

Enhanced tobacco taxation in Pakistan is likely to reduce cigarette consumption and even generate more revenue

Pakistan has a chequered history in terms of taxation on cigarettes. The Federal Excise Duty (FED) is the major tax levied on cigarettes in the country and its structure is based on a price-tier system. In 2013, a two-tier structure of FED based on the range of retail prices was introduced. In 2017, FED structure was modified to a three-tier structure, with a new tier for the low-price brands, in which the applicable tax rate was reduced by 48 percent. Consequently, the overall price index of cigarettes declined by 22 percent in 2017-18 (the fall in prices was higher in the case of low-price brands). This led to a massive increase in the domestic production of cigarettes from 34.3 billion sticks in 2016-17 to 59.1 billion sticks in 2017-18. Contrary to the government’s expectation, research by SPDC (2018)¹ has revealed that the three-tier structure with the reduced tax rate failed to generate additional tax revenue for the national exchequer.

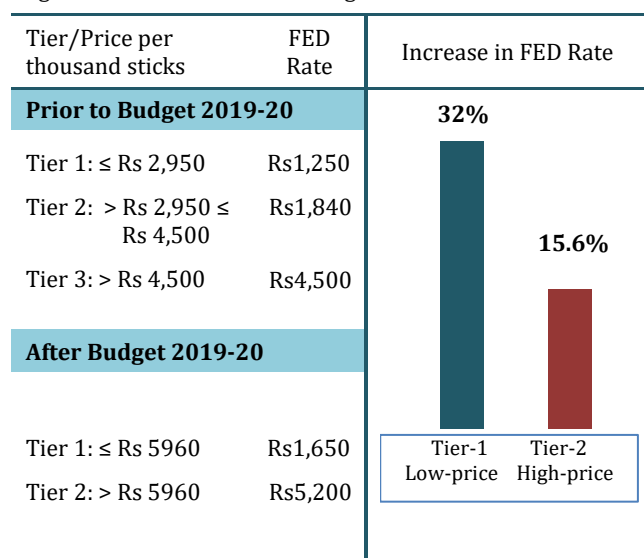
In the budget 2019-20, the government not only reverted to the two-tier system with changes in slabs, but also increased tax rates for both low-price and high-price tiers. The evidence suggests a negative relationship between prices and consumption of cigarettes in Pakistan, therefore the new structure will reduce the prevalence of tobacco use by inducing an increase in the price. It should be noted that the implication on tax revenue is not

clear yet. The analysis in this brief aims to unpack the implications of the new tax policy on the consumption of cigarettes as well as tax revenue.

Changes in FED and its impacts on prices

Before the promulgation of the finance act of 2019-20, the FED had three different rates. The rates ranged from Rs 1.25 to Rs 4.50 per cigarette (see Figure 1). Currently, the tiers have been reduced to two, with tax rates of Rs1.65 and Rs5.20 per cigarette. A comparison of both tax rates indicates an increase of 32 percent and 15.6 percent for low-price and high-price tiers, respectively. Since tier-2 (the middle tier) has been merged into tier-1, the applicable tax rate is effectively reduced by 10 percent. However, it has no revenue implications, as there were no locally produced brands in the middle tier.

Figure 1: Structure of FED on cigarettes

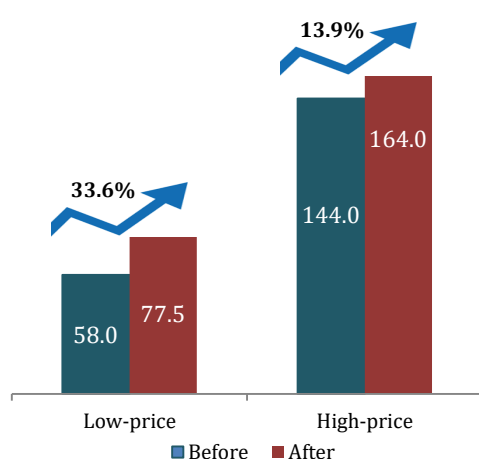


Source: Federal Board of Revenue, Pakistan.

For the analysis, SPDC collected data on consumer prices of the leading cigarette brands (before and after the budget) from a small number of retailers, including supermarkets and street vendors in Karachi and Islamabad (Figure 2). It is interesting

to note that all the leading brands fall either under the low-price or high-price tiers. Thus, none of these brands could have an advantage from tax reduction in the middle tier. One of the potential reasons is that the cigarette manufacturers lowered the prices when there was a three-tier tax structure regime to enjoy the benefits of lower taxes in tier-1.

