Reducing the affordability of tobacco products in Pakistan: A political economy analysis

By

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This thesis is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy. It has been composed by myself and has not been submitted in any previous application for any degree.

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Conference publications

1. Masud H, Oyebode O (2020*). Implementation of Article 6 of the WHO Framework Convention on Tobacco Control in a tobacco dependent economy: Challenges and the way forward.* The 5th International Conference of the European Network for Smoking and Tobacco Prevention. Tob. Prev. Cessation 2020;6(Supplement):A72 DOI: 10.18332/tpc/128067
2. Masud H, Oyebode O (2020). *Political economy of tobacco taxation in Pakistan: A missing link in understanding FCTC implementation*. The 5th International Conference of the European Network for Smoking and Tobacco Prevention. Tob. Prev. Cessation 2020; 6(Supplement):A8 DOI: https://doi.org/10.18332/tpc/128287
3. Masud H, Oyebode O (2020). Introducing tobacco taxation and pricing reforms in a tobacco growing country: a political economy analysis. Society for Research on Nicotine and Tobacco (SRNT) Europe 20th Conference – Online 17th-18th September 2020. SRNT Europe.
4. Masud H, Oyebode O (2019). *Price responsiveness of cigarette consumption among Pakistani adults: evidence from global adult tobacco use survey (GATS).* Joint European Congress of Epidemiology & SSM Annual Scientific Meeting, 4th-6th Sep, 2019, University College Cork, Ireland.

List of publications during the PhD duration (other than the PhD research)

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2. Sekalala S, Masud H, Bosco RT (2020). *Human rights mechanisms for anti-corruption, transparency and accountability: enabling the right to health*; Global Health Action, 13:sup1, 1699343, DOI: 10.1080/16549716.2019.1699343
3. Saeed A, Batool I, Masud H, Qureshi N (2020). *Incidence of micro detachments after successful scleral bukling surgery for macula- off retinal detachments.* Pakistan Armed Forces Medical Journal, *70*(2), 535-39.
4. Saeed I, Masud H, Pervaiz F, Azam N, Niazi ZK, Humma Z, Khan F, Hammed A (2019). *Preparedness of general practitioners in 'tobacco cessation counselling/treatment' in twin cities-A cross sectional study*; Pakistan Armed Forces Medical Journal, 2019; 69 (2): 200-204.
5. Masud H, Oyebode O (2018). *Inequalities in smoking prevalence: a missed opportunity for tobacco control in Pakistan*; Journal of Public Health, 40(2): 271–278
6. Shaheen K, Oyebode O, Masud H (2018). *Experiences of young smokers in quitting smoking in twin cities of Pakistan: a phenomenological study*, BMC Public Health; 18:466. https:doi.org/l 0.1186/s12889-018-5388-7
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9. Tanveer T, Masud H, Butt ZA (2018). *Are people getting quality thalassemia care in twin cities of Pakistan? A comparison with international standards*, International Journal for Quality in Health Care; 30(3). DOI: 10.1093/intqhc/mzx198
10. Javaid A, Ullah I, Masud H et al. (2017) Predictors of poor treatment outcomes in multi-drug resistant tuberculosis patients: A retrospective cohort study; Clinical Microbiology and Infection DOI: http://dx.doi.org/10.1016/j.cmi.2017.09.012

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1. Shaheen K, **Masud H** (2018).Experiences of young smokers in quitting smoking in twin cities of Pakistan: a phenomenological study. 17th World Conference on Tobacco or Health, 7th-9th March 2018, Cape Town, South Africa.
2. Gillani R, **Masud H** (2017). *Journey of Mexico for Social Protection: Lessons for Pakistan*, 8th Annual Public Health Scientific Conference 2017. 6th-7th December 2017, Health Services Academy, Islamabad, Pakistan.
3. Tanveer T, **Masud H** (2017), *Thalassemia causing financial burden on already poor people*, 8th Annual Public Health Scientific Conference 2017. 6th-7th December 2017, Health Services Academy, Islamabad, Pakistan.

Abstract

Background

Tobacco taxation is one of the most effective yet underused intervention to control tobacco use globally. Several LMICs including Pakistan have failed over the years to implement effective taxation measures for tobacco products to control its use and reduce harms. One of the reasons for this underutilisation is the poorly understood political economy of tobacco taxation in the LMICs context. This thesis aims to present a political economy analysis for introducing tobacco taxation and pricing policy (TTPP) reforms in Pakistan to achieve public health objectives.

Methods

A mixed-methods approach was used as follows: 1) a qualitative documents analysis of the regulatory framework for tobacco taxation, 2) econometric analysis to estimate the price elasticity and building econometric simulation models to predict fiscal and public health outcomes, 3) qualitative study based on in-depth interviews with key stakeholders in TTPP arena, and 4) a mixed methods analytical integration to ascertain policy, practice and research implications.

