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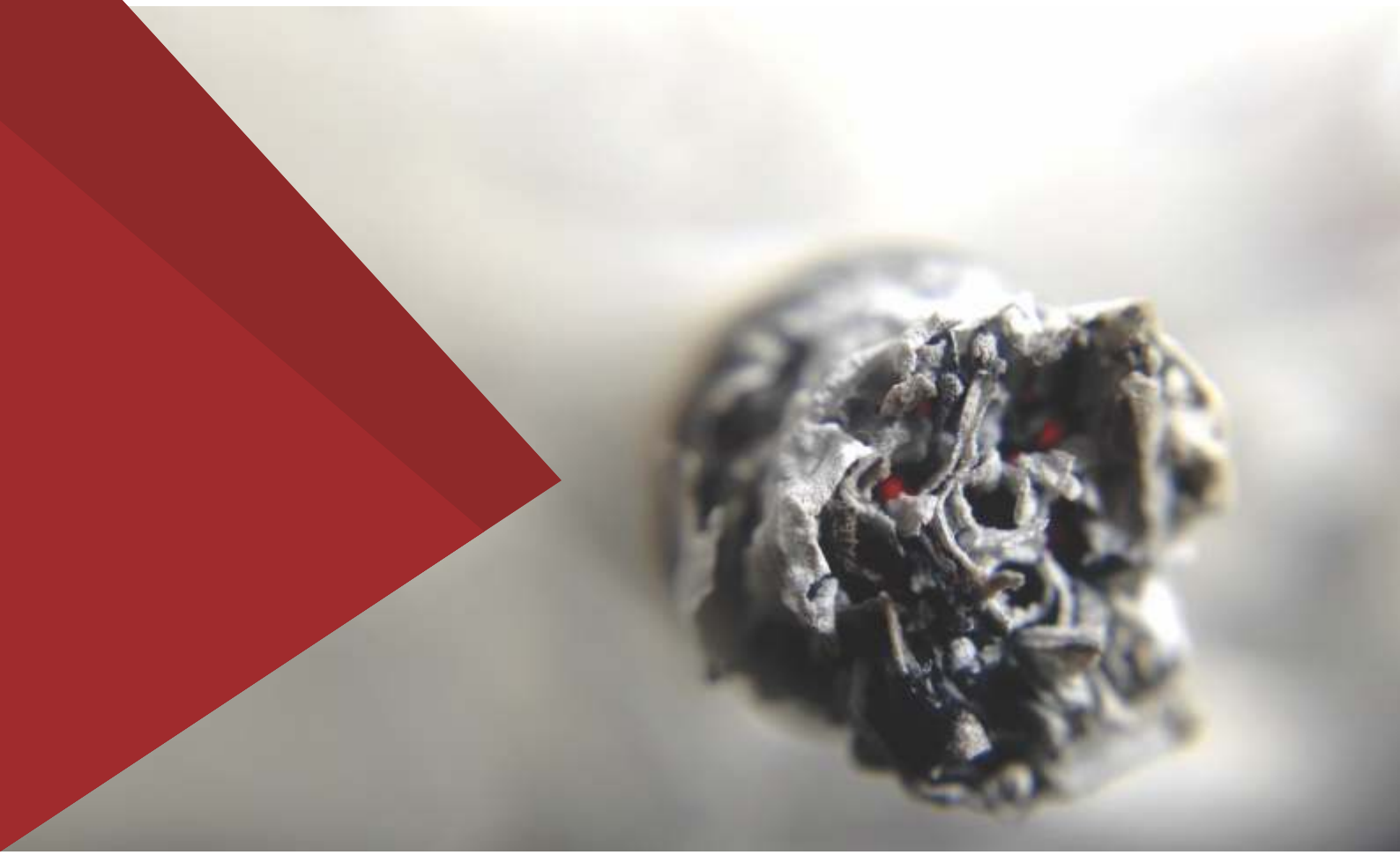

ECONOMICS OF TOBACCO TAXATION AND CONSUMPTION IN PAKISTAN

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS, ISLAMABAD

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2018

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Executive Summary

Tobacco taxation is a major concern of health and tax policies in Pakistan. Although the tobacco industry thrives on 22 million active tobacco consumers and 100,000 premature deaths in Pakistan, it is still attractive because of a tax tag worth USD 1 billion. Nevertheless, tobacco taxation has largely been an under-researched area; thus, evidence-based policy making is lacking. This report presents an economic analysis of tobacco taxation and consumption in Pakistan and provides three distinct but interconnected analyses:

1. A political economy analysis of tobacco taxation and administration was conducted through qualitative analysis of in-depth interviews with tax, health and other knowledgeable informants to understand its functioning, or lack of it.

2. Using micro level data, HIICS 2015-2016, the study estimated price and income elasticities and conducted a heterogeneous analysis with respect to income, province and region. These estimates advance the understanding of tobacco tax changes' impact on different populations, and also provide input for the simulation modelling.

3. The effect of tax changes on various outcomes vis-à-vis demand for cigarettes, calculated through simulation modelling, provides a basis for recommending policies related to tax structure and administrative reforms to the Federal Board of Revenue.

Tobacco Tax Administration

The political economy analysis of tobacco taxation and administration revealed that tobacco taxation suffers from the overall institutional and governance problems ingrained in Pakistan's taxation system, and these cannot be fully resolved without serious reforms in the tax structure and administration in the country. The tobacco taxation-specific findings are:

- While taxing the tobacco production in the country, health is of no concern and the FBR's success is gauged against the set revenue targets.

- Mandated to set and meet the revenue targets, the FBR does not recognize that the FED is not intended to bring revenue; instead, it is a duty aimed at reducing consumption and is thereby not the same as the VAT.

- The FBR operates within various capacities and resource constraints and has yet to establish an efficient monitoring, enforcement and compliance mechanism. The tax administration operates through a sectoral field formation where a single mid-career official is responsible for all dimensions of tax revenue, including collection, monitoring, audit and compliance, all of which he

can comfortably ignore if the collections meet the set revenue targets.

- With its capacity constraints and lack of independence, the FBR cannot withstand the tobacco companies' lobbying even when willing to do something that can curb the tobacco menace.

- Given the small tax base in the country, the tobacco industry, more often than not, emerges as their savior in times when they are in need to show that revenue targets are met.

Price Elasticity Estimations of Tobacco Use

The price elasticity estimations of tobacco use suggest that:

- The own-price elasticities of tobacco products were found to be negative and significant for the rural region, while in the urban region it was insignificant. This could be because of the prevailing income levels in each region.

- The price elasticity was negative and significant for the lower-income households but for the higher ones, it was inelastic. Since the average income in urban areas was visibly higher than that in the rural ones, it is understandable why the elasticity was significant in rural and not in urban areas.

- Since most of the urban consumers belong to the higher income group and tobacco expenditure constitutes a small fraction of their budget, the increase in tobacco price may have a negligible effect on their demand.

- Provincial differences have also been found: KP is the only province where the own-price elasticity of cigarettes is insignificant, while for others it is negative and significant.

Tax Simulations

Three tax regimes were simulated to show the impact of changes in tobacco taxation. The first regime simulates the effect of the most recent changes in the FED rates for three tiers introduced on September 18, 2018. The second scenario simulates the impact of a two-tiered system that was effective prior to the three-tiered system. The third scenario equalizes the FED rate between the second and the third tier, essentially making it a two-tiered system. In this case, the FED rate in the first tier is kept unchanged as it makes the average final cigarette price account for a tax of up to 70 percent. The simulation exercise through the three projections, with a partial pass-through effect, projects scenarios to achieve improvements in tax revenues and public health outcomes. The key findings of the analysis are:

- Projections in the two-tiered system show significant improvements over the three-tiered system.

- The third projection, which effectively converts the three tiers into two tiers but with an increased tax rate, results in improving the health outcomes without affecting the revenue much. The decision is mainly reliant on the importance attributed to the two outcomes, tax collection vs. public health outcomes.

Recommendations:

Based on the findings of the study, the following policy suggestions are offered:

Reforming tax enforcement and audit mechanisms: Severe capacity constraints in the country's tax administration are resulting in a small tax base, massive tax evasion and an overall inefficient taxation system. Within its narrow

fiscal space, the government has to look towards the tobacco industry for tax revenue and cannot afford to squeeze it too much. This demands introducing serious tax reforms, one that are owned by the FBR machinery. At least three broader sets of reforms are suggested:

a. An overarching framework for reforming the tax administration in Pakistan would be breaking the existing field formation on sectoral lines and re-organizing the FBR operations along functional lines, i.e., tax revenue collection, monitoring, audit and compliance should be the responsibility of different departments. This will break the responsibility hubs, discourage discretions among field officials and introduce positive checks and rewards in the system that may result in reducing the leakages, improving efficiencies and changing reward and punishment mechanisms.

b. Tobacco taxation should be earmarked, keeping in context the disease burden created by tobacco consumption. Revenue generated from tobacco products should be used to finance the health cost incurred by health damages caused, in turn, by tobacco consumption. Any revenue generated is offset if it leads to a mounting health cost on account of tobacco consumption. So, the FBR must be encouraged to focus on net revenues. This is against the current practice where the FBR remains satisfied if their current collections exceed the previous years' collection by a certain percentage.

c. Generating a discourse that the FED is not the same as the Sales Tax is urgently needed. With an overall improvement in enforcement, the government would be in a better position to realize that the FED on tobacco is not the VAT and its primary purpose is to discourage tobacco consumption instead of to generate revenue.

d. To enhance efficiency, technological solutions should be introduced for monitoring, enforcement and compliance, and these could include e-tagging and tracking systems.

Enlarging political support for the FBR: Breaking the political back behind the tobacco industry and building a mechanism of social compliance, including value promotion that discourages tax evasion, public demand for tax invoices, and refusal to purchase smuggled goods need to be encouraged through strategic leadership and effective communication. Until these issues are addressed, the FBR's performance, like any other institution's, will remain sub-optimal.

Simplifying tax structures: Ideally, a single-tier tax structure should be in place, which would lower the administrative effort required for implementation as well as give fewer incentives to tobacco companies for tweaking prices and increasing the overall tax rate, but it may entail a high probability of enhancing the illicit trade, thus affecting both health and revenue outcomes. Aiming for such a system in the long run, efforts should be made to reduce illicit trade. In the short term, however, a two-tiered tax structure, with increased tax rates, is recommended.

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List of Acronyms

CSR	Corporate Social Responsibility
CVD	Cardiovascular Diseases
FBR	Federal Board of Revenue
FBS	Family Budget Survey
FCTC	Framework Convention on Tobacco Control
FEA	Federal Excise Act
FED	Federal Excise Duty
FER	Federal Excise Rules
GATS	Global Adult Tobacco Survey
GDP	Gross Domestic Production
GLT	Green Leaf Threshing
GST	General Sales Tax
GYTS	Global Youth Tobacco Survey
HIES	Household Income and Expenditure Survey
HIICS	Household Integrated Income and Consumption Survey
IREN	Inland Revenue Enforcement Network
ITO	Income Tax Ordinance
KP	Khyber Pakhtunkhwa (one of the provinces of Pakistan)
NHS	National Health Surveys
OLS	Ordinary Least Squares
PBS	Pakistan Bureau of Statistics
PKR	Pakistani Rupee
PMPL	Philip Morris Pakistan Limited
PSLM	Pakistan Social and Living Standard Measurement
PSU	Primary Sampling Unit
PTC	Pakistan Tobacco Company
SES	Socioeconomic Status
SOW	Scope of Work
SRO	Statutory Regulatory Order
ST	Sales Tax
STA	Sales Tax Act
STR	Sales Tax Return
VAT	Value Added Tax
WHO	World Health Organization

List of Vernacular

Biri	Also spelled bidi or beedi, this is a thin cigarette filled with tobacco flake and wrapped in a Diospyros melanoxylon or Piliostigma racemosum leaf tied with a string or adhesive at one end. It originates from the Indian subcontinent.
Naswar	Also spelled niswar, this is the mix of the tobacco or plant named nas, alkalies (calcium hydroxide), ash of plants, oil, and spices. Sometimes the naswar is referred to as the green balls, others describe it as the brown powder.
Pan	Pan some time spelled as paan is a preparation combining betel leaf with areca nut, with and without tobacco. It is widely consumed throughout South Asia, Southeast Asia and Taiwan. It is chewed for its stimulant and psychoactive effects. After chewing it is either spit out or swallowed.

"Adapted from Wikipedia"

1

INTRODUCTION

1.1 Background

The tobacco epidemic negatively impacts human well-being in many distinct ways. From exposing active and passive tobacco consumers to cardiovascular diseases (CVD) and a multitude of cancers and respiratory diseases (O'Donnell et al., 2016; Sinha et al., 2017) to cutting down their disposable incomes and escalating the health care burden, there is a long list of evidence-based harmful impacts that tobacco use can have(Bank, undated). Globally, tobacco consumption or its exposure causes six million premature deaths, four in five of which occur in the developing world(Mackay & Crofton, 1996; WHO, 2015b).

Pakistan has more than 22 million active tobacco consumers; additionally, about 100,000 premature deaths per year are registered as stemming from tobacco consumption (Burki et al., 2013; WHO, 2015b). To curb this menace, the country has also been a party to the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) since early 2005 (Tobacco Control Laws, 2017). Although Pakistan's tobacco control legislation dates back to 1965, major legislative changes happened first in 1979 and then in 2002, with progress in policy implementation observed from 2003 onwards(Tobacco Control Laws, 2017; WHO, 2015a). Since then, Pakistan has introduced the following: pictorial warnings on cigarette packs; bans on smoking and planting "No Smoking" signs in public places and vehicles; a prohibition on cigarettes sales to minors; bans on active advertisements of tobacco products in the media; and embargoes on the distribution of free cigarette samples (Burki et al., 2013; WHO, 2015a). However, the implementation of the policies is weak (WHO, 2017). National and international observers are concerned that, contrary to its commitment of creating a 30% reduction in the tobacco prevalence by 2025, tobacco consumption in Pakistan may rise(WHO, 2015b).

These developments on various policy fronts regarding tobacco control have also triggered a significant amount of tobacco use research since 2003. The most researched theme in the relevant literature on Pakistan is smoke and smokeless tobacco prevalence. Nevertheless, only a few studies, like Ahmad et al. (2005); Bile, Shaikh, Afridi, and Khan (2010); Gilani and Leon (2013); Nasir and Rehan (2001); and Saqib et al. (2017),have used nationally representative cross-sectional data, such as the National Health Surveys (NHS) or Global Adult Tobacco Survey GATS, to study tobacco prevalence or its underlying factors.

