates, there seems to have been limited impact in overall cigarette consumption.

Table 1: Increases in Excise Duty by tier (FY 2023/2024)

Cigarette type		Increase in Excise Duty, percent
Tier 1	Without Filter	2.82
Tier 2	Up to 70 mm length (with filter)	3.36
Tier 3	More than 70 mm up to 75mm in length (with filter)	3.37
Tier 4 *	More than 75mm up to 85mm in length (with filter)	3.13
Tier 5	More than 85mm in length (with filter)	2.90

*Most consumed taxation tier

The Ministry of Finance forecasts for FY 2023/2024 estimate a substantial rise in tobacco tax revenues, a total of NPR 38 billion or a 24 percent rise on the previous year. This is despite a minor increase in the excise duty rates. Such estimates were highly unreliable and lack justification. However, the revised budget estimates the excise duty collection from tobacco products is around only 31.20 billion, which is 18 percent less than the previous estimation. For the fiscal year 2024/25, the Ministry of Finance forecasts revenue of 35.42 billion. However, with only a 3% excise increase, it appears that this target will be difficult to achieve by the end of the financial year. This highlights the need for continued growth in taxation to enhance revenue generation.

4. RECOMMENDATIONS FOR THE 2025/26 BUDGET

1. NDRI recommends that the Ministry of Finance increase tobacco taxation.

NDRI recommends an increase in excise duty of at least 35 percent. This could generate an additional NPR 10.5 billion in revenue – equivalent to around 2 percent of the original budget deficit for FY 2024/25.[7] Given the current fiscal situation in Nepal, this additional revenue would make a vital contribution towards supporting all areas of public spending. Moreover, an increase of 35 percent in excise duty would have minimal impact on the price of cigarettes. Consumers would only see an increase of NPR 1.21 rupees per cigarettes in the most popular taxation tier, an increase of less than 10 percent (9.8).

An increase of 35 percent would begin to close the gap between Nepal and its neighbours. However, Nepal's rate of tobacco taxation would still be significantly lower than others in the region. A rise of 35 percent excise would increase Nepal's level of tobacco tax altogether to 46 percent of the retail price.[8] If the government increased tobacco excise rates by 35 percent every year, it would take three years for the tax to be at the same rate as in India (given their rates remain constant), and six years before Nepal reached the WHO target of 75 percent taxation.

[7] The budget deficit for FY2024/25 is NPR 547.6 billion as taken from the budget report for the fiscal year 2024/25.

[8] This assumes the only change in price is from the rise in taxes, which would be passed on 100 percent to consumers.

Table 2: Change to excise tax rate under 35 percent rate increase by tier

Cigarette type		2024/25 excise tax rate (per 1000 sticks)	Excise tax rate after 35 percent increase (per 1000 sticks)
Tier 1	Without Filter	755	1019
Tier 2	Up to 70 mm length (with filter)	1740	2349
Tier 3	More than 70 mm up to 75mm length (with filter)	2370	3200
Tier 4*	More than 75mm up to 85mm length (with filter)	3060	4131
Tier 5	More than 85mm length (with filter)	4200	5670

*Most consumed taxation tier

However, if the government wishes to pursue a more ambitious increase, NDRI recommends an increase of 60 percent. This would generate more revenue: up to an additional NPR 17 billion per year. This equates to around 3 percent (3.2) of the forecast budget deficit for FY 2024/25. Considering the current financial pressures, this is a highly attractive option.

The impact on prices under this option would be more pronounced, but still not significant. A 60 percent increase in tobacco excise would, on average, lead to a 16.8 percent increase in the price of a 20-pack of cigarettes in the most popular taxation tier (or NPR 2.07 per cigarette). As well as sustainably boosting revenues, a 60 percent increase could have real public health benefits, driving down tobacco consumption rates and easing the pressure on the health care system over time.