Results

Study component 1 highlighted that Pakistan does not have a clear strategy on using tobacco taxation as a public health tool in the country. Existing TTPP face dual issues of flawed structure and poor administration translating into highly affordable tobacco products and low revenues. Study component 2 found negative price elasticity estimates for Pakistani adults (n=7831), indicating an increase in the price will decrease consumption. It was found that an increase in the price of low-priced cigarettes would have a greater impact on smoking prevalence and daily consumption by smokers. Study component 3 predicted positive fiscal and public health outcomes for a 10% annual increase in taxation even in expanding illicit market activity. Study component 4 identified the position-power dynamics of key stakeholders and revealed the key facilitators and challenges for introducing TTPP reforms in the country. Mixed methods analytical integration found the best-fit taxation policy considering the political economy scenario in the country will be a long-term commitment to slowly and regularly increase excise duty on tobacco products along with control of illicit market activity.

Conclusions

The findings provide a detailed understanding of the political economy of tobacco taxation in Pakistan, which can be used for designing future policies.

List of Abbreviations

AC	Academicians/ public health practitioners/researchers
CI	Confidence Interval
CS	Civil society
DFID	Department for International Development
FAT	Framework Analysis Technique
FBR	Federal Board of Revenue
FCTC	Framework Convention on Tobacco Control
FED	Federal Excise Duty
GATS	Global Adults Tobacco use Survey
GDP	Gross Domestic Product
GLT	Green Leaf Threshing Unit
GST	General Sales Tax
IRD	Inland Revenue Department
IREN	Inland Revenue Enforcement Network
KPK	Khyber Pakhtunkhwa
LMICs	Low and Middle Income Countries
MNCs	Multinational Companies
MOH	Ministry of Health
NCDs	Non-communicable diseases
PBS	Pakistan Bureau of Statistics
PE	Price elasticity
PEA	Political Economy Analysis
PKR	Pakistani Rupees
PTB	Pakistan Tobacco Board
QDA	Qualitative Document Analysis

SDGs	Sustainable Development Goals
SES	Socioeconomic status
SLT	Smokeless tobacco
TCC	Tobacco Control Cell
TG	Tobacco Growers
TI	Tobacco Industry
TTPP	Tobacco Taxation and Pricing Policy
WHO	World Health Organization
WB	World Bank

1. INTRODUCTION

This chapter gives an overview of the thesis and thesis structure. The first section introduces the research problem and states the main research questions and research objectives. The next section introduces the conceptual framework that has informed the study followed by the chosen methodology and rationale behind it. The final section gives an overview of the study setting, Pakistan to help place the findings in context.

1.1. Introduction to the research problem

Tobacco use is one of the leading causes of morbidity and mortality globally (Reitsma et al., 2021). If considerable actions are not taken, it will kill over one billion people in the 21st century with low-and middle-income countries (LMICs) bearing 84% of this death toll (Reitsma et al., 2021; Tobacco Atlas, 2015; WHO, 2011). The global recognition of tobacco harms paved the way for the first international public health treaty, the WHO Framework Convention on Tobacco Control (FCTC) which entered into force in 2005, and which legally binds nations to take actions for reducing tobacco use. Global targets for decreasing tobacco use (defined as a 30% relative reduction in the prevalence of current tobacco use in persons aged 15+ years by 2025) were set in 2013 as part of the WHO's global action plan for the prevention and control of non-communicable diseases (WHO, 2013b). Countries are actively working towards this both as part of their legal obligations under the FCTC and as part of the global development agenda under the Sustainable Development Goal (SDG) 3. Evidence-based interventions (raising taxes, ban on advertisements and promotions, pictorial health warnings, creating awareness about harms, smoke-free policies, promoting cessation, and decreasing the availability of tobacco products) are available to control tobacco use and have reduced smoking prevalence globally by 27.5% among males and 37.7% among females between 1990 and 2019 (Reitsma et al., 2021). However, the number of smokers has increased globally from 0.99 billion in 1990 to 1.14 billion in 2019 due to population growth (Reitsma et al., 2021). Moreover, the magnitude of progress on tobacco control varies across countries

depending on the context, choice of interventions and the way these interventions are implemented. While some countries like New Zealand, England, Australia, and Finland are effectively using these interventions and working towards the tobacco end game for creating tobacco-free generations, many LMICs like Pakistan are struggling to make effective use of these interventions (Králíková & Kmeťová, 2013; Malone, 2016; Masud, Gill, Sekalala & Oyebode, 2020). To further add to the adversity, the number of smokers continue to increase in these countries with uncontrolled population growth (Reitsma et al., 2021).