In most studies, researchers used single cross-section of micro data to give a temporally and geographically limited, yet highly useful understanding of tobacco prevalence among different social groups, such as women (Ashraf et al., 2016), rural males (Ali, Sathiakumar, & Delzell, 2006), urban and slum dwellers(Alvi et al., 2016; M. Aslam, Asif, & Altaf, 2011; N. Aslam & Bushra, 2010; Khawaja et al., 2006), high school and university students (Husain et al., 2012; Latif, Jamshed, & Khan,

2017), trained or under training health professionals (Afzal et al., 2013; Nawaz et al., 2007), long route vehicle drivers (Ibrahim et al., 2017) and various other sections of the society.

A good number of geographically limited-scope studies have used cross-sectional data to investigate the perception of smoking and anti smoking messages (Zaidi, Bikak, Shaheryar, Imam, & Khan, 2011);knowledge, attitude and practices(Haroon, Munir, Mahmud, & Hyder, 2014; Jawaid et al., 2008; Latif et al., 2017); and social and demographic influences on smoking(Alam et al., 2008; A. C. K. Lee et al., 2010; Nizami, Sobani, Raza, Baloch, & Khan, 2011). There are just two studies on tobacco economics and taxation—Burki et al. (2013) and Latif et al. (2017)—even though taxation is found to have a significant impact on reducing tobacco epidemics in many other countries (Hoang et al., 2016; Hu & Mao, 2002; Jha, Khan, Mishra, & Gupta, 2017; J. M. Lee, Liao, Ye, & Liao, 2005; Manivong, Harper, & Strumpf, 2017). The study by Burki et al. (2013)is particularly useful but it is now outdated, and it has some data limitations, as discussed later.

A detailed review of tobacco literature on Pakistan suggests at least three important research gaps with reference to tobacco control policies and taxation, which are elaborated below:

First, studies (particularly of a national scope) tend to aggregate the behavior of different individuals with varying characteristics, thereby assuming that they all behave the same way. Hence, for example, it is implicitly assumed that income and price elasticities are similar across different income groups, residential status (rural/urban) and gender. These studies do not control for other characteristics (e.g., education and age) that can also potentially affect the demand for tobacco. Consequently, the estimated elasticities could be biased (under or overestimated) and any simulation (say, for a tax increase) based on these estimates would lead to wrong conclusions and, therefore, ineffective policies.

Second, analyses of tobacco taxation in Pakistan and elsewhere assume that the individual may or may not reduce the demand for cigarettes by switching to alternatives in response to a tobacco tax increase. These assumptions ignore the South Asian context, where various cheap alternatives of tobacco products are historically present, embedded in culture and traditions, and are often part of the informal economy. Consequently, the possibility of switching to other forms of tobacco cannot be ignored. Theoretically, these tobacco products could even be more inferior in quality as these are unregulated and, hence, are perhaps more hazardous to health. This is an important issue because if consumers are switching to these products, the policy of enacting a tax increase intended at improving health may do exactly the opposite.

Third, there is no study in Pakistan that has carried out a detailed qualitative analysis of the political economy arising from tobacco taxation. This is an extremely important area, as more often than not, the effective implementation of a tax is a political rather than an economic issue. Research elsewhere in developing (Mackay & Crofton, 1996; Stillman, Hoang, Linton, Ritthiphakdee, & Trochim, 2008) and developed countries' contexts(Brion, Stella, M.K.T., A.S., & L.S., 2006)suggest that tobacco manufacturers use various strategies to protect their businesses and downplay tobacco control policies. Transnational tobacco companies have used strategies in low- and middle-income countries through four broader themes: economic activity strategies; marketing and promotion strategies; political lobbying strategies; and deceptive and manipulative strategies (S. Lee, Ling, & Glantz, 2012). A classic case occurred in the early 1950s, when the United States tobacco industry faced pressure owing to new medical evidence linking smoking and cancer, leading to a decline in sales. The industry mobilized its resources to regain control and to defend itself from litigation, lobbied for political support, and engineered public opinion(Saloojee & Dagli, 2000).Another example is a recent study on tobacco taxation in Pakistan, Burki et al. (2013), which reported that despite tax increases, cigarette prices have not increased as one would expect. Similarly, the tobacco industry also uses corporate social responsibility (CSR) (Nazir, Iftikhar, Rana, Naeem Sadiq, & Ahmed, 2010) to put a human face on their socially harmful business activity and as an advertisement and corporate income tax evasion strategy. Hence, even a socially optimal tax increase to reduce the demand for tobacco may not result in such, due to inadequate and outdated understanding of tax regimes, their administration and the political economy in the country.

1.2 Scope of Work

Within this broader context, this report presents a comprehensive economic analysis of tobacco taxation and consumption in Pakistan. Using micro level data, the study estimated the price and income elasticities and conducted a heterogeneous analysis with respect to income, province and region. These estimates give insights on the impact of tobacco tax changes on different populations and provides input for modeling the impact of tax changes on the demand for cigarettes. Besides, it also presents the political economy analysis of tobacco tax and its administration in Pakistan.

2

METHODOLOGY

2.1 Overall Approach

Taxation has its own political economy, having a differential impact on each entity involved in the value chain of an economic commodity. To capture some of this, we engaged all major stakeholders in the tobacco value chain to understand the tobacco taxation structure and administration and its impact on curbing tobacco use in Pakistan. We applied mixed-method research deploying both qualitative and quantitative analyses based on data mined from various primary and secondary sources, as outlined and explained in Table 1.

Table 1 : Overall Study Approach

Activities	Objective	Data Source/Analysis	Focus
Estimate price and income elasticities	Perform simulation modelling of alternative tax structures and rates	PSLM & HIES/HIICS Descriptive and econometric analyses	Households reporting tobacco consumption
Conduct stakeholder analysis	Understand tobacco tax administration and issues in its effectiveness	In-depth interviews through customized checklists/thematic analysis	Major stakeholders except tobacco consumers and cigarette manufactures

2.2 Estimation of Price and Income Elasticities

Tobacco price and household income elasticities are needed to examine the effect of tax increases on tobacco consumption. The previous two studies on Pakistan, such as Burki et al. (2013) andMushtaq, Mushtaq, and Beebe (2011), estimated these elasticities using macro data over time and did not account for heterogeneous smoking behaviors across different income groups, regions (rural/urban), and provinces. Moreover, these studies also do not control for, among others, the household characteristics that can also potentially affect tobacco consumption. Hence, the estimated elasticities could be biased (under- or overestimated) and any simulation (say, a tax increase) based on these estimates could lead to wrong conclusions and, therefore, ineffective policies. To overcome these issues to a reasonable extent, we estimated the price and income elasticities based on the Household Integrated Income and Consumption Survey (HIICS) in 2015-2016–produced by Federal Bureau of Statistics by combining the Family Budget Survey and the Household Income and Integrated Survey (HIES).

An important issue in using cross-sectional surveys for estimating price elasticities of tobacco demand is the lack of tobacco product price data and subsequent use of proxies. While PSLM/HIICS surveys provide cross-sectional information on households' expenditure on and consumed quantity of various tobacco products, the direct information on prices for these products is inaccessible. There are some options available to deal with this issue. One way is to use the regional price data to construct consumer price indices. However, this approach is not feasible for this study because the data on tobacco prices is not available for all geographical locations (John, 2008).

A plausible alternative is to use the unit values (expenditure/quantity) as the proxy of prices. Although the unit value could be contaminated by measurement errors and variation in quality, it still contains the important information about price, which can be used to estimate price elasticities. In this situation, Deaton's model has been accepted as very useful because it provides the possibility to estimate reliable price elasticities by exploiting spatial variation in the unit values obtained from surveys(Deaton, 1988). We can then get the Ordinary Least Squares (OLS) estimates for price and income elasticities with the assumption that there is no intra-cluster variation in market price for a particular product over a given period.

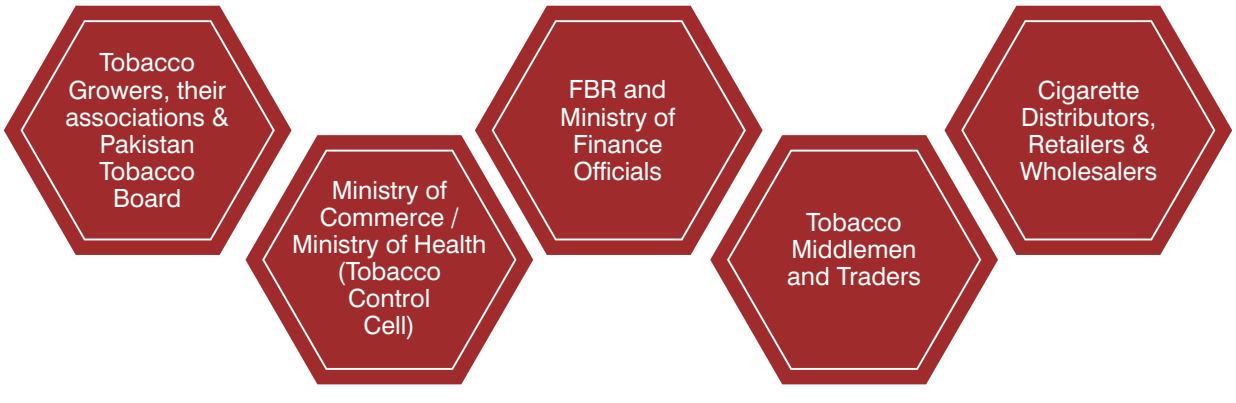
In addition to tobacco consumption, prices, and household income, the study controlled for various important variables ignored by previous studies on Pakistan. These include household size, total household education, education and gender of household head, number of adults in the household, number of male members in the household, average age of the household (ages of all members divided by household size), occupations of working members in the household, region of residence and other appropriate variables. With this set of estimations in hand, we calculated the tax-effect on consumption simulations. To examine the effect on smokers' behavior in various tax scenarios, the pass-through effect of tax on tobacco product prices need to be known. The estimate for this pass-through will be taken fromCevik (2018). A detailed technical note on how Deaton's model was successfully applied in this study is given in Section 6.

2.3 Stakeholders' analysis of tobacco taxation

Under a broad definition, everyone counts as a stakeholder, but those having a major stake can be systematically identified based on assessing their power, legitimacy and urgency in an issue(Mitchell, Agle, & Wood, 1997). However, considering the purpose of this study, a key stakeholder in tobacco tax administration is the one whom the other stakeholders or the relevant scientific literature recognize as such. Figure 1depicts the list of major stakeholders consulted in the study. The names of actual persons who we interviewed are not disclosed due to guidelines set by the Graduate and Research Management Committee (GRMC) of the Pakistan Institute of Development Economics.

All interviews were conducted face-to-face, in confidential settings and by a team of three experienced researchers. For important groups of stakeholders, interview guides were approved by the GRMC at PIDE. All interview data (most of which was qualitative) was recorded into digital format for analysis. To facilitate the analysis, the data was coded into hierarchies of nodes (categories and sub-categories) such as process codes, activity codes, strategy codes, relationship codes, etc. The coding process also included convergent and divergent responses from different stakeholders, such as those in favor or against tobacco taxation.

Figure 1: Stakeholders Interviewed for the Study



3

TOBACCO TAXATION AND ITS ECONOMIC IMPACT

3.1 Legislation on Tobacco Control in Pakistan: A Chronology

The recognition to legislate the production, distribution and use of tobacco can be traced back to 1965, when the government introduced The Motor Vehicles Ordinance, 1965, which defined and linked the concept of 'public service vehicle' with 'smoking'. This precursor paved the way for legislation on the Prohibition of Smoking in Enclosed Places and Protection of Non-Smokers Health Ordinance No. LXXIV, 2002. This facilitated a ban on smoking in public places such as hospitals, schools, indoor workplaces and offices, transport, and other enclosed spaces. Meanwhile Pakistan also introduced Cigarettes (Printing of Warning) Ordinance No. LXXIII, 1979 - September 1, 1980, without noticeable immediate impact due to high illiteracy rates in the country during that time. Together with the relevant tax legislations, these legislations provide the basis for Statutory Regulatory Orders (SROs) that the relevant authorities occasionally promulgated to regulate the production, distribution and use of tobacco in the country (Box 1).

Box 1: Chronology of the Tobacco-Related Legislation in Pakistan

Motor Vehicles Ordinance, 1965 (as amended) - July 10, 1965: Sets forth the definition of "public service vehicle." The Prohibition of Smoking in Enclosed Places and Protection of Non-Smokers Health Ordinance, 2002 incorporates this definition with regards to its smoke free provisions. Has been amended several times since.

Cigarettes (Printing of Warning) Ordinance No. LXXIII, 1979 -September 1, 1980: Requires that health warnings be printed on packets of cigarettes. It prohibits the manufacture, sale, or possession of packets on which the warning is not printed. Has been amended several times.

Prohibition of Smoking in Enclosed Places and Protection of Non-Smokers Health Ordinance No. LXXIV, 2002 - June 30, 2003: Prohibits the use of tobacco in any place of public work or use and in public service vehicles. It also prohibits: advertisement of tobacco products; sales to minors; and sale or distribution of cigarettes near educational institutions.

SRO 655(I)/2003 - June 30, 2003: Establishes the Committee on Tobacco Advertisement Guidelines, names its members, and outlines its functions.

SRO 654(I)/2003 - July 3, 2003: Declares several officials and individuals as persons competent to enforce the 2002 Ordinance.

SRO 653(I)/2003 - July 3, 2003: Declares additional locations as places of public work or use for purposes of the ban on using tobacco products contained in the 2002 Ordinance.

SRO 652(I)/2003 - July 3, 2003: Establishes June 30, 2003 as the effective date for the Prohibition of Smoking in Enclosed Places and Protection of Non-Smokers Health Ordinance, 2002.

SRO 1001(1)/2003 - October 27, 2003: Establishes a detailed health warning.

Notification F.13-5/2003 - October 27, 2003: Announces new guidelines issued by the Committee. The new guidelines address a range of issues concerning tobacco advertising, promotion and sponsorship.

SRO 22(1)/2004 on Cigarette (Printing of Warning) Rules, 2003 - January 13, 2004: The Rules provide the specifications (text, font, size, color) of the new health warning established by SRO 1001(1)/2003. The Rules also set forth the date when the new health warning will come into force for each of the three types of advertisements.