Figure 2: Consumer Price of cigarettes- before and after change in FED (Rs per pack of 20 cigarettes)



Source: Data collected from retailers.
 Note: Brands in Tier 1 include Capstan by Pall Mall, Morven Gold, Gold Flake, K2, Red & White and Diplomat. Brands in Tier 2 include Benson & Hedges, Dunhill and John Player Gold Leaf.

As far as the market share of various locally manufactured brands is concerned, six low-price brands occupy at least 78.5 percent of the market while four high-price brands have a share of 16.4 percent, as shown in Figure 3. Altogether, these brands constitute a market share of 94.9 percent of locally produced taxable cigarettes. To put it simply, these brands cover a sizable portion of the market and can be used for analysis to represent the market at large.

The final consumer price (or final price) of locally produced taxable cigarettes have three components. The first being a net-of-tax price that includes the cost of producing cigarettes, the producer’s profit, a wholesaler and retailer’s margin as well as freight charges. The second includes the FED, and the third, the General Sales Tax (GST). Figure 4 presents the breakdown of

these price components per pack (20 cigarettes) before and after the budget 2019-20.

In the case of the low-price tier, the net-of-tax price and the FED have an almost equal share in the final consumer price before and after the budget. Interestingly, manufacturers increased the net-of-tax price more than the increase of the FED. As a result, the share of the FED in the final consumer price declined marginally from 43.1 percent to 42.6 percent. Conversely, the net-of-tax price in the high-price tier increased by 9.4 percent as compared to a 15.6 percent increase in the FED. This resulted in a slight increase of the FED share in final price from 62.5 percent to 63.4 percent. Overall, the final price increased by 33.6 percent and 13.9 percent for low-price and high-price tiers, respectively.

The changes have profound implications on the consumption of cigarettes. Due to the fact that the consumption of cigarettes are sensitive to price changes, an increase in the final consumer price is likely to reduce the consumption of cigarettes in Pakistan. It is important to note that the decline will be an outcome of an increase in both the net-of-tax price as well as the FED.

Figure 3: Market shares of leading brands

Brand	Company	Share (%)
Tier 1 - Low-price		78.5
Capstan by Pall Mall	PTC	32.4
Morven Gold	PMPK	20.6
Gold Flake	PTC	19.2
Red & White	PMPK	4.2
K2	PMPK	1.1
Diplomat	PMPK	1.0
Tier 2 -High-price		16.4
John Player Gold Leaf	PTC	12.4
Marlboro	PMPK	2.5
Benson & Hedges	PTC	0.9
Dunhill	PTC	0.6
Others		5.1
All - Locally Produced		100.0

Sources:
 i) Euromonitor Report 2017 (for market shares)
 ii) FBR (for tax rates)
 PTC= Pakistan Tobacco Company
 PMPK= Philip Morris Pakistan

**Figure 4: Components of price
(Rs per pack of 20 cigarettes)**

	Before June 2019	After June 2019	Change (%)
Low-Price			
Price net of taxes	24.6	33.2	35.2%
FED	25.0	33.0	32.0%
GST	8.4	11.3	33.7%
Final consumer price	58.0	77.5	33.6%
Share of FED in final price	43.1%	42.6%	
High-Price			
Price net of taxes	33.1	36.2	9.4%
FED	90.0	104.0	15.6%
GST	20.9	23.8	13.9%
Final consumer price	144.0	164.0	13.9%
Share of FED in final price	62.5%	63.4%	

Source: Authors' computations based on retail prices and applicable

Impact of increased price on cigarette consumption

The quantum of decline in consumption depends on the change in price and the own-price elasticity of the commodity i.e., cigarettes.² The final consumer price increased due to two reasons: an increase in the net-of-tax price (producer price) as well as the change in taxes. In order to isolate these impacts, three sets of prices were used: P_0 —the weighted average price (of all tiers) without any change in the net-of-tax price and tax rates, P_1 — an intermediate weighted average price containing only the impact of increase in net-of-tax price, and P_2 — weighted average price containing both impacts i.e., change in net-of-tax price and taxation. Figure 5 presents the three sets of prices with their components. It shows on average, the net-of-tax price per cigarette increased from Rs 1.29 to Rs 1.66, resulting in an increase of more than 12 percent in the final consumer price. After incorporating the change in the FED (from Rs 1.74 to Rs 2.18) and GST, the final consumer price increased to Rs 4.49 per cigarette (26.5 percent).