Reducing tobacco affordability using taxation is one of the most effective strategies to control tobacco use. However, a recent global assessment of tobacco taxation policies, the tobacco tax scorecard showed that countries are failing to effectively use tobacco taxation as a tobacco control tool with a global average score of 2.07 on a five-point scale (Chaloupka et al., 2020). Pakistan scored 0.88 out of 5 indicating that it is failing to effectively tax tobacco in the country to reduce tobacco use. This is happening despite the legal obligations of the country and the availability of evidence-based strategies, technical guidelines, and benchmarks on tobacco taxation. Evidence from the studies of the World Bank (WB) and the UK's former Department for International Development (DFID) show that mere availability of technically sound solutions is not enough for effective policy implementation, countries' political economy plays a critical role in the implementation of interventions (DFID, 2009; Independent Evaluation Group, 2016; Whaites, 2017). Bump and colleagues (2009) in a WB discussion paper emphasised analysing the national political economy to better implement tobacco control interventions as the medical and epidemiological approaches alone have proven to be insufficient for this purpose. However, there is little literature available on how the political economy affects tobacco control in different contexts and how countries can design strategies accordingly (Bump & Reich, 2013). This thesis attempts to understand the political economy context of tobacco taxation in Pakistan, a LMIC, and studies the facilitators and challenges in introducing taxation reforms for public health purposes. This further makes practical recommendations for introducing tobacco taxation reforms in the country and identifies the 'best-fit' policy. This research will advance the literature on the political economy of

tobacco control and will also have implications for policy and practice for LMICs like Pakistan.

1.2. Research questions and objectives

This thesis aims to present a policy analysis for introducing tobacco taxation and pricing policy (TTPP) reforms in Pakistan to achieve public health objectives. The specific research questions are:

1. What could be the optimal (best-fit) TTPP for Pakistan, given the political economy of the country?
2. What are the challenges and facilitators in introducing a TTPP reform in Pakistan to achieve the objective of reducing tobacco consumption?

These research questions are answered in four steps (objectives):

1. To critically evaluate the current TTPP in Pakistan against the FCTC guidelines and the WHO recommended best practices. (Study component 1)

2. To estimate how people respond to the increasing price of cigarettes in the country, and to build econometric models to assess the impact of different taxation policies on cigarette price, consumption, and revenues. (Study component 2 and 3)

3. To assess the political feasibility of introducing a taxation reform for cigarettes and other tobacco products in Pakistan. (Study component 4)

4. To integrate findings from all study components to identify the optimal TTPP for Pakistan. (Discussion).

1.3. Thesis structure

This thesis begins with an introductory chapter followed by a literature review. Following on from that, the main body of the thesis comprises four original research studies: a policy

document analysis, two econometric studies, and a qualitative study including stakeholder analysis. An individual chapter is dedicated to each of these studies reporting their research objectives, methods, results, and discussion of the main findings including strengths and limitations. Findings from these four studies are then discussed together using analytical integration translating into research, policy and practice implications of the study. A brief description of each chapter is given in table 1.1.

Table 1-1. Thesis structure

Chapter No.	Chapter title	Methods	Summary of contents
1	Introduction	-	1. Overview of thesis 2. Conceptual framework 3. Methods and justifications 4. Research setting
2	Literature review	Non-systematic literature review	Challenges in using taxation as a tool to control tobacco use
3	Critical analysis of TTPP in Pakistan	Qualitative documents analysis	Critical analysis of TTPP against the international standards and impact of such policies on price and affordability of tobacco products
4	Estimating consumers' response to cigarette price	Econometric study 1- Secondary data analysis using Cragg's two-part model to estimate price elasticity	Estimation of price elasticity of demand
5	Econometric simulation modelling	Econometric study 2- Simulation modelling and single cohort model	Simulation modelling to predict the impact of different taxation regimens on cigarette consumption, smoking prevalence, smoking-attributable deaths and tax revenues
6	Political feasibility of introducing TTPP reforms in Pakistan	Qualitative study	Qualitative study to understand policy actors' perspectives on introducing TTPP reforms in Pakistan including the stakeholder analysis
7	Discussion and Conclusion	Analytical integration of findings	1. Reflective summary 2. Summary of key findings 3. Analytical integration and discussion 4. Implications 5. Strengths and limitations 6. Conclusions

1.4. Why this topic?

This study came from my own interest, experiences and from the urgent need of LMICs like Pakistan where I was born and where my family lives. Tobacco use is quite high in these countries with 84% of world smokers living in LMICs (WHO, 2017b). Reducing tobacco use in LMICs requires an extensive implementation of tobacco control interventions targeting uptake of tobacco use by new users and facilitating quitting by existing users. Such evidence-based interventions are available with clear benchmarks and implementation guidelines. However, there is a need to understand the political and economic drivers and incentives which may hinder or facilitate the adoption of such policies in LMICs. This study is aimed at exploring such factors for the adoption of TTPP reforms in Pakistan in order to find the best-fit policy and strategies for the country.