Federal Excise Rules, 2005 (as amended) - July 1, 2005: For the purpose of tobacco control, the rules include provisions regulating minimum price, excise stamps and banderoles, and some packaging and labelling requirements, among other things.

Federal Excise Act, 2005 (as amended) - July 1, 2005: For purposes of tobacco control, the Federal Excise Act, 2005 establishes the federal excise duties for tobacco and tobacco products.

SRO 882(I)/2007 - August 21, 2007: Announces guidelines on tobacco product advertisements in various types of media.

SRO 956 DSA 2008 - September 6, 2008: Allowed establishment of designated smoking areas at all places of public work or use except health, education, and public transport vehicles and flights.

SRO 51(KE)(Withdrawal of DSAs)/2009 - June 15, 2009: Requires all places of public work or use to be 100% smoke free. It rescinded SRO 956(I)/2008, which had permitted owners of places of public work or use to establish designated smoking areas or rooms.

SRO 53(KE)/2009 - July 1, 2009: Amends the advertisement guidelines issued in SRO 882(I)/2007. SRO 53(KE)/2009 inserts new text addressing free goods, cash rebates, free samples, and discount or below-market-value goods as a form of tobacco advertising, promotion and sponsorship.

SROs 01(KE)/2010 and 02(KE)/2010, Amending the Cigarettes (Printing of Warning) Rules, 2009 - January 11, 2010: Delayed the effective date of pictorial warnings from February 1, 2010 to May 31, 2010.

SROs 86(KE)/2009 and 87(KE)/2009 on Cigarettes (Printing of Warning) Rules, 2009 - February 1, 2010: The Rules include the specifications for the new health warning, including size, placement, and rotation requirements. SRO 87(KE)/2009 contains the text and image of the warning to be displayed.

SRO 277(I)/2011 - March 29, 2011: Identifies additional enforcement authorities under the 2002 Ordinance on the Prohibition of Smoking in Enclosed Places and Protection of Non-Smokers Health.

SRO 863(I)/2010 on The Prohibition of Sales of Cigarettes to Minors Rules, 2010 - October 1, 2011: The Rules prohibit the manufacture and retailers on the sale of sweets, snacks, or toys in the form of cigarettes that may appeal to minors; as well as packs with fewer than 20 cigarette sticks.

SRO 1086(I)/2013 - May 31, 2014: Establishes further restrictions on tobacco advertising, promotion and sponsorship.

SROs 22(KE)/2015 and 23(KE)/2015 - March 30, 2015: Originally issued to increase the size of the health warnings to 85% of both front and back of cigarette packages. Additionally, the SROs prescribed rules regarding the rotation, manner, look, and design of the single health warning. The original effective date was March 30, 2015, but implementation was delayed several times. Ultimately, the size of the health warnings was amended to require warnings covering 50% of cigarette packs and outer packaging beginning June 1, 2018.

SRO 562 (I)/2018 - April 18, 2018: Raised Federal Excise Duty (FED) on all three tiers of cigarettes that were announced earlier in the finance bill.

SRO 128(KE)/2017 - June 1, 2018: Establishes the warnings required to appear on packs and outer packaging of cigarettes beginning June 1, 2018.

SRO 127(KE)/2017 - June 1, 2018 Amends the Cigarettes (Printing of Warnings) Rules, 2009 to require pictorial health warnings on 50% of the front and back surfaces of packs and outer packaging of cigarettes. The size of the warnings will increase to 60% on June 1, 2019.

The presence of adequate legislation was also the reason for Pakistan to be among the few and early countries signing and ratifying the WHO Framework Convention on Tobacco Control (FCTC) in 2005. Following its international and constitutional obligations through the FCTC, the country made substantial efforts in tobacco control (Box 1) - though not necessarily according to FCTC standards - on: specific smoke-free environments; a total ban on tobacco advertising promotion and sponsorship; health warnings on

tobacco products; and tobacco taxation and price. A quick look at Box 2 tells us that Pakistan still has a long way to go before it can be a fully FCTC compliant country. Compliance in two categories, namely content of the warnings and messages and the ban on tobacco advertising, promotion and sponsorship, is the weakest.

Box 2: Status of Tobacco Control Policies in Pakistan: 2018

Definition of Key Terms Aligned with FCTC and its Guidelines			
Tobacco products	No	Outside packaging and labelling	Yes
Smoke-Free Environments – Complete Smoking Ban			
Health-care facilities	Yes	Primary and secondary schools	Yes
Government facilities	Yes	Universities	Yes
Provision of sub-national organizations to make tighter rules	Yes	Private offices	Yes
		Public transport	Yes
		Restaurants	Yes
Bans on Tobacco Advertising, Promotion and Sponsorship			
Domestic TV and radio	Yes	Promotional discounts	Yes
Domestic magazines and newspapers	Yes	Free Distribution	Yes
Outdoor advertising	No	Paid placements in media	Yes
Retail product display	No	Financial sponsorship, including CSR	No
Internet advertising	No	Publicity of sponsorships	No
Tobacco products with non-tobacco brand names	No	Non-tobacco products or services with tobacco brand names	No
Health Warnings on Smoked Tobacco Products			
Text warnings describe health impact	Yes	Number of published warnings	1
Warnings include a picture or graphic	Yes	Warnings are required to rotate	Yes
% of display areas covered:		Warnings written in local language	Yes
Front	50%	Ban on misleading packaging/labels	No
Back	50%	Warnings on smokeless tobacco products	No
Content of the Warnings and Messages			
Health impacts	Yes	Adverse socio-economic outcomes	No
Advice on cessation	No	Impact of use on family and friends	No
Addictive nature of tobacco	No	Quit-line phone number	No
Tobacco Taxation and Price			
Price of most sold brand, pack of 20 cigarettes (US$)	0.64	Total taxes on most sold brand	60%
		Total excise on most sold brand	46%

Source: Adapted from Tobacco Control (2018), Pakistan - Country Fact Sheets

3.2 Tobacco Taxation and Third-Tier controversy

One economic solution to the tobacco-use epidemic has been taxation that raises tobacco prices to decrease its demand and affordability amid rising inflation and per capita income. While tobacco in Pakistan is subject to multiple taxes, including VAT or sales tax, corporate income tax and local tobacco taxes, the Federal Excise Duty (FED) is the prime instrument used to curb tobacco consumption. In practice, however, it is generally perceived as an important industry and as a major source of government revenue(Haider, 2018). For example, the tobacco industry contributed about 2.15% of total tax collections and 43% of income from the FED in 2015-2016, which stands around USD 1 billion(Iqbal, Khan, Imtiaz,

Ahmed, & Khan, 2016). Pakistan once had a highly complex three-tier FED system for the tobacco industry. It had both specific taxes (levied on quantity or weight) and ad-valorem taxes (levied as a price percentage). The ad-valorem tax was typically applied on the premium brands, the specific tax on the lower brands, and a combination of both on the medium brands. In the 2013-14 budget, this was simplified to a two-tier system that entirely abolished the ad-valorem component. In 2017 the three-tier system was re-introduced for lower brands without restricting the tier shifting of brands. Table 2 is a snapshot of the FED on cigarettes in Pakistan from 2016 -2018.

Table 2: Changes in the Federal Excise Duty Structure for Cigarettes: 2016-2018

Period	Tier	Retail Price Per Pack (in PKR)	FED Per Pack (in PKR)
Jun 11, 2013 – Jun 3, 2014	First Second	More than 45.72 45.72 or less	46.50 17.60
Jun 4, 2014 – Jun 4, 2015	First Second	More than 54.12 54.12 or less	52.64 21.70
Jun 5, 2015 – Nov 29, 2015	First Second	More than 67 67 or less	60.00 26.40
Nov 30, 2015 – Jun 2, 2016	First Second	More than 72 72 or less	63.10 28.40
Jun 3, 2016 – May 28, 2107	First Second	More than 80 80 or less	68.72 30.68
May 29, 2017 – Apr 29, 2018	First Second Third	More than 90 Up to 90 and more than 58.5 58.5 or less	74.80 33.40 16.00
Apr 30, 2018 – Sep17, 2018	First Second Third	More than 90 Up to 90 and more than 58.5 58.5 or less	79.40 35.52 17.00
Sep 18, 2018 to date	First Second Third	More than 90 Up to 90 and more than 58.5 58.5 or less	90.00 36.80 25.00

Source: Various Finance Acts and SROs

The FBR officials and the tobacco industry defend this move intended at curbing counterfeit production (Haider, 2018). Health officials are on record rejecting the introduction of the third tier[1], since they believed that the installation of a tracking and tracing system for tobacco companies would be far more effective to stop tax evasion and illicit tobacco trade than the third tier.

3.3 Impact of FED Regulation on Tobacco Prices

If we compare our current state of legislation on tobacco control with the neighboring South Asian countries, Pakistan appears to be lagging behind all of them. Tobacco prices in Pakistan are also among the lowest in South Asia. For example, the price per pack of Marlboro in five South Asian countries shows that cigarettes in Pakistan are the cheapest (see Figure 2). While a pack of Marlboro costs US$5.91 in Sri Lanka and US$3.03 in India, it is a paltry US $1.21 in Pakistan. While cigarette prices have increased elsewhere in the world to control tobacco use, in Pakistan, these have declined. The re-introduction of three-tier tax structures without any restriction on brand shifting has de-facto reduced the prices of popular cigarette brands in the country (Figure 3).

1. Including the members of the Senate's Standing Committee on the National Health Services (NHS) and secretary, Ministry of Health.
2. Prices of cigarettes are overall at a middle level in Asia as compared to other continents. For a quick comparison here are the countries selling a pack of Marlboro at the highest price on each continent: Singapore- US $9.71 (Asia); Australia- US $20.23 (Australia); Norway- US $13.75 (Europe); Canada- US $10.70 (North America); Ecuador- US $5.50 (South America); and South Africa- US $2.83 (Africa).

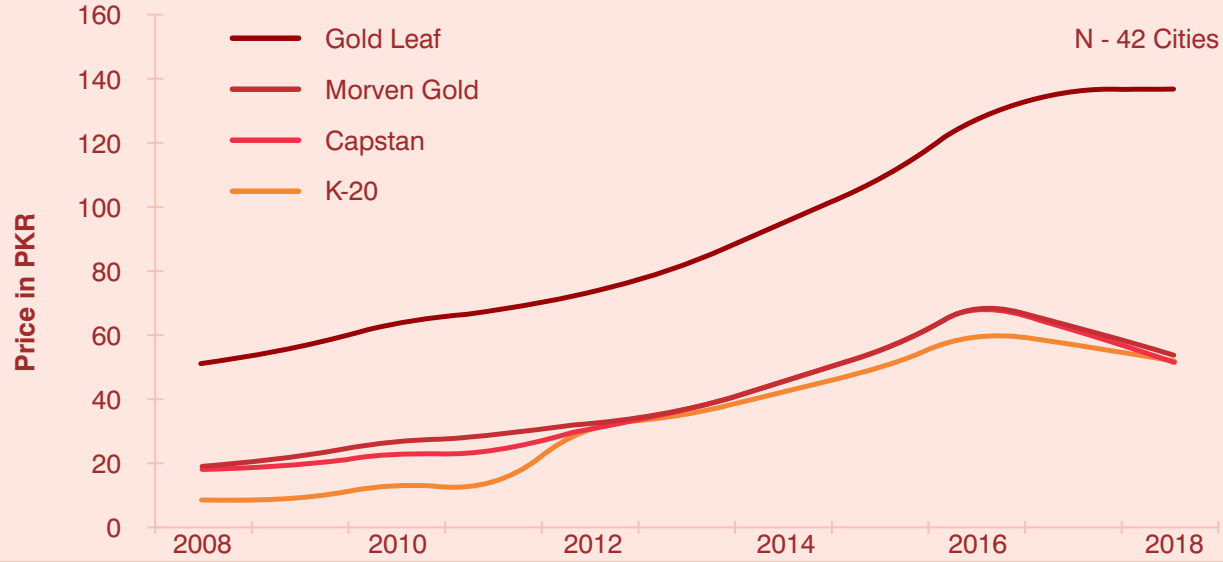
Figure 2: Price Per Packet of Marlboro in Pakistan compared to South Asia

Source: Numbeo (2018)

As can be seen from Table 2, the Federal Excise Duty (FED) on several brands of cigarettes packs was reduced from PKR 32.98 to PKR16 in the FY 2017-18 budget. For whatever reasons, the re-introduction of the third tier resulted in making cigarettes more affordable, which runs against the spirit of Pakistan's WHO-FCTC commitments. The FCTC specifically identifies that the increase in prices of tobacco products is a major way to discourage its consumption, with excise duty accounting for at least 70% of retail prices. Under Article 6 of the convention, all signatories must implement tax and price policies on the production of tobacco products as a way to reduce its consumption.

According to one of our interactions with a tax official at the FBR, the introduction of the FED's third tier for cigarettes in May 2017 caused a loss of PKR 36 billion to the national exchequer. The main reason behind this loss was that the two major players in the cigarette industry shifted some of their most sold brands to the lowest tax slab, which now enjoyed a 50% reduction in the FED. This enhanced the sales for the tobacco companies but incurred a huge loss for the public treasury. Despite all the recommendations to the government to scrap the third tier, as it was resulting in the loss of both health and money to the country, the influential tobacco lobby[3] in the country was successful in keeping the slab intact in the revisions made to the Finance Bill in September 2018 by the new government.