Under this option, Nepal would still have the lowest tax rates in the region, estimated to rise to 50 percent. If the government increased tobacco excise duty by 60 percent every year, it would take two years before tax would be the same rate as India (assuming they do not increase their tax rates), and four years to reach the WHO threshold.

Table 3: Change to excise tax rate under 60 percent rate increase by tier

Cigarette type		2024/25 excise tax rate (per 1000 sticks)	Excise tax rate after 60 percent increase (per 1000 sticks)
Tier 1	Without Filter	755	1208
Tier 2	Up to 70 mm length (with filter)	1740	2784
Tier 3	More than 70 mm up to 75mm length (with filter)	2370	3792
Tier 4*	More than 75mm up to 85mm length (with filter)	3060	4896
Tier 5	More than 85mm length (with filter)	4200	6720

*Most consumed taxation tier

2. **NDRI recommends that the Ministry of Finance reform the taxation system to gradually move towards a uniform system, starting by collapsing Tier 1 and Tier 2 in this budget.**

A single excise tax rate for cigarettes would enable tax increases to be more effective in reducing consumption, and it would cut Government costs by being simpler to administer. A uniform system is universally recognised as the "gold standard". The current tax system is complex, with five different tax tiers for each different length of cigarette. This reduces the potential impact of tax increases on consumption. This is because:

(i) multiple tiers create opportunities for cigarette companies to reposition their products to lower tax bands to offset some tax increases.

(ii) the wide range in tax rates translates into a wide range of cigarette prices in the market allowing for consumers to substitute more expensive cigarettes for cheaper ones.

As a first step, NDRI recommends that the current 5-tier system should be replaced by a simpler 3-tier system. The most straightforward way to move to a uniform tax system is to gradually collapse each tier upwards. NDRI's peer-reviewed study on illicit trade collected empty (sold) cigarette packets from retailers across Nepal.[9] This data has enabled us to develop a picture of market share – that is, which tax tiers are most popular with consumers. These market shares are presented in the table below:

Table 4: Market share by tier

Cigarette type		Market share
Tier 1	Without Filter	0.7 percent
Tier 2	Up to 70 mm length (with filter)	0.0 percent
Tier 3	More than 70 mm up to 75mm in length (with filter)	41.4 percent
Tier 4	More than 75mm up to 85mm in length (with filter)	57.6 percent
Tier 5	More than 85mm in length (with filter)	0.3 percent

These findings suggest that consumption in the first two tiers is very low. These tiers could be collapsed upwards with a very limited impact on consumers, whilst providing additional revenue. If the government increased excise tax by 35 percent and collapsed the first two tiers upwards, this could raise an additional NPR 180.0 million. This would increase to NPR 207.1 million if a more ambitious rate of 60 percent was chosen.

This would leave a simpler 3-tier system remaining:

1. Up to 75mm or unfiltered
2. In more than 75mm up to 85mm length (with filter)
3. In more than 85mm length (with filter)

[9] NDRI (2022) *Report on Extent of Illicit Cigarette Trade in Nepal.*

This would prevent tobacco companies from repositioning cigarette products in the lower tiers in the future, whilst the immediate impact on consumers would be limited. Over the next 2-3 years, the government could gradually close the gap between tiers by applying higher increases to the lower tiers, until finally reducing the system to just one tax tier.

5. CONCERNS AND COUNTER-ARGUMENTS

There have been a few misconceptions on the potential impact of further increases to tobacco taxation. However, they are not supported by the evidence. We will address them here:

Illicit trade: One argument against further raising taxes has been that increases in tobacco taxes could lead to an increase in illicit trade. This argument is not supported by the evidence. NDRI's study finds a very low level of illicit cigarettes in the market – less than 1 percent (0.33) of sampled packets. This study took place at the end of 2021, 6 months after the government implemented a 25 percent increase in tobacco excise tax; the illegal packets identified were more expensive than the average price of cigarettes in Nepal. These findings suggest that the risk of higher levels of illicit trade due to increasing excise or price is extremely low.