Few studies in Pakistan have systematically estimated the elasticity of demand or own-price elasticity of cigarettes, with PIDE's (2018)³ being the latest addition. Based on the HIES⁴ (2016) cross-sectional data, PIDE estimated the own-price

elasticity of -1.069 for all price tiers of cigarettes. In another study, Burki, et al. (2014)⁵ used a time series model and estimated the own-price elasticity of cigarettes to be -0.58 in short-run for all tiers of cigarette prices.

Given that the brief focuses on the analysis of one year only, it uses both elasticities to estimate the consumption of cigarettes between 2019-20. Similar to the price computations above, there were three quantities of consumption that were estimated: Q_0 – baseline quantity of consumption of cigarettes in 2018-19; Q_1 – intermediate consumption based on price P_1 (price containing only the impact of increase in net-of-tax price); and Q_2 —the final projected consumption of cigarettes in 2019-20 based on price P_2 (incorporating changes in the net-of-tax prices and taxes).

Figure 5: Per cigarette price and taxes (Rs)

Price Components	P_0	P_1	P_2
Net-of-tax Price	1.29	1.66	1.66
Federal Excise Duty	1.74	1.74	2.18
Sales Tax	0.52	0.58	0.65
Final Price	3.55	3.97	4.49

Source: Authors' estimates

**Figure 6: Projected Consumption of Cigarettes in 2019-20
(Billion sticks)**

	Scenario 1	Scenario 2
Q_0	60.70	60.70
Elasticity	-1.069	-0.580
Q_1	52.90	56.47
Q_2	43.37	51.30
Decline in Consumption due to change in FED	-18.0%	-9.2%

Source: Authors' estimates

As shown in Figure 6, the change in the FED caused an expected decline of 18 percent based on cross-sectional elasticity and 9.2 percent based on the short-run time series elasticity. Therefore, regardless of the elasticity used, consumption of cigarettes is likely to decline in 2019-20 within the estimated range due to the change in prices of cigarettes.

Impact on tax revenue

The estimated impact of change in structure and rate of the FED on tax revenue for 2019-20 is presented in Figure 7. Estimates based on the cross-sectional elasticity indicate that the tax authorities are likely to collect Rs 0.5 billion more collectively from both the FED and GST. However, if consumption declines in line with the short-run elasticity, revenue collection from both taxes will be increased by Rs 15 billion– from Rs 130.8 billion in 2018-19 to Rs 145.5 billion in 2019-20. In either case, the current tax policy is likely to have a positive impact on tax revenue.

Figure 7: Estimated impact of change in FED on tax revenues (Billion Rs)

	No Change in FED	Change in FED	Change in Revenues	Growth
Tax revenue based on cross-section elasticity				
FED	92.0	94.7	2.7	3.0%
GST	30.5	28.3	-2.2	-7.3%
Total	122.5	123.0	0.5	0.4%
Tax revenue on short-run time series elasticity				
FED	98.2	112.0	13.8	14.1%
GST	32.6	33.5	0.9	2.8%
Total	130.8	145.5	14.7	11.3%

Source: Authors' estimates.

Conclusion

This analysis demonstrates that changes in structure and rate of the FED introduced in the Budget 2019-20 are commendable in two ways:

- First, these changes are likely to reduce cigarette consumption between 9 percent and 18 percent in Pakistan. A decline of this magnitude will positively contribute to public health outcomes.
- Second, in contrast to the general perception that the tax increase may result in reduced revenues, this analysis shows an increase in tax revenues, though the quantum of increase will depend on the magnitude of reduction in the consumption of cigarettes.

Notes:

1. Macroeconomic Impacts of Tobacco Use in Pakistan. Social Policy and Development Centre (SPDC). Karachi. 2018. Available at: www.spdc.org.pk/Publication_detail.aspx?sysID=853
2. The own-price elasticity of demand is the percentage change in the quantity demanded of a good or service divided by the percentage change in the price.
3. Economics of Tobacco Taxation and Consumption in Pakistan. Pakistan Institute of Development Economics (PIDE). Islamabad. 2018. Available at: <https://pide.org.pk/Research/Economics-of-Tobacco.pdf>
4. Household Integrated Economic Survey (HIES) 2015-16, Pakistan Bureau of Statistics.
5. Burki, SJ, Pasha AG, Pasha HA, John R, Jha P, Baloch AA, Kamboh GN, Cherukupalli R, Chaloupka FJ. The Economics of Tobacco and Tobacco Taxation in Pakistan. Paris: International Union against Tuberculosis and Lung Disease. 2013.

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Social Policy and Development Centre

7th Floor, Aman Tower, IBA City Campus, Kayani Shaheed Road, Karachi
+92 316 1113113 | www.spdc.org.pk | spdc@spdc.org.pk