Figure 3: Average Consumer Price of Popular Cigarette Brands in Pakistan

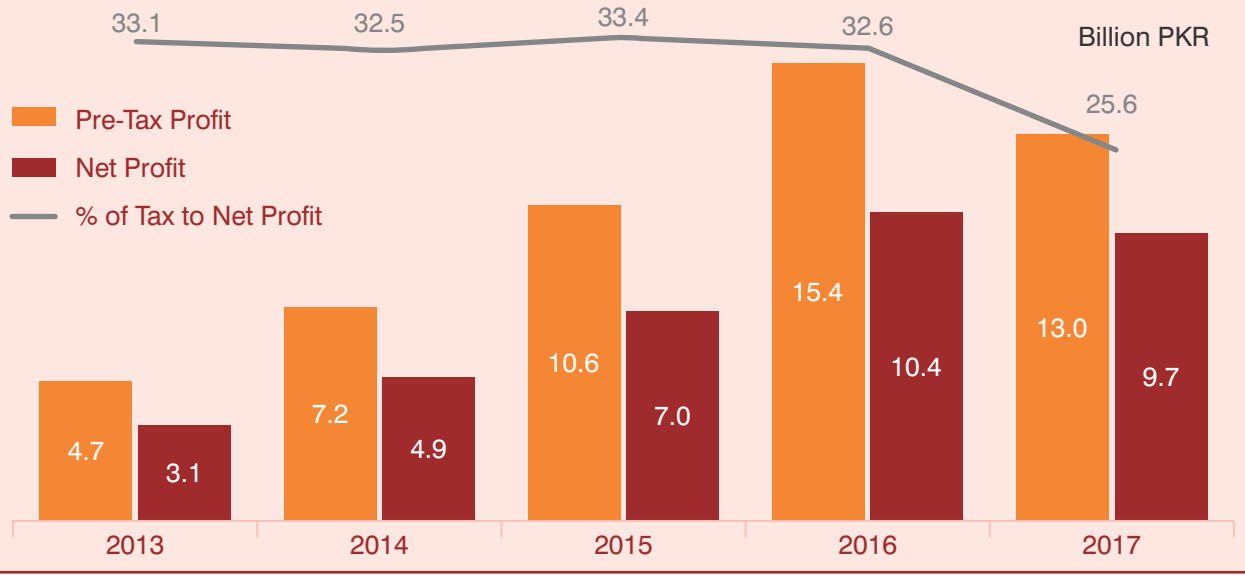


Source: Federal Bureau of Statistics

3. The rationale for the third tier was primarily based on the sale of illicit and non-duty paid cigarettes. Health officials believe that the 40% market share of the illicit sector quoted by the tobacco companies, based on data gathered by Nielsen Pakistan and Oxford Economics, is biased, and would be around 9%, as found by the study conducted by Pakistan National Heart Association (PANAH). It may be mentioned here that the high rate of illicit tobacco trade is the main reason given to keep the third tier intact.

As can be seen from Table 2, the taxes were slightly increased, but the third tier remained there. Figure 4 gives a good representation of how the new tax slabs affected the profits of Pakistan's biggest tobacco company, the Pakistan Tobacco Company (PTC). As can be seen from the figure, after an almost stagnant share of the paid tax in the total profit, it declined in 2017 (to 25.6%).This is probably due to almost all the brands being moved from the second tier to the third tier resulting in halving the FED (i.e., from 33.4 PKR to 16 PKR) per pack and lowering the tax to net profit ratio, despite declining sales.

Figure 4: Pre-Tax and Net Profit of Pakistan Tobacco Company from 2013-2017

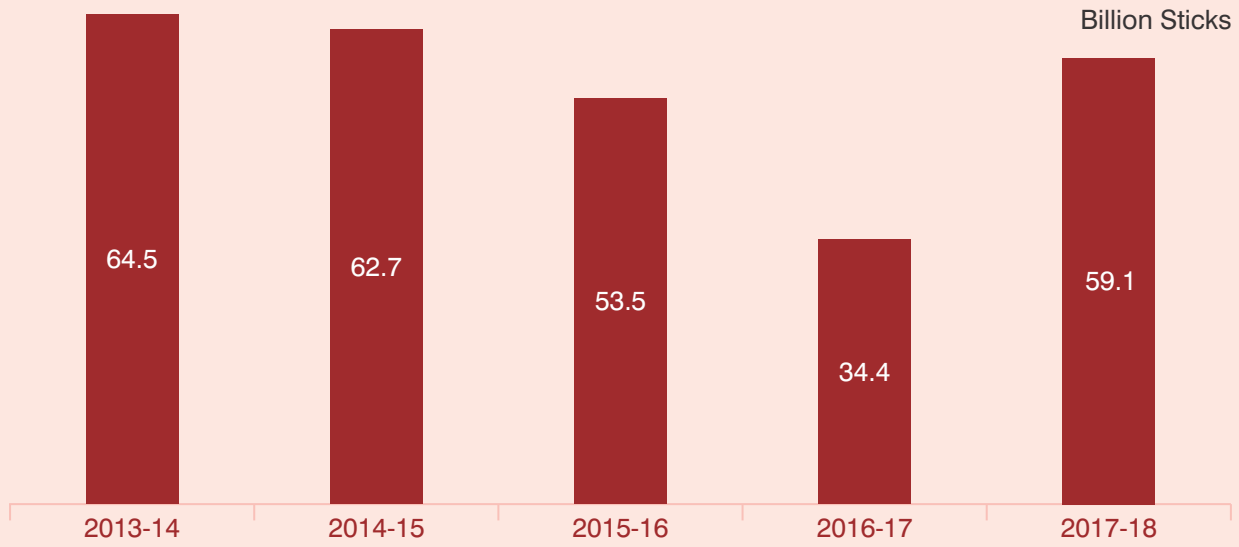


Source: Annual Report of the Pakistan Tobacco Company (Various Years

3.4 Post Third Tier Cigarette Production and Sale

Figures collected by the Pakistan Bureau of Statistics, which is aligned with neither the tobacco companies nor the health practitioners, show that after introducing the third tier for the FED collection on cigarettes, production of the tobacco products has gone up again, even after showing a declining trend in the previous year (see Figure 5). After a dip in production in 2016-17 to 34.3 million sticks of cigarettes in the country, the production

Figure 5: Cigarette Production in Pakistan from 2013-14 - 2017-18

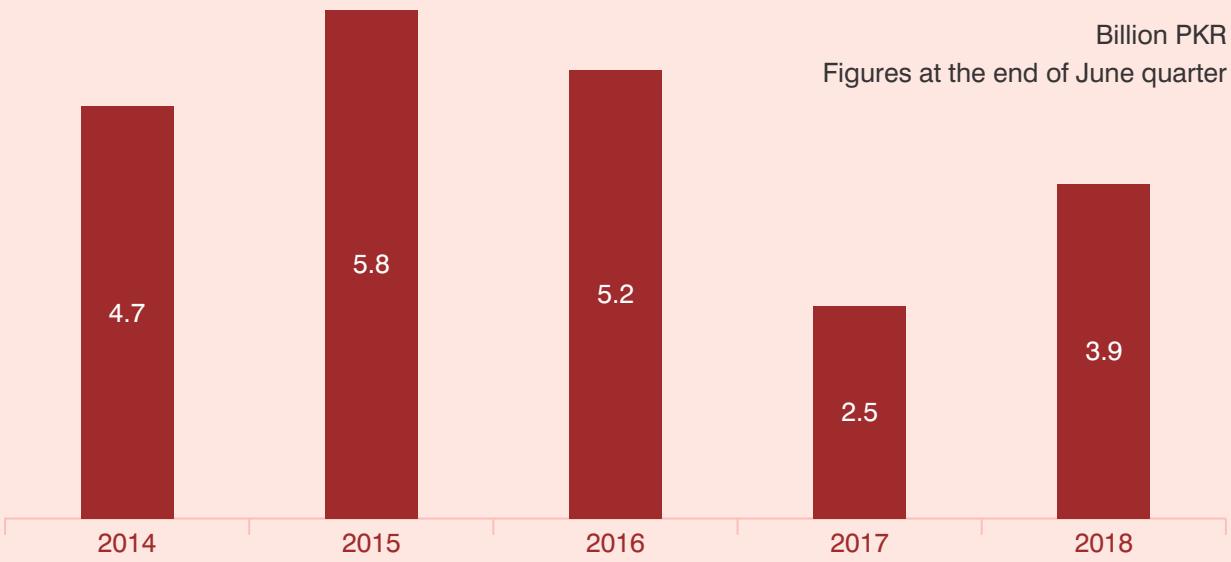


Source: Quantum Index of Large-Scale Manufacturing Industries - PBS (Various Years)

picked up again to reach 59.1 million sticks in 2017-2018. An increasing tobacco trend that was exhibited by the overall production of cigarette sticks in Pakistan (Figure 5) can also be gauged from the net turnover at the Philip Morris Pakistan Limited (PMPL) in the first half of the year 2018, as can be seen from Figure 6.

cigarette packs compliant to the rules in Pakistan, but considering the lucrative market in the country it now has manufacturing facilities in Kotri (Sindh) and Sahiwal (Punjab), as well as a Green Leaf Threshing plant in Mardan (KP). The PMPL saw its net turnover increase to PKR 3.9 billion in the quarter ending June 2018,

Figure 6: Net Turnover of the Philip Morris Pakistan Ltd. during 2014-2018



Source: Annual Report Philip Morris Pakistan Limited (Various Years)

Philip Morris is the world's largest tobacco company, and in Pakistan it is among the top two along with the PTC. Previously, Philip Morris Pakistan Limited (PMPL) used its facility in the Philippines (for the Marlboro brand) and Turkey (for the Camel brand) to produce

compared to PKR 2.5 billion in the same period in 2017 (Figure 6). It would not be a stretch to infer that the introduction of the third tier in May 2017 provided a boost to cigarette production and consumption in Pakistan.

4

ISSUES IN TOBACCO TAX ADMINISTRATION

4.1 Overview of Pakistan's Taxation System

The performance of the tax administration in any country is a function of tax legislation and overall design of the tax system. A complicated tax system accompanied by weak implementation and governance can deter payment of taxes and results in sub-optimal revenue collection, besides enlarging the size of the underground economy. Article 160, Clause 3 of Pakistan's constitution (1973) entitles the federal government to levy and collect taxes from Pakistani citizens. Any legislative change related to a particular sector of the economy will be presented in the parliament (National Assembly) for discussion and after its approval is tabled at the Senate (Upper House) to become an act. Three of such acts—the Sales Tax Act 1990 (STA), the Federal Excise Act 2005 (FEA), and the Income Tax Ordinance 2001 (ITO)—are in vogue and form the basis for, among others, tobacco taxation in Pakistan. The constitution mandates the Federal Board of Revenue (FBR) to administer, manage, conduct and supervise the execution and implementation of the country's taxation laws and related statues.[4] With the approval of the Federal Finance Minister, the FBR may also issue Statutory Regulatory Orders (SROs) to change leviable duties and collection procedures in the interim period.

Pakistan is characterized by a tiny tax base, massive tax evasion, and capacity and administrative constraints that prevent the country from having an efficient tax system. Despite substantial improvements during the last few years, the overall tax to GDP ratio is below 12 percent and indirect taxes (VAT, FED and Custom Duty) constitute around 60 percent of the federal tax revenue (FBR 2018). Within this narrow fiscal space, the tobacco industry's importance for the FBR can be realized from the fact that in 2017-2018, it was the top contributor (32.6 percent) in net FED collections and fifth among top-ten contributors (3 to 4 percent) in the net domestic General Sales Tax (GST) collections.

Although over the years various reforms were introduced to enlarge the tax base and improve tax governance and stakeholder confidence, no considerable additions in the FBR's overall taxation capacity could emerge (Ahmed, 2017).Tobacco taxes also operate in this realm and their effectiveness may be understood in the overall context of tax administration in Pakistan. The next section elaborates on the most important dimensions of tobacco tax administration, primarily based on the review of relevant legislation and information collected through interviews with FBR officials, cigarette distributors, tobacco growers and middlemen engaged in marketing of the unprocessed tobacco, and other stakeholders.

4. The FBR is collecting around 90% of the total taxes collected in the country, which are then distributed among the federating units through a revenue sharing mechanism (National Finance Commission-NFC Award).

4.2 Tobacco Tax Administration and Planning

As mentioned earlier in Section xxx, tobacco is subject to various taxes, but the FED is the most important tax related to tobacco and vice versa. Tobacco is the most important constituent of the FED in Pakistan. The 1st schedule of the FEA 2005 specifies the un-manufactured tobacco, cigars, cheroots, cigarillos and cigarettes of tobacco substitutes and other descriptions of cigarettes under item nos. 7 to 12. The FEA bestows the FBR with any combination of the following two mechanisms to levy and collect duties: (1) on the production capacity of plants, machinery, undertaking or manufacturing such goods; and (2) on a fixed basis on any goods and services or classes of goods and services. Further elaborations specific to tobacco and tobacco products are made in Chapter IV of Federal Excise Rules 2005 (hereafter FER), which obligates the cigarette manufactures to declare the details of machinery used in the manufacturing of cigarettes and other tobacco products, including: the number of machines, their make and model, minimum production capacity in respect to each machine and the brand names of the products that the manufacturer intends to produce.

Despite stringent regulations, in practice, FED collection is sub-optimal at its best. The FED on cigarettes is collected on a fixed basis per 1000cigarettes following the Specific Tax regime (See Table 1). This is surprisingly so, even though just two giants, viz Pakistan Tobacco Company Limited (PTC) and Philip Morris Pakistan Limited (PMPL), claim the lion's share of the market (Burki et al. (2013) report it to be 98% in 2011), and contribute a major chunk of the FED. It is not clear why the FBR opts for a Specific Tax regime on voluntarily declared production over supervised sales or the installed production capacity regime for such a small number of cigarette manufacturers.

Interviews with the FBR official brought up multiple justifications, all boiling down to the fact that despite its inherent inefficiencies, the tier-based ST is manageable given the existing administrative capacity of the FBR, all in terms of the limited number of personnel and other resources. A field officer explained this as quoted below:

"We used to have supervised sales [until the 2000s]*and the system was working perfectly, and we have the capacity, but the lobbying convinced the policy makers that the person sitting at the factory is exerting rent seeking behavior" - Investigation and Intelligence Unit Hyderabad.*

… Our assignment requires a team of ten, but we are just two … and those too with limited mobility in the field.

In ad valorem we are linked to price and currently there is no price regulation in Pakistan…The [tobacco] *industry used to see their own liability and did changes in price [at their advantage]. At the FBR, we did not know their prices and thus cannot project revenue without depending on whatever they set. So, if we increased the taxes, they decreased the prices, so the net incidence was that. If duties decrease, the price were increased by the companies, so this was the issue here.*

A federal FBR official

Legally speaking, we cannot set the minimum sales price for a commodity, the Specific Tax regime provide us [the FBR] *a loose handle on prices by setting* [a] *threshold and let* [ting] *the producer adjust their production behavior accordingly.*

[The companies played with the system loophole such that the] *erstwhile second tier cigarette brands were switched down to the lower tier. This increased their sales, reduced tax liability and brought them* [to PMPL and PTC] *fortune.*

A regional FBR official

We are infact now setting the prices of cigarettes by setting up the thresholds.