Industry impact: Another concern surrounding increasing tax is the possible negative impact on Nepalis employed in the domestic tobacco industry. However, SNPL's annual reports show double digit growth in post-tax profits from cigarette sales year-on-year between 2011 and 2018, averaging 22 percent growth every year. Gross revenues in 2023 (the most recent year available publicly), rose almost 10 percent. Additionally, there has been no significant impact on jobs from either of the tax rises. Given the relatively inelastic demand for cigarettes, there is substantial room for tobacco companies to remain profitable whilst government raises further revenue from the sale of tobacco products.

Substitution to new forms of tobacco: Some concerns have been raised about a possible increase in consumption of other forms of tobacco (such as bindis or handrolled) as a result of raising the rate of tax on commercial cigarettes. However, this recommendation includes the expansion of tobacco taxes to cover all tobacco products to avoid any substitution effect between products. It also highlights the importance of having a uniform rate of taxation across cigarette tiers to avoid tobacco companies manipulating the structure to maintain low prices. The costs of cigarettes in Nepal are still low in comparison to other countries in the region. In the most recent WHO data, Nepal had the lowest cost cigarettes across all South Asia.[10] [11] This means there is still significant scope to increase the price of cigarettes without significantly impacting people's consumption habits.

[10] From WHO data for 2022, refers to cost of the cheapest cigarette brand using purchasing power parity USD.
[11] South Asia refers to Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

APPENDIX: METHODOLOGY

This section outlines the analytical methodology used to estimate the changes in consumption of cigarettes and tax revenue in response to different tax increases. This analysis was used to inform our policy recommendations.

Firstly, we estimated the level of consumption of cigarettes in different taxation tiers and how much revenue is raised within each tier. For this, we used data collected on the market share of each tax category and the total tax revenue from cigarettes.

We then estimated the effect of increased taxes on the price of cigarettes, and by applying a price elasticity of demand, we can estimate the change in consumption of cigarettes in response to a price.

Finally, we use the new estimates of consumption to calculate the changes in tax revenue. We then used that figure with our estimation for consumption in 2024/25 as the basis for our projections for 2025/26.

1. DATA SOURCES

In order to calculate price, consumption, and revenue estimations, we required information on the past tax revenue, current price and consumption data, and the price elasticity of demand and supply for cigarettes. The table below provides detail on the data sources that were used in our analysis.

Information	Source	Notes on data
Current and historic tax levels	Aarthik Bidhayak (various years)	Excise duty (per 1000 sticks) for 2020/21- 2024/25
Revenue collected from cigarette excise duty	Inland Revenue Department. Annual Report 2077/78. Kathmandu, 2021. Inland Revenue Department. Annual Report 2078/79. Kathmandu, 2022. Annual Report 2079/80. Kathmandu, 2023. Annual Report 2080/81. Kathmandu, 2024.	Revenue collected from cigarette excise duties in 2020/21- 2023/24 financial years
Revenue estimates from cigarette excise duty	Budget Speech for the fiscal year 2024/25	Estimates of revenue collected from cigarette excise duties in 2024/25 financial year
Price	Nepal Development Research Institute. “The Extent of Illicit Trade in Nepal.” 2022	In 2021, NDRI collected cigarette packets from retailers across Nepal to look for characteristics of illegality. From these packets, NDRI recorded the Maximum Retail Prices for different brands. Using this data, NDRI has calculated a weighted average price for cigarettes in taxation

		tier 4 (the most popular category). In 2023 and 2024 NDRI conducted further price analysis by collecting the maximum retail price for the most popular category (tier 4) and calculated a weighted average price across the tier.
Market share of different taxation tiers	Nepal Development Research Institute. "The Extent of Illicit Trade in Nepal." 2022.	In the illicit trade study mentioned above, NDRI collected data on the consumption of cigarettes in different tax tiers as measured by the collection of empty cigarette packets. One caveat is that the sample was not nationally representative. In particular, it was under-representative of Nepal's urban population. However, while this may have an impact on the specific brand popularity, we believe that the overall market shares are still accurate. The most popular tier (tier 4) is in line with WHO analysis.
Price elasticity of demand	U.S. National Cancer Institute and World Health Organization. The Economics of Tobacco and Tobacco Control. National Cancer Institute Tobacco Control Monograph 21. Bethesda, MD: NIH Publication No. 16-CA-8029A, 2016.	International evidence that the Price Elasticity of Demand for cigarettes in developing countries is between -0.4 and -0.8. We applied this range to our analysis to generate an upper and lower bound for revenue and consumption estimates.

2. CHALLENGES AND ASSUMPTIONS

Several data challenges required us to adapt our methodology:

i. **Absence of up-to-date revenue figures:** Calculating the changes in tax revenue due to changes in tax rates for cigarettes in 2024 requires information about the tax revenue for the fiscal year 2024/25. However, this information is not yet available as the fiscal year is not yet finished.

ii. **Selection of appropriate price data:** When calculating the excise duty as a percent of the retail price, the World Health Organization (WHO) uses the price of the most expensive brand for their reference price. One criticism of this approach is that it adds a downward bias in calculating the tax as a percent of the retail price, given that it uses the cost of the expensive brand rather than the most popular. NDRI's illicit trade study found that Shikhar Ice Rush was the most popular brand in Nepal, marginally above the most expensive which was Surya Luxury Kings (which is more prevalent in urban areas). We have addressed this issue using the average weighted price of all the cigarette brands in most sold tax category (tier 4 – 75-85mm).

iii. **The assumption on the changes in price:** Because we are only using the weighted price for taxation tier 4, we have assumed that the average response in price will be identical/similar across all taxation tiers. This means we can apply the same average expected percentage change in price following a tax increase across all tiers.

3. ANALYSIS

STEP 1: ESTIMATING BASELINE CONSUMPTION PER TAX TIER USING 2020/21 REVENUE DATA

The total tax revenue from cigarettes in 2020/21 was NPR 20.39b. We use the excise rates from "Aarthik Bidhayak" from MOF and the market share data from Nepal Development Research Institute's own study "*The Extent of Illicit Trade in Nepal*, 2022" to calculate the number of sticks consumed and the tax revenue collected from each category of cigarettes shown in **Error! Reference source not found.**.

Note, the market share data covers the year 2020/21. That is why the baseline consumption data is calculated for that year.

Table 5: Calculating consumption and revenue per category, 2020/21

Category (n)	Excise Rates (t_n)	Market Share (p_n)	# of Sticks (Q_n)	Tax Revenue (TR_n)
Unfiltered	0.495	0.0067	79060951.76	39135171.12
Up to 70 mm	1.135	0	0	0
70-75mm	1.474	0.4142	4887618838	7204350168
75-85mm	1.920	0.5763	6800421865	13056809981
85mm +	2.715	0.0028	33040397.75	89704679.89
Total		1	11800142053	20390000000

The calculation for this is as follows. Let Q_n be the number of cigarettes and p_n be the market share or the proportion of cigarettes, and t_n be the excise tax rate of cigarettes in category n as represented by the following categories:

0 = Unfiltered
1 = Up to 70 mm
2 = 70-75mm
3 = 75-85mm
4 = 85mm +
t = Total

Let Q_t be the total quantity of cigarettes such that,

$$p_n Q_t = Q_n. \tag{1}$$

$$\sum p_n Q_t t_n = TR_t, \tag{2}$$

where TR_t is the total tax revenue from all cigarettes and $(p_n Q_t t_n)$ is the tax revenue from category n. Replacing p_n, t_n, and TR_t gives us the total quantity of cigarettes $Q_t =$