A regional FBR Official

Thus, a resource-constrained FBR official must deal with those having access to all kinds of resources and support:

Neither we [the FBR] *nor SECP* [Securities and Exchange Commission of Pakistan] *can charge these companies because they have their hands on the world's best accounting and auditing systems and their internal system* [s] *are also very good. This is said not because* [of] *any care for these companies, but the real situation is like this.*

A federal FBR official

Besides this, companies also seem to apply other strategies of tax pass-through. Many farmers from Gujrat and Swabi have opposed any tax on cigarettes, saying that companies would reduce the prices they paid for raw tobacco in the case of a tax increase. A tobacco grower described the companies' reaction to taxes as follows:

[The] *Government must think about us* [tobacco growers] [and our] *livelihood when increasing taxes on cigarettes…. Companies may not pay us* [a] *good price if they are over-taxed.*

Interview with a Tobacco Grower

These sorts of choices coupled with resource and

governance constraints impact the fundamental structure of the tax administration. Resultantly, instead of forming designated departments exclusively tasked for tax collection, enforcement, audit and other compliance issues, the government followed a sectoral formation approach, which held an official responsible for every dimension of the taxation related the industry assigned to them. This is true for the tobacco industry as well. This can be inferred from the following field account:

The field formations are assigned with sector level taxes… [This means that] *a grade 18 level officer* [deputy commissioner] *would be tasked to manage [not only] tax collection* [all sort of taxes such as FED, VAT and Income Taxes from a sector] *and would also manage enforcement, audit and other compliance protocols* [of the sector assigned to him/her].

A regional FBR official

How this, coupled with the FBR's revenue focus, becomes a problem and impacts other dimensions of tax administration is as follows. A field office would be informed about the revised FED targets. The officer in charge would negotiate with cigarette manufacturers. Normally, the companies would agree on the amount of funds demanded by the FBR subject such that the enforcement, audit and other compliance protocols would be set aside de facto. In certain cases, the FBR official may request the tobacco manufacturers for advance tax submissions even though, by law, the FED is payable only when manufactured goods exit factory premises or are in warehouses. So, a sense of collusion exists at the FBR-execution node with the tax base, certainly with intimation to high-ups. An official explained this as follows:

… I would say cigarette manufacturers and FBR field officials cooperate in [an] *out of the way manner subject [to the idea] that FBR guys mind their business of collecting revenue as per the given target and do not mess with other issues…*

Companies can even release advance taxes in times when the government badly need funds or when we want to show that reforms are working.

A regional FBR official

Thus, a tax official, and for that matter, the entire taxation system, is appreciated if the revenue targets are achieved. The enforcement, audit and compliance issues then become secondary issues for persons or teams involved, whereas the health cost is rarely the FBR's concern. In formulating new tax proposals, the focus is on revenue buoyancy. No consideration is given to health outcomes or reducing tobacco consumption. The following quote sheds light on this:

Health is not my mandate. While determining the tax [FED] *rate, I would worry about changes in Sales Tax revenue* [applicable as VAT inclusive of FED], *Income tax* [Corporate Incomes] *and Customs… Yes, you understood it well, there is no consideration of earmarking taxation with* [the] *health cost attributable to tobacco.*

A federal-level FBR official

4.3 Tax Planning

Tax planning is centralized and revenue focused. Reform planning seems to be inputted from the provincial offices but major decisions regarding the rates and specific rules are made at the headquarters, so it is a type of top-down approach.

They ask tax proposals from us but without any guarantee of acceptance.

A regional FBR Official

Although the tax contribution figure may be negotiated and fail to reflect the actual production, for documentation purposes the monthly data on various production parameters are collected through Sales Tax Return (STR-I)[5] forms. However, there is no comprehensive model, or adequate human capital, to process such data to feed tax planning. While projecting the tax implication, assumptions about elasticity of consumption, production, and input supplies are either ignored or made without a firm scientific basis. The focus of adjustment for the FED rates is on cigarettes only, with much less focus on covering the entire value chain. Generally, the Chief of the FED, through his team, prepares a proposal of tax changes, which is then forwarded for approval to the Member Inland Revenue, who forwards it to the Chairman of the FBR, through whom it is presented for approval to the Finance Minister.

5. Although called the STR, the form also contains a section on FED-returns. The reason for their interchangeable use is that both are levied on the production on commodities such as cigarettes.

4.4 Monitoring and Enforcement

The Investigation and Intelligence Unit in the FBR has enforcement authority. However, they too rely on third-party information. With an extremely low probability of detection through banderole-based identification, even those who are caught are rarely penalized. The FBR perceives these tax offenders as tax producers from the top down, so the objective is not to punish or rectify, but to recover the tax that has been avoided. This emerged during an interview:

…the same persons would be paying in [the] *future so it's in our best interest to collect only the duty avoided and effectively no penalty is charged.*

A regional FBR official

This increases the probability of defiance again, as the cost of detection is only paying the amount that is due. Hence, the tax-paying entity would cheat again to avoid any potential tax implications. Earlier there was supervised clearance, but overtime, due to the industry pressure this system has been abolished. The FBR claims it creates incentives for the monitors to engage in bribes etc.

The day we appoint someone to monitor goods' flow out of company stockrooms, he becomes their employee [starts getting bribes from them].

A regional FBR Official

What the FBR official implied was that undue influence and opportunities for improprieties arise in any such arrangement, as the companies usually coopt a tax official working on their premises through financial inducements. Despite this, the industry continues to be defiant of any supervision method and tries to manipulate the market by price setting, as mentioned above.

4.5 Registration

Given the importance of tobacco excises for the country's revenues and regulation, the FBR needs to register and license all producers (both at GLT and cigarettes manufacturing stage), importers, distributors and retailers. Chapter II of the Federal Excise Rules – 2005 relates to the rules of registration. Paragraph 3 of the chapter states:"Application for registration – It is compulsory for a person to apply for registration before commencing of manufacturing of any excisable goods or before rendering or providing of any excisable services". The application can be made before the collector for registration on the form (Sales Tax Returns Form STR-1). A cigarette distributor brought a field picture of registration in his jurisdiction as follows:

Let me tell you, the distribution channels work like this: A company has distributors like me, followed by wholesalers and retailers. While a distributor needs to be a sales tax payer, it is not the case with wholesalers or retailers. In my jurisdiction there is just one sales tax filer so what do you think?

Interview with a cigarette distributor

The rules contain procedures for compliance with sales and purchase from a registered supplier only. However, the efficacy of these rules has been called into question. Due to the absence of a comprehensive information-sharing platform, many loopholes and voluntary non-compliance issues emerge. Secondly, there is no mandatory requirement to file a return for all registered entities. The field story was alarming, as narrated in the following quote:

I am telling you a story of what happened [a] *few years ago. We were asked to sell cigarettes at different rates to sales tax filers and non-filers* [distributors and retailers]. *Many distributors registered one or two dummy sales tax filers and sold all their stock to them. This gave them* [an] *extra margin and they indulged in a furious competition to the extent of intruding and selling in the jurisdiction of their neighboring distributors. The companies then managed to remove that law and saved their distribution line.*

Interview with a cigarette distributor

Weak enforcement and compliance with FBR regulations were also noted in the case of domestic production and sales. Although the FBR has issued strict warnings for selling non-duty paid cigarettes, compliance is not significant. Potential reasons for this are an undocumented economy and an unnecessarily large number of points of sale for tobacco products. A tax official revealed:

You see, there are around seven lac [700,000] tobacco sale points… Yes, this number includes both [cigarette sellers and chewing tobacco sellers]. *You would even find that many shoemakers also selling naswar* [a chewing tobacco product popular in KP] *besides doing their normal business…. How can I enforce* [it] *as we do not have* [enough] *workforce?*

A federal FBR official

4.6 Illicit Trade and Smuggling

The enforcement/revenue improvement through collection efficiency is a much-neglected area of the reforms introduced so far. Nevertheless, the FBR is cognizant of the tax evasion in the tobacco sector and has enacted a joint committee called the IR Enforcement Network (IREN) for strict monitoring, vigilance and scrutiny of the cigarette/ tobacco sector in 2016. The committee's official website suggests that, despite various raids, the committee could seize only 292.26millionillegal cigarette sticks and 3100 bales of tobacco (enough to produce 400 million cigarette sticks)in 2017 and 88.64 million illegal cigarette sticks in 2018. Field interviews suggest that illicit tobacco sales in Pakistan are both policy-induced and part of an un-recorded economy.

There are different perspectives on this and the issue has been heavily debated among anti-tobacco actors, the FBR and the cigarette manufactures. Often studies and simple data analysis are also used to refer to the exact size of this activity. Many used to believe that it was less than 10% of the total sales and not as high as 40%, as the companies claim. However, recent changes in the FED on cigarette and resultant pickup in the cigarette sales suggest that the size of this sector is significant, as claimed by the FBR, but not as large as claimed by the tobacco companies. The introduction of a lower third tier in May 2017 resulted in the shifting of value (major selling brands) brands from the second to the third tier and significantly increased the sales volume while decreasing the tax revenues, along with the higher incidence of cigarette sales (See Figure 4). One view at the FBR to defend the move was:

… this change [introduction of the third tier] *brought illicit trade into* [the] *formal economy, where the registered companies picked up their sales. With* [the] *increase in duties it creates incentive for illicit traders to fill the demand. These illicit brands are fully compliant with the standards and norms such as pictorial warning* [s]*, printing of prices etc., but are actually non-duty paid. So, they do under price selling and kick out the tax-paid brands in the same category.*

A federal FBR official

Smuggling is also a significant part of illicit tobacco sales. There is anecdotal evidence on the quantum of cigarettes being smuggled, but much less data is available (for example in one of the news briefs it is reported that smuggled cigarettes worth PKR 36 million—approximately 27000 USD—were confiscated in one raid)(CTReport, 2017). While visiting the customs authorities at the ports it was mentioned that:

Jurisdictional constraints such as production in AJK and [the] Afghan transit trade are among some of the reasons behind illicit trade. There is no effective mechanism to track the imports upto [the] border once cleared as Afghan transit. Even commodities that pass the Afghan border return via many channels.

A regional FBR official

The same context was provided by the FBR officials, where they claimed that the channels through which smuggling is possible are abundant. Due to inadequacy [in] *staff and life-threatening tactics* [used by] *smugglers it is very difficult to curb these. There are reported incidences when our officials were subject to life threats at gunpoint and at times, due to lady smugglers, false allegations, which brought public humiliation to staff.*

An FBR official interviewed at RTO-Peshawar reported on the issue of smuggling from AJK:

… these entities, which are producing cigarettes in AJK, are registered with AJK revenue authorities and cannot be enforced with [the] *Pakistan FED structure. They take advantage of 100% price differences and sell cigarettes at cheap prices. Whereas now the tobacco consumers understand that these cheap cigarettes are not low in quality, hence* [they] *use them as legitimate sources of tobacco consumption.*

A regional FBR official

4.7 Political Hurdles in Tax Reforms

An example of weak political support is the tax potential of Green Leaf Threshing (GLT) Stage 3, where the tobacco leaves are processed before shipment to a cigarette manufacturing unit. Reforms in GLT duty rates can impact both the revenues and counterfeit production. The GLT reforms have always been contested through political representatives in the assembly. However, this year, through S.R.O.1149(I)/2018 dated September 18th, 2018, various reforms have been introduced, which include: the issuance of tax invoices for every sale; a ban on selling unmanufactured tobacco to a person not enlisted as an active taxpayer; supervision of sale at the GLT[6] ; and tax invoices to accompany transportation. It is ironic that there are other less expensive and more efficient mechanisms of compliance, such as e-tagging, CCTV surveillance and serial numbered FED stamps, but none of these received the approval from the board. A primary reason cited for that was: the tobacco manufacturers' influence on high echelons in government lobbying doesn't let these happen. This issue was even raised by all the field formations of the FBR and other stakeholders who were interviewed. For example, a health professional expressed his frustration during the interview as follows:

I tell you, this must not be the FBR's capacity issue. Some of its officials received training on e-tagging in Turkey, [a] *few years ago, they called* [it an] *expression of interest to establish such [a] system but* [it] *seems the proposal went in abeyance* [due to the lack of political will and follow-up].

A Ministry of Health official

The anti-tobacco stance of the above-mentioned health professional may have influenced his views, but even a pro-tobacco interviewee who was an active and influential cigarette distributor for one of the tobacco giants gave a highly enlightening statement:

The two-tier system in 2014 brought down cigarette sales to half. Many distributors, particularly those of the Philip Morris [company*], resigned. The company then took lead and gathered all distributors of both companies* [PTC and Philip Morris]. *Upon the recommendation from those at that meeting, one of the companies hired the husband of a farmer Federal Minister who facilitated a deal that resulted in a 30% decrease in tax rate for a period of two years… You know, we exceed all past sales records.*

Interview with a cigarette distributor

Besides being easily accessible to the tobacco companies, many top politicians have direct business stakes in legal as well as illicit tobacco production. Thus, they are watchful of every debate and reform so that these may not harm their business. One FBR official revealed:

A number of tobacco growers and GLT owners are in the local and national assemblies and would block any reform that may bring down their profits.

A regional FBR official

The Mardan Factor [an informal term used to refer to illicit cigarette producers located in KP] *has senators on its back. This is not* [a] *new phenomenon… It is there for seventy years now and nobody dares to dismantle it.*

Interview with a cigarette distributor

6. Field discussions revealed that earlier the system of supervised clearance was abandoned due to reports of rent-seeking among the staff posted at the manufacturing units and the non-cooperation of producers. Among FBR different officials have different takes on this. Literature held that such procedures as costly (WHO-Compliance and Tax Authority).

5

TOBACCO USE IN PAKISTAN

The present study, as mentioned previously, would be using the Household Integrated Income and Consumption Survey (HIICS) to calculate the price elasticities for tobacco consumption and for simulations to predict the impact of different tax regimes on consumption. Before we discuss those results in the sections to follow, a brief account of the HIICs data set and the trends shown in it vis-à-vis tobacco consumption are presented here. From 2004-2005 to 2014-2015, the Pakistan Bureau of Statistics (PBS) conducted the Pakistan Social and Living Standard Measurement (PSLM) survey yearly, combined with the Household Income and Expenditure Survey (HIES) in alternate years, collecting data on various socioeconomic indicators. In 2015-16, a design shift took place combining the PSLM and HIES surveys with the Family Budget Survey (FBS). This survey was named the Household Integrated Income and Consumption Survey (HIICS). The HIICS 2015-16 surveyed 24,238 households spread over 1,605 primary sampling units across the four provinces. The urban sample consisted of 16,155 households interviewed from 1,087 enumeration blocks. The remaining households, living in 518 villages, constituted the rural sample. Village and enumeration blocks are the primary sampling units in the rural and urban region, respectively. In addition to the household characteristics, the survey also gathered data on edible and non-edible consumption goods.