11800142053. Replacing this value in (1) gives us the number of sticks in each category.

We can now get the tax revenue from each category by taking the product of the number of sticks and the excise rates:

$$TR_n = Q_n t_n. \quad (3)$$

STEP 2: ESTIMATING THE CHANGE IN CONSUMPTION FOLLOWING THE TAX RISES IN 2021/22, 2022/23, 2023/24 and 2024/25

Before estimating the tax revenue for 2025/26, we need to estimate the consumption and tax revenue for 2021/22 to 2024/25. Luckily it is possible to know the impact to tax collections with the actual 2021/22 to 2023/24 figure published by the MoF in the Budget Speech, and for the 2024/25, we estimate the revenue amount by using the government estimation for this fiscal year. For 2021/22, tobacco tax revenues were NPR 24,569,900,000 and for 2022/23 it was 26,874,100,000 for and for 2023/24 it was 31,202,600,000 while the estimate for 2024/25 is NRP 35,425,000,000. These are the figures used in the model.

Assuming that the market shares of each tier is unchanged from the 2020/21 and given that we know the changes to the excise rate for each tier in 2021/22, 2022/23, 2023/24 and 2024/25 and the actual/estimated tax revenues for the same years, it is possible to derive the updated consumption and revenue per category, using a similar approach to the previous section.

Given (2), it is possible to rearrange the formula to calculate the total number of cigarettes sold as:

$$\sum Q_t = \frac{TR_t}{\sum p_n t_n}, \quad (4)$$

Once the total number of cigarettes is known, this can then be spilt into the five tier categories, matching the known market share data. Then using (3), the estimated revenue for each tier category can be calculated.

Table 6: Calculating consumption and revenue per category, 2021/22

Category (n)	Excise Rates (t_n)	Market Share (p_n)	# of Sticks (Q_n)	Tax Revenue (TR_n)
Unfiltered	0.618	0.0067	76207546.8	47096263.92
Up to 70 mm	1.418	0	0	0
70-75mm	1.843	0.4142	4711218789	8682776228
75-85mm	2.400	0.5763	6554986451	15731967482
85mm +	3.393	0.0028	31847930.01	108060026.5
Total		1	11374260716	24569900000

Table 7: Calculating consumption and revenue per category, 2022/23

Category (n)	Excise Rates (t_n)	Market Share (p_n)	# of Sticks (Q_n)	Tax Revenue (TR_n)

Unfiltered	0.710	0.0067	67571125.11	47976863.76
Up to 70 mm	1.607	0	0	0
70-75mm	2.225	0.4142	4177307466	9294734268
75-85mm	2.880	0.5763	5812125284	16738920817
85mm +	3.965	0.0028	28238679.15	111968051.5
Total		1	10085242554	26193600000

Table 8: Calculating consumption and revenue per category, 2023/24

Category (n)	Excise Rates (t_n)	Market Share (p_n)	# of Sticks (Q_n)	Tax Revenue (TR_n)
Unfiltered	0.730	0.0067	77989447.08	56932296.37
Up to 70 mm	1.660	0	0	0
70-75mm	2.300	0.4142	4821377460	11089168158
75-85mm	2.970	0.5763	6708256471	19923521718
85mm +	4.080	0.0028	32592604.75	132977827.4
Total		1	11640215983	31202600000

Table 9: Calculating consumption and revenue per category, 2024/25

Category (n)	Excise Rates (t_n)	Market Share (p_n)	# of Sticks (Q_n)	Tax Revenue (TR_n)
Unfiltered	0.755	0.0067	85934740.68	64880729.22
Up to 70 mm	1.740	0	0	0
70-75mm	2.370	0.4142	5312562626	12590773423
75-85mm	3.060	0.5763	7391670307	22618511139
85mm +	4.200	0.0028	35913025.96	150834709
Total		1	12826080699	35425000000

STEP 3: ESTIMATING THE CHANGE IN PRICE FOLLOWING A TAX RISE

To estimate an initial price in 2020, we use the average weighted price of the most sold category, tier 3, of NPR 10.80 (including VAT) per stick.

This category's initial excise tax rate in 2020/21 was NPR 1.92 per stick, and the new excise duty per stick, introduced in 2021/22, was NPR 2.40. In the same period, the health hazard tax (HHT) increased from NPR 0.50 to NPR 0.60 per stick – an increase of NPR 0.10 per stick.

Let, $t_n^{20}, t_{n,}^{21}, t_n^{22}$ and t_n^{23} be the excise duty per stick for 2020/21, 2021/22, 2022/23, 2023/24 and 2024/25. Assuming that 100 percent of the tax increase is passed on to the consumer, the increase in price (excluding VAT) would be equal to the increase in tax, i.e.

$$
\begin{aligned}
&= (t_n^{21} - t_n^{20} + \Delta HHT) \\
&= (2.40 - 1.92 + 0.10) \\
&= 0.58.
\end{aligned}
$$

Hence, the price increases from NPR 9.56 to NPR 10.14 (excluding VAT). With a VAT of 13 percent, the final price comes out to NPR 10.46, a 6.1 percent increase in the retail price. This approach is taken across all tiers.

The same approach was taken to estimate the impact of the tax increases in 2022/23, 2023/24 and 2024/25. Under the same assumptions, the increase in price (excluding VAT) would be given as:

For 2022/23

$$= (t_n^{22} - t_n^{21} + \Delta HHT)$$
$$= (2.88 - 2.40 + 0.00)$$
$$= 0.48.$$

This means the price would increase from NPR 10.14 to NPR 10.62 (excluding VAT). With a VAT of 13 percent, the final price would come out to NPR 12.00, a 3 percent increase in the retail price.

For 2023/24

$$= (t_n^{23} - t_n^{22} + \Delta HHT)$$
$$= (2.97 - 2.88 + 0.00)$$
$$= 0.09.$$

This means the price would increase from NPR 10.62 to NPR 10.71 (excluding VAT). With a VAT of 13 percent, the final price would come out to NPR 12.10, 0.83 percent increase in the retail price.

For 2024/25

$$= (t_n^{24} - t_n^{23} + \Delta HHT)$$
$$= (3.06 - 2.97 + 0.00)$$
$$= 0.21.$$

This means the price would increase from NPR 10.71 to NPR 10.92 (excluding VAT). With a VAT of 13 percent, the final price would come out to NPR 12.34, 2 percent increase in the retail price.

However, these approaches assume 100% of the tax increase is passed on to the consumer. In order to check this assumption, NDRI conducted a price analysis of the most common cigarette brands within the 75-85mm tier. Using a simple average, the new baseline price was estimated as NPR 12.24, only 0.14 rupees higher than the NDRI estimated price of NPR 12.10. For the year 2024/25, we have inflated this figure.

Table 8: Maximum Retail Price for the 75-85 mm cigarettes in 2023/24

Cigarette Brand	Price per pack (20 cigarettes), NPR	Price per cigarette, NRP
Captain Filter Kings	137	6.85
Captain Mountain Fresh	175	8.75
Shikhar Filter Kings	229	11.45
Shikhar Ice Rush	229	11.45
Shikhar Select	124	6.20
Surya 24 Carat	340	17.00
Surya Luxury Blue	340	17.00

Surya Luxury Kings	320	16.00
Surya Mint Switch	340	17.00
Winston	230	11.50
Winston Purple Mint	230	11.50
Average price	*244.91*	*12.24*

Given this figure, it was estimated that the increase in price passed onto the consumer was slightly less at NRP 0.21. This calculated by estimating the pre-VAT price[12] as NPR 10.83 and using that amount to estimate the price change from the previous year[13].

STEP 4: ESTIMATING THE CONSUMPTION AND TAX REVENUE FOR 2025/26 UNDER (I) A 35 PERCENT INCREASE AND (II) A 60 PERCENT INCREASE.

To estimate the impact of a potential tax rise to consumption and tax revenues, first we estimate the impact of the suggested tax rise to the price, following the method set out in the previous section. Once the new price has been estimated, we can use the price elasticity of demand (ϵ) of -0.8 and -0.4 to calculate the upper and lower estimates of the change in consumption.