Pertaining to this study, data on various tobacco products was also collected. These products include cigarettes, chewed tobacco, pan, biri, betel leaves, betel nuts, and other tobacco items. The households were asked to report the total quantity consumed and the total expenditure made on these products in the month prior to the interview date. Unlike pan and biri, whose consumption is limited to certain geographic regions of the country, cigarettes and chewed tobacco are widely consumed across all the provinces, regions and income groups. Following the study's objective of estimating price elasticity across various dimensions, a meaningful disaggregate analysis can be formed by focusing only on cigarettes and chewed tobacco, leaving the other scarcely reported tobacco products. In Pakistan, the two most sold brands of cigarettes are Capstan and Gold Leaf, on which data has been collected separately in the HIICS. The remaining brands are collectively categorized as "others". Chewed tobacco, on the other hand, is a composite commodity, which also includes saunf, naswar, gutka. Table 3suggests that 45% of the HIICS households reported consuming tobacco in some form, whereas 26% had cigarettes and 13% had tobacco chewing members. The prevalence rates of cigarettes, chewed tobacco products and overall tobacco consumption are higher in rural areas. It may be mentioned here that the figures in Table 3represent the tobacco prevalence at the household level and not at the individual level. Any household reporting expenditure on tobacco was counted in.

Table 3:Household-Level Tobacco Prevalence across Regions in Pakistan (%)

Region	Indicator	Tobacco Products		
		Cigarettes	Chewed	Any
Pakistan	Prevalence Share in Expenditure	26.44 3.6 (5,837)	13.8 1.24 (4,111)	45.51 2.87 (10,835)
Rural	Prevalence Share in Expenditure	27.81 3.85 (2,071)	15.62 1.25 (1,743)	48.24 3 (4,123)
Urban	Prevalence Share in Expenditure	24.06 3.09 (3,766)	10.65 1.2 (2,368)	40.79 2.61 (6,712)

Notes:
- Number of households in parentheses.
- Expenditure shares averaged over households who bought at least one of the tobacco products.
- All values are weighed using sampling weights.
- ""Any" is all tobacco products consumed by the household, including but not restricted to cigarettes and chewed.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

The households allocate about 3% of their budget for purchasing tobacco products. In both the regions, this share is higher for cigarette consumption than for users of chewed tobacco owing to the latter's affordability (see Table 3). The budget shares for chewed tobacco are similar for both rural and urban households. In contrast, expenditure on cigarettes constitutes a higher budget share of rural households than urban households because of regional price variations and differences in rural and urban household earnings. Table 4is the province-wise analysis of households' tobacco consumption and budgetary allocations. Two-thirds of those from Balochistan consume tobacco in one form or another. Punjab has the lowest percentage of tobacco-consuming households (40%) among all provinces.

Khyber Pakhtunkhwa (KP) presents an intriguing scenario; it has the lowest prevalence of cigarette-smoking and the highest percentage of chewed tobacco-consuming households. A possible reason is the tradition of chewing naswar, which is popular among the largest ethnic group (Pashtuns) in the province. Balochistan has the highest percentage of cigarette consumers and the second highest for chewed tobacco, due to the presence of Pashtuns in the province. Punjab has the lowest percentage of chewed tobacco-consuming households while Sindh and KP have the highest and lowest shares of tobacco expenses in household budgets, respectively.

Table 5 reveals the prevalence and budgetary shares of tobacco products across the two income groups.

Table 4:Household-LevelTobacco Prevalence across Provinces in Pakistan(%)

Region	Indicator	Tobacco Products		
		Cigarettes	Chewed	Any
KP	Prevalence Share in Expenditure	10.24 1.76 (644)	43 1.13 (1,942)	49.86 1.36 (2,400)
Punjab	Prevalence Share in Expenditure	29.28 3.4 (2,857)	5.92 1.4 (504)	40.19 3.07 (3,762)
Sindh	Prevalence Share in Expenditure	27.05 4.52 (1,567)	14.76 1.36 (989)	52.57 3.34 (3,286)
Balochistan	Prevalence Share in Expenditure	29.43 2.98 (769)	37.77 0.91 (676)	66.27 2.12 (1,387)

Notes:
- Number of households in parentheses.
- Expenditure shares averaged over households who bought at least one of the tobacco products.
- All values are weighed using sampling weights.
- "Any" represents all tobacco products consumed by a household, including but not restricted to cigarettes and chewed.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

Clearly, the prevalence of smoking exceeds that of chewed tobacco among the households in the higher income group. Nonetheless, when it comes to the consumption of any form of tobacco, there are no significant variations across the two groups. The lower income group, however, apportions a higher share of their budget to tobacco consumption.

quintiles. The World Health Survey report for Pakistan corroborates the consumption pattern found in this study vis-à-vis income levels WHO (2003).

As evident from Figure 7a, regional cigarette consumption reveals different consumption patterns for rural and urban areas. Contrary to the trend in rural

Table 5:Household-Level Tobacco Prevalence across Income Groups in Pakistan(%)

Income Groups	Indicator	Tobacco Products		
		Cigarettes	Chewed	Any
Upper 40%	Prevalence	27.13	13.57	44.84
	Share in Expenditure	2.51	0.85	2.08
		2,422	1,564	4,158
Lower 60%	Prevalence	26.12	13.91	45.83
	Share in Expenditure	4.13	1.41	3.24
		3,415	2,547	6,677

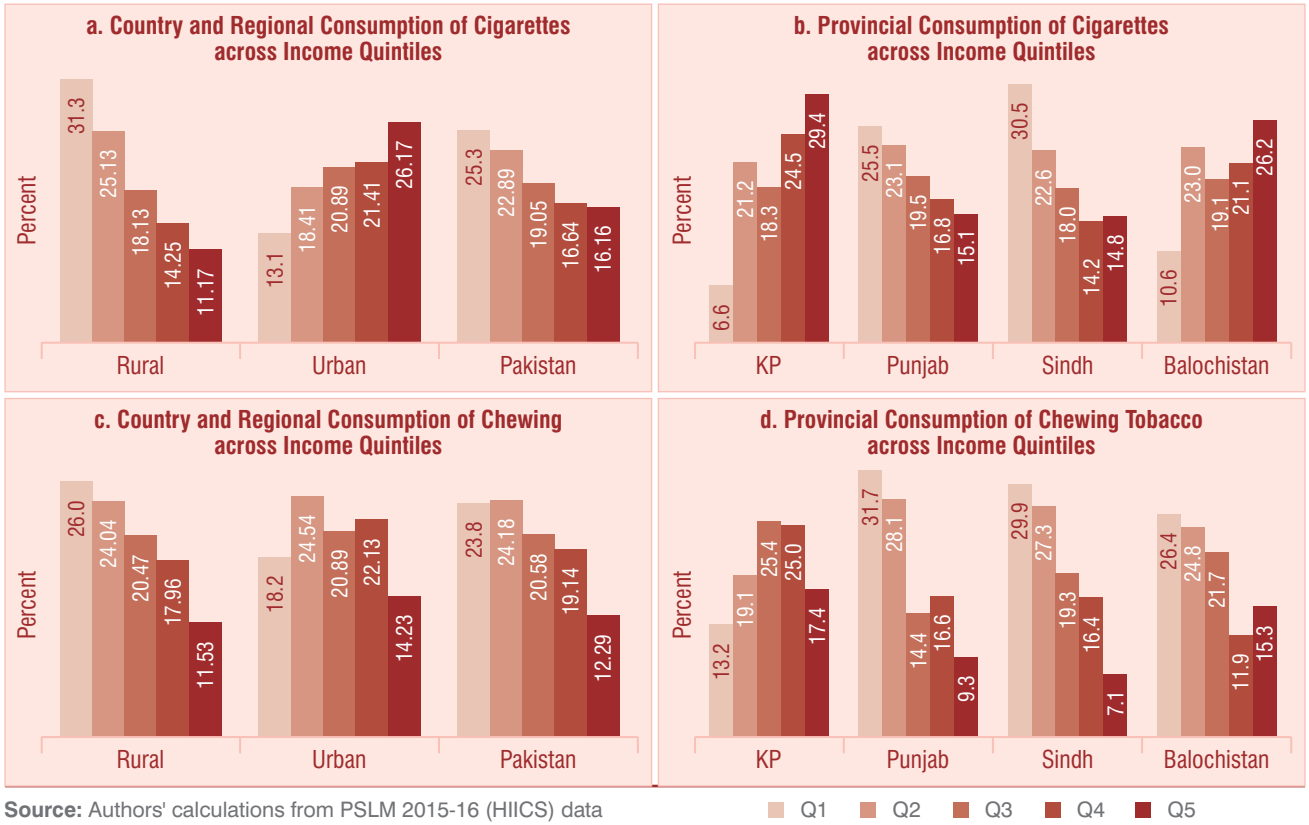
Notes:
- Number of households in parentheses.
- Expenditure shares averaged over households who bought at least one of the tobacco products.
- All values are weighed using sampling weights.
- "Any" represents all tobacco products consumed by the household, including but not restricted to cigarettes and chewed.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

Figure 7 demonstrates cigarette and chewed tobacco consumption across income quintiles by region and province. The two main tobacco products (cigarettes and chewed tobacco) are mostly consumed by the lower- and middle-income households, while the prevalence rate for these products, barring few exceptions, is lower among the highest income

areas, the prevalence rate in urban areas is highest in the upper income quintiles. For chewed tobacco, higher consumption is observed in the lower income quintiles in the rural areas. The urban areas, on the other hand, have a mixed distribution of consumers, yet we observe that the highest income group has the lowest proportion of tobacco chewers (Figure 7c).

Figure 7: Tobacco Consumption by Income Quintiles across Regions and Provinces



Source: Authors' calculations from PSLM 2015-16 (HIICS) data

The provincial graphs reveal interesting patterns of cigarette consumption across income quintiles (see Figure 7b). For instance, both Punjab and Sindh residents follow a similar pattern of cigarette consumption as is observed for Pakistan in general. However, in the case of KP, the pattern is reversed. Not only does the province have the lowest percentage of cigarette-consuming households (see Table 4), it also has the highest proportion of consumers in the top income quintiles. This could have important implications for the price elasticity of cigarettes in the province. A similar trend, though a less pronounced one, can also be observed for Balochistan. Households in the fourth- and fifth-income quintiles (the top 40%) in KP consume 54% of the total smoked cigarettes in the province, while the same income group smokes 47% of the total in Balochistan. Figure 7d exhibits the distribution of chewed tobacco-consuming households across income quintiles in the four provinces. Similar patterns are observed in all the provinces except for KP, which has a bell-shaped distribution, signifying the fact that chewed tobacco is consumed in significant proportions across all income groups. Nonetheless, in all the four provinces, more than 50% of the consuming households lie in the lower income group (the bottom 60%).

6

PRICE ELASTICITY ESTIMATIONS OF TOBACCO USE

Numerous studies have highlighted the existence of a strong relationship between tobacco taxation and tobacco consumption (Chaloupka, 1999). Existing literature shows that lower and middle-income countries exhibit greater response to taxation owing to higher price elasticities. This notion is discernible from the findings of Shang, Chaloupka, and Kostova (2013) according to which stringent tobacco control policies significantly result in reductions of tobacco consumption.

Price elasticity estimates tend to be vital indicators of tobacco demand. It varies across countries. For instance, the estimates of price elasticity of cigarette demand range between −0.25 to −0.50 in the case of high-income countries while estimates for low- and middle-income countries lie between −0.50 and −1.00 (Selvaraj, Srivastava, & Karan, 2015). This means that for every 10% increase in price (in real or inflation adjusted terms), consumption will decline by between 2 to 5% in high-income countries. For low- and middle-income countries, a price elasticity between -0.50 and -1.00 means that for every 10% increase in price, consumption will decline between 5 to 10%. This is partially supported by the findings of Kostova, Ross, Blecher, and Markowitz (2010)who utilized the Global Youth Tobacco Survey (GYTS) to conclude the price elasticity for conditional cigarette demand to be around -1.2 in lower-income countries. Likewise, Arunatilake (2002) estimated price elasticities of households with heterogeneous economic conditions in Sri Lanka. By employing a two-part demand model, the total price elasticity of demand was estimated to be -0.29 in the richest expenditure quintile, while it ranged between -0.55 and -0.64 for the remaining expenditure quintiles.

Karki, Pant, and Pande (2003)used both secondary and primary data to estimate price elasticities for Nepal. The study estimated the price elasticity for cigarettes and biri to be -0.882 and revealed greater sensitivity among young individuals to price changes. In a similar study in Bangladesh, utilizing the International Tobacco Control (ITC) wave 1 survey data, Nargis, Ruthbah, and Fong (2010) found total price elasticity of cigarette and biri consumption to be -0.43 and -0.64 respectively.John (2008) used the National Sample Survey Organization (NSSO) of India to estimate price elasticities using the Deaton (1997) method. The price elasticity estimates for cigarettes, biri and leaf tobacco were found to be ranging between -0.4 to -0.9. Guindon, Nandi, Chaloupka IV, and Jha (2011) concluded the cigarette demand to be unitary elastic. By utilizing a wide range of NSS surveys, the households from lower income groups were affirmed to be more sensitive to variations in cigarette prices. Another effort was made to estimate price elasticities across varying income groups in India.

In this regard, Selvaraj et al. (2015) employed the Deaton model and used data from nationally representative Consumer Expenditure Survey for 101,662 Indian households. The own-price elasticities for biri, cigarette, and leaf tobacco were revealed to be the highest among the poorest group and lowest for the richest

group. Similar exercises conducted in Pakistan have come up with varied estimates. Mushtaq et al. (2011) employed macro data to estimate price elasticity for cigarettes for Pakistan and found the long-run price elasticity of cigarette demand to be -1.17. On the other hand, Burki et al. (2013) employed the cointegration model and concluded the price elasticity for cigarette demand to be -0.58.

6.1 Methodology for Estimating Elasticities

Any inquiry in the effects of tobacco taxation and consumption requires estimating tobacco price elasticity. For Pakistan, as discussed earlier, there are two instances where efforts have been made to estimate these elasticities using macro data over time (see, Mushtaq et al. (2011) and Burki et al. (2013). These studies, however, do not take into consideration the heterogeneity in income and price elasticities across different income groups, regions (rural/urban), and provinces. Moreover, other characteristics that can potentially affect the tobacco demand are also not controlled for, thereby rendering the estimates biased. Any simulation (say, a tax increase) based on these estimates could, therefore, lead to misleading conclusions and, consequently, ineffective policies. Taking account of these shortcomings, the present study tried to estimate the price elasticities using micro data from the HIICS 2015-2016, conducted by Federal Bureau of Statistics.

A drawback of relying on cross-sectional surveys for estimating price elasticities of tobacco demand is the lack of data on prices for tobacco products. Although HIICS provides cross-sectional information on households' expenditures and consumed quantity of various tobacco products, direct information on prices is unavailable. Among approaches to this problem is the use of regional price data as used to construct consumer price indices. However, due to the unavailability of data on tobacco prices at all locations, this approach is deemed inapplicable in the present scenario (see, for instance, John (2008)). Another alternative is to use the unit values (expenditure/quantity) as prices. Unit value, however, could be plagued by measurement errors and quality variations. Nonetheless, it encompasses important information regarding prices, which could be utilized in estimating price elasticities. The present study, thus, utilizes the model developed by Deaton (1988) to estimate reliable price elasticities, assuming there are no variations in market price for a given tobacco product in a cluster (or Primary Sampling Unit) in the relevant period. In the following discussion, the Deaton model has been briefly explained.

Deaton's model (1988, 1997) is fairly intricate. To estimate price elasticities, Deaton utilized the two-equation system of budget shares and unit values. The household survey usually collects data on the total quantity consumed and total expenditures made on a certain product over a specified period. Dividing these expenditures by quantity provides the unit value, which may not necessarily be equal to the market price of the product. The reason being that the unit values accommodate information about not only the market price, but also the quality. So, for instance, wealthier households may tend to purchase premium quality products, which are expensive. Consequently, the reported unit values may be positively related to the total expenditures. In simpler terms, the expenditure made on a product would reflect the quantity, quality, and price, thereby providing a unit value that is a product of both market price and quality. Since the unit values are derived from the reported expenditures and quantities, the probability of measurement errors and their transfer to the unit values cannot be ignored. The Deaton model, therefore, attempts to correct these types of quality and measurement errors.

The HIICS collects data from clusters of households that are living nearby, termed as primary sampling units (PSUs). In rural areas, villages are treated as PSUs, whereas in urban regions, they are called enumeration blocks. Since these clusters depict small geographical areas, there is no substantive intracluster variation in market prices. The model is thus based on the premise that there are no variations within clusters. The implementation of the Deaton model is based on three distinct stages. In the first stage, the effects of household characteristics are purged from the budget shares and unit values. In the second stage, these unit values and budget shares are averaged over clusters (villages or enumeration blocks) and then used to estimate intercluster errors-in-variables regressions. In the last stage, applying the separability assumption, the quality and price effects are extricated. The symmetry restrictions are added to increase the precision of the parameters.

This methodology provides price elasticity estimates that are free from quality effects and measurement errors. Since the first stage of the Deaton model postulates purging the quality effects by removing the influence of household characteristics, the present study takes into consideration other household characteristics in addition to tobacco consumption and household expenditure. These include household size, mean household education, highest degree obtained by a member of the household, the household head's education, number of adults in the household, number of male members in the household, number of earners in the household, region of residence, and province.

6.2 Empirical Analysis of Elasticities

Before elaborating on the estimations, it is pertinent to discuss the unit values (expenditures divided by quantity) of the tobacco products (Table 6). If the unit values are treated as prices, then the price of cigarettes and chewed tobacco in Pakistan is PKR 1.91/stick and PKR 0.42/gm, respectively (Panel A in Table 6). Although the price of cigarettes is slightly higher in rural areas, the manufacturing factories are also established in this province. Sindh and Balochistan, being geographically distant from the cultivation regions, experience higher transportation costs and therefore higher tobacco product prices. The unit values are broadly similar for both income groups, with slightly higher values for the lower one (Panel D).

Table 6: Unit Values of Tobacco Products in Pakistan

Panel	Tobacco Products	
	Cigarette	Chewed
A. Pakistan	1.91	0.42
B. Regions		
Rural	1.94	0.40
Urban	1.84	0.47
C. Provinces		
KP	1.03	0.33
Punjab	1.86	0.44
Sindh	2.0	0.51
Balochistan	2.28	0.49
D. Income Groups:		
Upper 40%	1.87	0.39
Lower 60%	1.02	0.44

Notes: - Unit of measurement for cigarettes is number of sticks and for chewed tobacco is gram.
- All Unit values are in Pakistan Rupees.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

prices of chewed tobacco do not vary significantly across regions (Panel B). Cigarettes and chewed tobacco are found to be expensive in Balochistan and Sindh but cheapest in KP (Panel C in Table 6). Irrespective of consumption patterns, prices are lower for tobacco products in KP. This is probably because the raw materials (e.g., cultivation of tobacco crops) for cigarettes and chewed tobacco are mostly provided from this region. Consequently, most of the cigarette

Table 6provides the descriptive statistics of all control variables for the entire sample. Monthly expenditures are found to be similar across all the three groups; however, on average, households that consume chewed tobacco have a larger mean household size, lower mean and highest education, and fewer earners than the households that consume cigarettes. To examine if there are significant variations between provinces and across clusters in their rural areas, the

Table 7: Descriptive Statistics of the Control Variables at the Household Level

Variable	Total Households	Tobacco Consuming Households	
		Cigarette	Chewed Tobacco
Monthly expenditures (PKR)	38,004(31,359)	39,207(31,401)	34,869(21,961)
Mean household size	6.51(3.24)	6.95(3.46)	7.72(3.91)
Male ratio	0.81(0.81)	0.99(0.88)	0.95(0.90)
Adult ratio	2.95(2.01)	3.30(2.12)	3.20(2.13)
Mean education	4.73(3.63)	4.39(3.48)	3.06(2.71)
Mean maximum education	9.09(4.88)	8.65(4.82)	7.39(4.68)
Mean age of head	46.16(13.16)	47.55(12.61)	47.53(13.26)
Mean number of earners	1.70(1.37)	2.03(1.48)	1.90 (1.47)
Number of households	24,238	5,837	4,111

Notes: - Authors' calculations rom PSLM 2015-16 (HIICS) data

Source: Standard deviation values are shown in parentheses.

interprovincial differences in unit values are presented in the top panel of Table 6. For cigarettes, only Balochistan is found to have a significantly different unit value from the base category (KP in this case). Chewed tobacco, on the other hand, has significant variations in unit values for all provinces with respect to the omitted province.

The bottom panel of Table 8 looks for evidence as to whether unit values provide useful information about prices. In relatively small geographical units such as villages and enumeration blocks (i.e., intracluster variation approaches zero),prices usually do not vary over a short time period. Therefore, a larger share of variations should be coming from disparities between clusters in unit values (i.e., intercluster variability). This is proved by regressing the log of unit values on village (cluster) dummies and observing the value of R2. The ANOVA analysis in the bottom panel of Table 6 reports large R2 values for all provinces and confirms the claim that the total variations in unit values originate from interclusters variability. The intracluster variation, on the other hand, remains relatively low.

The results of the own-price elasticities for cigarettes and chewed tobacco as well as the cross-price elasticities are presented in Table 9, with their respective bootstrapped standard error estimates in parentheses. The own-price elasticities for the given tobacco products have negative signs and are statistically significant at a 1% level. The own-price elasticity of cigarettes is -1.06, suggesting that a 10%increase in the price of cigarettes in Pakistan will decrease its demand by almost the same percentage (i.e., 10.6%). This finding contrasts with that of Burki et al. (2013),which found the price elasticity of cigarettes to be –0.58.

One explanation for this high price elasticity comes from the distribution of cigarette-consuming households across income quintiles (see Figure 7). Since most consumers come from the lower income group, they are more responsive to price changes, as is evident from Table 8. The findings of Guindon et al. (2011) corroborate the results we reached. Existing literature also shows that a unitary elastic demand for cigarettes is not uncommon. This is evident from the findings of Mushtaq et al. (2011), who estimated the long-term price elasticity of cigarette demand to be -1.17 in Pakistan. Similarly, other studies for the South Asian

Table 8: Variation in Log of Unit Values of Tobacco Products

Regions	Cigarette			Chewed Tobacco		
	Log of Unit Values	ANOVA		Log of Unit Values	ANOVA	
		F	R^2		F	R^2
KP		2.09	0.5911		9.84	0.6677
Punjab	0.0290	1.93	0.3740	0.297***	1.79	0.7010
Sindh	0.0117	2.66	0.4657	0.488***	4.15	0.6249
Balochistan	0.214***	3.50	0.4548	0.419***	10.74	0.7322
Constant	0.199***			-1.265***		
Observations	5,837			4,111		

Notes: - *** p<0.01, ** p<0.05, * p<0.1

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

Table 9: Price Elasticity for Tobacco Products in Pakistan

Estimates	Cigarettes	Chewed
Unconstrained:		
Cigarettes	-1.067*** (0.115)	-0.036 (0.208)
Chewed Tobacco	0.056 (0.054)	0.559*** (0.154)
Symmetry Constrainet:		
Cigarettes	-1.069*** (0.115)	-0.027 (0.208)
Chewed Tobacco	0.103* (0.054)	-0.551*** (0.154)

Notes: - *** p<0.01, ** p<0.05, * p<0.1.
- Bootstrapped standard errors are in parentheses.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

region have reported similar price elasticities: see, for instance, Guindon et al. (2011) for India (−1.03); Del Carmen, Fuchs, and Genoni (2018) for Bangladesh (-1.3); and Karki et al. (2003) for Nepal (–0.88). From a policy analysis perspective, the introduction of a three-tiered tax structure by the government and the subsequent increase in cigarette sales¬ is also evidence of cigarettes' high responsiveness to price variations. This high value of price elasticity confirms that tax policies are effective in reducing cigarette demand by increasing cigarette prices.

The own-price elasticity for chewed tobacco in Pakistan is -0.55, suggesting that a 10% increase in the price of chewed tobacco products will decrease their demand by 5.5%. There are no comparable studies for these products, perhaps due to their aggregated nature. As far as the cross-price elasticities are concerned, they are economically small and statistically insignificant, indicating that these products are independent from each other. Table 10portrays the disaggregate analysis of symmetry constrained own-price elasticity estimates across regions, provinces, and income groups. The own-price elasticities of cigarette and chewed tobacco products are negative and significant for the rural region, while these estimates are insignificant for the urban region. This result is contrary to that achieved by John (2008),according to which own-price elasticity estimates for rural and urban households were similar. A plausible reason for this could be the difference between the prevalence of tobacco consumption in urban and rural regions. Since most urban consumers are from the higher income group, an increase in price may have a negligible effect on their demand. In contrast, the rural consumers, constrained by their budgets, would be forced to cut down the tobacco use in the face of a price hike. It is also pertinent to mention here that John (2008) excluded the non-consuming households from the analysis. Our study, nonetheless, includes these households, as we are also interested in examining the impact of price changes on the initiation of tobacco consumption.

On the provincial level, the own-price elasticity of cigarettes is insignificant for KP, while it is negative and significant for the remaining provinces. The descriptive analysis in Table 7reveals the consumption of cigarettes to be lower in KP compared to other provinces, with consuming households in the province predominantly belonging to the upper income group, substantiating the aforementioned result. As for the other three provinces, the cigarette price elasticity estimates are similar in sign, significance, and magnitude. The own-price elasticity of chewed tobacco products is negative and significant for KP and Balochistan, while it is insignificant for Punjab and Sindh. These estimates indicate differing demand for chewed tobacco products across provinces. The chewed tobacco products include an important commodity, "naswar," which is heavily consumed by the Pashtun ethnicity whose majority resides in KP and Balochistan. However, the overall aggregated nature of this commodity limits the potential for interpreting its elasticity fully. The price elasticity estimates for both the tobacco products are significant only in the case of the lower income group. This finding is in line with Guindon et al. (2011), where the households from lower economic strata were found to be more responsive to changes in tobacco prices.

Table 10: Disaggregate Analysis of Own-Price Elasticities

Panel	Tobacco Products	
	Cigarette	Chewed
B. Regions		
Rural	-1.159***(0.113)	-0.742***(0.216)
Urban	-0.710(0.568)	-0.391(0.221)
C. Provinces		
KP	-0.552(5.74	-0.972***(0.15)
Punjab	-1.20***(0.129)	1.082(1.76)
Sindh	-1.23***(0.301)	-0.347(0.551)
Balochistan	-1.11***(0.186)	-1.117***(0.289)
D. Income Groups:		
Upper 40%	0.099(26.67)	0.442(1.62)
Lower 60%	-1.135***(0.108)	-0.746***(0.171)

Notes: - *** p<0.01, ** p<0.05, * p<0.1.
- Bootstrapped standard errors in parentheses.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

7

SIMULATING TAX REGIMES' IMPACT ON TOBACCO OUTCOMES

This section focuses on assessing the impact of different cigarette tax regimes on tobacco-related outcomes such as cigarette consumption, tax revenue, and number of current and future smokers, as well as the number of smoking-related deaths. In this regard, we would utilize the price elasticity estimates of the preceding section. In the year 2017-18, a three-tier system was introduced[7] and remains in place despite strong opposition from the tobacco control advocates. Using the year 2017-18 as the baseline, Table 11 reports the model parameters and the baseline values for selected outcomes. The smoking prevalence rates are assumed to be 10.5% (among adults) and 3.3% (among youth) taken from GATS (2014) and GYTS (2012) respectively. The retail prices are gauged for each tier and the average retail price is weighed by the market shares of these tiers.