For example, let, $t_n^{22}, t_{n,}^{23},\ t_n^{24}$ and t_n^{25} be the excise duty per stick for 2022, 2023, 2024 and 2025, with the 2025 excise duty increasing by 35% as suggested by this report. This would mean that the increase in price for 2024 would be:

$$= (t_n^{25} - t_n^{24} + \Delta HHT)$$
$$= (4.13 - 3.06 + 0.00)$$
$$= 1.07.$$

Hence, the expected price increase is estimated as rising from NPR 10.92 to NPR 11.99 (excluding VAT). With a VAT of 13 percent, the final price comes out to NPR 13.55, a 9.80 percent increase in the retail price.

With a 9.80 percent increase in the price of cigarettes, we expect each categories' consumption to fall by 3.9 percent if PED is -0.4 and 7.8 percent if PED is -0.8.[14]

Once we get the final quantities for each category,[15] we take the product of these quantities and the new excise tax rates for 2025 and then take their sum such that,

$$TR^{25} = \textstyle\sum_{n=0}^{5} t_n^{25} Q_n^{25}, \qquad (5)$$

where TR^{25} is the total potential tax revenue from excise taxes for 2025, and Q_n^{25} is the expected number of sticks consumed in 2025 for category n.

[12] 12.24/1.13 = 10.83

[13] 10.83 - 10.62 = 0.21 (rounded)

[14] 9.60 x 0.4 = 3.84, and 9.60 x 0.8 = 7.68

[15] We can directly calculate the change in consumption by percentage change in quantity to the initial consumption. However, we will need individual consumption when calculating the total revenue. An alternative method would be to find the proportion weighted tax rate and apply it to the total consumption.

While this example has focused on the estimates from the recommended 35% rise in excise taxes, we used the model to estimate the impact of various tax increase in excise duties, all following the same approach.

Table 9 shows the results of the two approaches highlighted in this report.

A modest 35 percent increase in excise duty is estimated to reduce consumption on average to 12.07b (-5.9 percent decrease) and increase the tax revenue to 47.00b (27 percent increase).

Under the progressive case, raising the excise duty by 60%, tax revenue is estimated to significantly rise whilst having a pronounced effect on reducing consumption. We estimated that the median tax revenue would increase by NPR 17.44 billion (49%), and the median consumption would fall to 11.10 billion (-13.4%).

Table 9: Estimating the effects of tax measures set out in recommendations.

Year	Description	Value	Δ	$percent\Delta$
I. Conservative Case: Assuming a 35 percent increase in tax				
2025	Tax rate (C_3)	4.13	1.07	35.00%
	HHT	0.60	0.00	0.00%
	Price per stick (excluding VAT)	11.99	1.07	9.80%
	Price per stick (including VAT)	13.55	1.21	9.80%
	$\epsilon = -0.8$			
	Consumption (# of sticks)	11.81b	-1.00b	7.80%
	Tax Revenue	44.07b	8.64b	24.00%
	$\epsilon = -0.4$			
	Consumption (# of sticks)	12.32b	-0.50b	-3.90%
	Tax Revenue	45.94b	10.52b	30.00%
II. Progressive Case: Assuming a 60 percent increase in tax				
2025	Tax rate (C_3)	4.90	1.84	60.00%
	HHT	0.60	0.00	0.00%
	Price per stick (excluding VAT)	12.75	1.83	16.81%
	Price per stick (including VAT)	14.41	2.07	16.81%
	$\epsilon = -0.8$			
	Consumption (# of sticks)	11.10b	-1.72b	-13.4%
	Tax Revenue	49.05b	13.63b	38.00%
	$\epsilon = -0.4$			
	Consumption (# of sticks)	11.96b	-0.86b	-6.70%
	Tax Revenue	52.86b	17.44b	49.00%