The average Federal Excise Duty (FED) and Value Added Tax (VAT) are calculated on the same lines. The VAT is assumed to be 17% of the value obtained after adding production price, FED, and retail margin. Value of VAT, therefore, varies with

Table 11: Model Parameters and Baseline Values (2017-18 as the Base Year)

Parameters	Value
Current smokers (million)	14.7
Premature deaths among current smokers (million)	7.3
Projected future smokers (million)	6.7
Premature deaths among future smokers (million)	3.3
Average retail price[1](PKR)	58.8
Average excise tax[2]	22.75
Excise tax as percentage of price	32%
Percentage among smokers who die prematurely	50%
Percentage that survives if they quit	70%
Elasticity	-1.069
Consumption (pack of 20) (billions)[3]	2.95
Excise revenue (billions)	67.23
Total tax revenue (billions)	92.42

Notes:
1. Average retail price is weighed by the market shares of tiers.
2. Excise tax is also weighed by the market shares of tiers.
3. Consumption here is assumed to be equivalent to reported total production of sticks in the year. This is done to rationalize the calculation for tax revenues. Actual consumption could be higher due to illicit trade.

Source: Authors' calculations from PSLM 2015-16 (HIICS) data

7. We used the FED rates assigned to the tiers when this system was introduced. These rates prevailed from July 1, 2018 to April 29, 2018, covering most of the fiscal year.

changes in the FED. It is pertinent to note that the consumption in this study is assumed to be equal to the reported cigarette production.[8] Using the average FED and VAT rates along with the reported production of sticks, the baseline revenue is found to be PKR 92.4 billion (see Table 12).

The current analysis simulates various types of tax regimes. The first regime (referred to as Projection A in Table 12) simulates the effect of the most recent changes in the FED rates for the three tiers. The Government of Pakistan, through S.R.O. 1150(I)/2018, revised these rates to be effective from September 18, 2018. The second scenario (Projection B in Table 12) simulates the impact of the two-tiered system that was effective prior to the three-tiered system. Various anti-tobacco activists and think tanks favor a two-tiered system and advocate for dismantling the third tier. The third scenario (Projection C in Table 12) equalizes the FED rate between the second and the third tier, essentially making it a two-tiered system. In this case, the FED rate in the first tier is kept unchanged, as it makes the average final cigarette price account include a tax of up to 70%. Since the cigarette manufacturers either absorb a significant portion of the tax increase (Cevik, 2018) or shift it to the tobacco farmers[9], the pass-through effect of a cigarette tax increases into the final price, which is 80%. The study, therefore, runs these simulations for a complete pass-through effect as well as when it is 80%. In either case, the market shares across tiers are assumed to be fixed in all simulations.

7.1 Projection A

The first simulation examines the impact of the recently revised FED rates on tax revenue and various other smoking-related outcomes. The revised rates are PKR 90.0, PKR 36.8, and PKR25.0 for the first, second and third tiers, respectively. Table 2 reports the projected values for both complete and 80% pass-through. For practical reasons, the focus here is solely on the outcomes obtained using a partial pass-through. The projection results reveal that the average FED and retail price (weighed by market shares of tiers) for a pack of 20 cigarettes is expected to increase to PKR 31.8 and PKR 67.7, respectively. Although the share of the FED in this average price is 47%, the share of total taxes (including VAT) increases to 62%. As a result, cigarette consumption is expected to reduce by 16% provided that the manufacturers do not transmit the complete tax burden; thus, given the current price increase, 1.2 million adult smokers would quit smoking.

Given the current smoking prevalence estimates, about 14 million adults in Pakistan are smokers in the baseline scenario. According to the estimates of the U.S. Department of Health and Human Services (2004), more than one in two lifetime smokers will die prematurely from smoking-induced diseases. Consequently, it can be postulated that 50% of long-term smokers will die prematurely owing to their smoking addiction. Using these assumptions, the present study projects that around 7 million adults in the current population will die prematurely because of smoking-related diseases. Given these baseline values, the current price increase simulates a reduction of 6% in smoking-related premature deaths.

This price increase, however, would be insufficient to deter a significant proportion of future smokers from taking up smoking. This is evident from Table 2, which shows that the reduction in premature deaths of future smokers is very small. On the other hand, the excise tax revenue will increase by PKR 11.62 billion, contrary to that attainable under the baseline tax rates. Yet, the increase in total tax revenue would be PKR 11.59 billion, suggesting a reduction in revenue collected through the VAT. A plausible explanation for this result derives from the fact that the price elasticity is quite high in the lower income group. In other words, the increase in revenue due to an increase in the VAT is outweighed by the reduction in revenue due to people quitting smoking. However, in the case of the FED, the revenue collected exceeds the reduction due to the quitting.

8. For this analysis, we assumed that there is no illicit trade.
9. During field interviews it was gathered that with tax increases, tobacco companies tend to purchase produce from the farmers at a lower price, thus shifting at least part of the increased tax burden to the cultivator. Some of the farmers interviewed were of the view that the government should reduce taxes on tobacco products to increase the probability that they would their produce at a better price.

7.2 Projection B

As previously mentioned, many citizens in the country strongly support reverting to the two-tiered system prevalent before the launch of the current tax regime. This option's feasibility in terms of revenue and other outcomes requires simulating this scenario. In Projection B, simulations are run using the two-tiered structure with FED values prevailing prior to the three-tiered system. The corresponding FED rates for the first and second tiers were PKR 74.1 and PKR 32.98 respectively. Using these rates, values for various outcomes are simulated and presented in Table 12.

For the 80%pass-through, the average retail price increases to PKR 71.8, and the excise tax accounts for approximately 50% of this price. Nonetheless, the share of total taxes in the price increases to 65% and thereby causes the cigarette consumption to fall by 23.6%. It is worth noting that this reduction is 7.5% higher compared to Projection A. This tax regime is expected to encourage 1.7 million adults to quit smoking and avert 600,000 deaths among current adult smokers. Compared to the three-tiered tax system, this structure will discourage 80,000 future smokers from cigarette consumption and will avert the premature deaths of 40,000 young smokers. The impact on excise tax collection is significantly larger compared to the current tax structure, with PKR 13.59 billion in additional excise tax revenue.

The decrease in the revenue collection through the VAT, however, reduces the overall tax collection to PKR 105.43 billion, leaving the total increase of around PKR 13 billion compared to the tax collection using baseline FED rates. Thus, the additional tax collection in the two-tiered system exceeds the amount collected under the newly revised FED rates in the three-tiered structure. The improved values for tax collections as well as for the public health outcomes establish the two-tiered system's superiority over the current three-tiered structure. Abolishing the three-tiered system is, therefore, a more plausible measure than increasing the FED rates in the three-tiered system.

Table 12: Model Simulations of Pass-through Effect of Different Tax Regimes

Variable	Projection A		Projection A		Projection A	
	100%	80%	100%	80%	100%	80%
Increased average cigarette tax	31.8	31.8	35.8	35.8	41	41.0
Increased average cigarette pack price	69.9	67.7	75	71.8	81.7	77.1
Excise tax as % of price*	39.3	47	43	49.8	45	53
Change in cigarette consumption (%)	20.2	16.2	29.5	23.6	41.6	33.3
Current Smokers:						
Smoking prevalence reduced (million)	1.5	1.2	2.2	1.7	3.0	2.4
Smoking prevalence reduced (%)	10	8.0	14.7	11.8	20.7	16.6
Premature deaths averted (million)	0.5	0.4	0.8	0.6	1.1	0.9
Premature deaths averted (%)	7.0	6.0	10.0	8.0	15.0	12.0
Future Smokers:						
Smoking prevalence reduced (million)	0.07	0.06	0.10	0.08	0.15	0.12
Premature deaths averted (million)	0.04	0.03	0.05	0.04	0.07	0.06
Premature deaths averted (%)	1.0	0.9	1.6	1.2	2.2	1.8
All Smokers (Current + Future):						
Smoking prevalence reduced (million)	1.6	1.25	2.3	1.8	3.2	2.6
Premature deaths averted (million)	0.6	0.5	0.8	0.7	1.2	0.9
Premature deaths averted (%)	5.0	4.0	8.0	6.0	11.0	9.0
Additional excise tax revenue (billion)	7.8	11.6	7.4	13.6	3.5	13.5
Change in excise tax revenue (%)	12.0	17.0	11.0	20.0	5.0	20.0
Additional total tax revenue (billion)	6.6	11.6	4.9	13.0	-1.2	11.8
Change in total tax revenue	7.0	12.5	5.3	14.1	-1.3	12.7
New total revenue (billion)	99.0	104	97.3	105.4	91.2	104.2

Notes: * The share is calculated by first dividing the excise tax in each tier by the corresponding average price in that tier and then these are weighted by the market shares of these tiers.

7.3 Projection C

Since the two-tiered structure's superiority has been validated, the study intends to simulate the impact of the recently revised FED rates in a two tiered-structure instead of a three-tiered system. This is done by increasing the FED rate of the third tier from PKR 25 to the second tier's FED rate of PKR 36.8, effectively converting the three tiers into two tiers. It is essentially assumed that the consumers from the first and third tier will not shift across tiers (tier one consumers will be in tier two now) and hence the market share will remain constant. The average FED will now increase to PKR 40.95, resulting in an average retail price of PKR77.1. The FED share in the price will be 53% and the share of total taxes in the retail price will be 68.5%, which is very close to the 70% recommended by the WHO. The resultant decrease in cigarette consumption will be about 33%, which is 10% higher than the previous scenario (Projection B in Table 12).

As for the smoking-related outcomes, the new scenario is expected to reduce the number of adult smokers by 2.4 million, premature deaths in adult smokers by nearly 860,000 and is likely to discourage about 120,000 potential young smokers from cigarette consumption. The total reduction in the number of smokers is projected to be around 2.6 million, which is significantly higher than the previous two projections. Similar results are concluded for premature deaths among adult and future smokers. The increase in additional excise tax revenue is very close to the one obtained in Projection B (See Table 12). However, the increase in total tax revenue is about PKR 1.25 billion less than the previous projection.

Overall, the three projections, with a partial pass-through effect, show improvements in tax revenues and public health outcomes. Projections in the two-tiered system show significant improvements over the three-tiered system. Although the total tax collections do not significantly differ between the two variants of the two-tiered tax system scenario, in one, we see a significant reduction in adult and future smokers as well as in premature deaths. The decision is thus contingent on the importance assigned to the respective outcomes, i.e., the tax collection or public health outcomes. If one can put value on human life or health, the total gain achieved will surpass the slight loss of revenue. This finding accentuates the need for estimating the health cost attributable to tobacco consumption to get accurate estimates for the assessment of various tax regimes.

8

CONCLUSIONS AND RECOMMENDATIONS

Tobacco having health costs is as much a reality as is the need for generating revenue for a country. This is the dilemma when we talk about tobacco taxation. Revenue generation remains the priority in most countries and Pakistan is no exception. Different tax regimes have been introduced at different times in the country, some under the pressure of the health advocates and others under the influence of the tobacco lobby, but the prime aim remains revenue generation.

The present study is an economic analysis of tobacco taxation and consumption in Pakistan. A political economy analysis of tobacco taxation and administration was conducted to understand its functioning, or lack of it. Using micro level data, HIICS 2015-2016, the study estimated price and income elasticities and conducted a heterogeneous analysis with respect to income, province and region. These estimates advance the understanding of tobacco tax changes' impacts on different populations, and also provide inputs for the simulation modelling. The effect of tax changes on various outcomes vis-à-vis demand for cigarettes, calculated through simulation modelling, provides a basis for recommending policies related to tax structure and administrative reforms to the Federal Board of Revenue.

The study found that while taxing the tobacco production in the country, health is of no concern and the FBR's success is gauged against the set revenue targets. Furthermore, the FBR also exhibits severe capacity and resource constraints to establish efficient monitoring, enforcement and compliance mechanism. This results in tax administration operating through sectoral field formation, where a single mid-career official is responsible for all dimensions of tax revenue, including collection, monitoring, auditing, and compliance, all of which he can comfortably ignore if the collections meet the set revenue targets. With its existing institutional capacity and low level of political support, the FBR also cannot withstand the lobbying of the tobacco companies even when willing to do something that can curb the tobacco menace. Furthermore, with the FBR's small tax base, the tobacco industry more often than not emerges as its savior in times when it is in need to show that revenue targets are met.

The own-price elasticities of tobacco products were found to be negative and significant for the rural region, while in the urban region they were insignificant. This could be because of the prevailing income levels in each region. The study found the price elasticity to be negative and significant for the lower income households but for the higher ones, it was inelastic. Since the average income in urban areas was visibly higher than the rural ones, this disparity is understandable. Since most of the urban consumers belong to the higher income group and tobacco expenditure constitutes a small fraction of their budget, the increase in tobacco price may have a negligible effect on their demand. Provincial differences are also found, where KP is the only province where own-price elasticity of cigarettes is insignificant, while for others it is negative and significant.

The simulation exercise through the three projections, with a partial pass-through

effect, projects scenarios to achieve improvements in tax revenues and public health outcomes. Projections in the two-tiered system show significant improvements over the three-tiered system. The third projection, which effectively converts the three tiers into two tiers but with an increased tax rate, results in improving health outcomes without affecting the revenue much. The decision is mainly reliant on the importance attributed to the outcomes for tax collection and public health.

In the light of this study's findings, the following policy suggestions can be prescribed:

Severe capacity constraints in the country's tax administration are resulting in a thin tax base, massive tax evasion and an overall inefficient tax system. Within its narrow fiscal space, the government has to look towards the tobacco industry for tax revenue and cannot afford to squeeze it too much. With an overall improvement in enforcement, the government would be in a better position to realize that a FED on tobacco is not a VAT and its primary purpose is to discourage tobacco consumption instead of revenue generation. However, until such arealization is reached, various other reforms need to be introduced. These include initiating programs that use technological solutions for monitoring, enforcement, and compliance. Strategies should also be devised to break the political backing behind the tobacco industry and to build a mechanism of social compliance, including discouraging tax evasion, a public demand for tax invoices, and a refusal to purchase smuggled goods. Until these issues are addressed, the FBR's performance will remain sub-optimal.

The current three-tiered tax structure, introduced on the pretext of controlling illicit trade, has resulted in 'illicit profiteering' for the tobacco companies. Tinkering with the retail price of the tobacco products, they increased their profit to tax ratios. Ideally, a single-tier tax structure should be in place, which would lower the administrative effort required for implementation, give fewer incentives to tobacco companies for tweaking prices, and increase the tax rate overall, but it entails a high probability of enhancing the illicit trade, thus affecting both health and revenue outcomes. In this scenario, a two-tiered tax structure with increased tax rates is recommended.

Revenue generation from tobacco should be linked to the health cost incurred because of tobacco consumption. Any revenue generated is offset if it leads to mounting health costs because of increased tobacco consumption.

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