I am personally interested in the area of tobacco control research in Pakistan as I had witnessed my father, a chronic smoker, struggling to breathe every day for more than a decade. He had been suffering from emphysema and chronic bronchitis. He could not even walk and perform normal daily tasks. Despite his debilitating condition, he smoked till the last day of his life. He was well aware of the harmful effects of cigarettes but could not quit. I belong to a middle-class family in Pakistan; with nine siblings, we have lived hand to mouth. I have seen him not eating fruit (which were expensive) or buying nice clothes for himself as he wanted to spend the limited income on other family members' needs. I am pretty sure my father would have quit smoking a long time ago if it was expensive. I have seen him shifting to cheaper brands when his preferred cigarettes got expensive. I strongly believe, this is not just my story, it is the story of many other homes in Pakistan, with almost half of households having at least one smoker in it (Masud & Oyebode, 2017). I realised this issue when I moved to Sweden for my master's degree. Most of my peers from Pakistan, India and Bangladesh quit smoking within a few days after their arrival there. The only reason was the high price and poor affordability of cigarettes for them. I wondered why cigarettes are so affordable in Pakistan. I wish that we can make them more expensive in Pakistan and contribute to saving many lives and support people to live healthy life.

1.5. Epistemology and conceptual framework

This thesis used the 'political economy analysis (PEA)' both as the conceptual and theoretical framework to answer the research questions. Political economy brings two fields of inquiry (politics and economics) together to look for solutions to specific problems, in this case, a public health problem. PEA is an analytical tool and a way of thinking that focuses on understanding how political and economic processes interact in a given sector or society and investigates how these interactions influence policy choices (OXFAM, 2013). A popular definition of PEA is the study of *interrelationships of political and economic processes, dynamics of wealth and power distribution between different groups, and how such relationships are created, sustained, and transformed over time* (Corduneanu-Huci, Hamilton, & Ferrer, 2013). PEA examines how individuals, groups, or organizations use resources to influence political processes to generate a policy environment that benefits them. It is particularly interested in understanding who gains or who loses from specific policies and how different actors influence policies to protect their interests (Copestake & Williams, 2014). It helps to identify both the challenges and facilitators of change in a policy environment and enlighten on the more context-specific 'best fit' policies instead of the 'best practice' models (Copestake & Williams, 2014).

PEA has epistemological roots in political science and has increasingly been used in the developmental sector to understand poor outcomes in the donor-supported developmental programmes. International organisations like the United States Agency for International Development (USAID), the UK's DFID, and the Swedish International Development Cooperation Agency (SIDA) have repeatedly used this approach in understanding reasons for poor outcomes of their aid, and to develop strategies for aid effectiveness (Corduneanu-Huci et al., 2013; DFID, 2009; Independent Evaluation Group, 2016; OXFAM, 2013; Whaites, 2017).

PEA can be done in multiple ways depending on the purpose behind it. There are multiple and often similar frameworks available for doing PEA developed by different developmental organizations (Edelmann, 2009). The simplest tool for PEA is doing a

network mapping or stakeholder analysis which focuses on stakeholders and their power dynamics relative to a policy (Copestake & Williams, 2014). Another tool is the 3-i framework, which holds that policy choices are influenced by stakeholders' interests and ideas as well as the institutions (Hall & Thelen, 1997). International developmental agencies have developed further frameworks, for example, DFID developed "drivers of change", which is more suitable for the macro-policy level and focuses on incentives and policy bargaining process, while the WB's problem-driven PEA framework is more suitable for the sector-level policy understanding.

This study adapted the World Bank's problem-driven PEA framework developed by Fritz et al (2014). Figure 1.1 explains the four steps of the PEA, namely: identification of the policy issue, technical and economic analysis of policy solutions, analysis of political economy drivers, and policy implications.

The first step is to *identify a policy issue that needs a solution*. According to Fritz et al (2014), this policy issue is often a specific development challenge where technical analysis or engagement has failed on its own to achieve the goals. The use of taxation to control tobacco use in Pakistan is one such challenge where progress has not been made despite legal liabilities and the existence of technically sound solutions and guidelines. Identification of the problem involves, defining the problem and its manifestations. Chapter 3 of this thesis, *critical analysis of TTPP in Pakistan,* focuses on this step and explores the current taxation regimen for tobacco products, legal environment, policies, and their implementation in detail to make a record of what problem(s) exist.

Step 2 of the framework calls for technical or economic analysis to find out different policy options. Chapter 4 of this thesis uses econometric analysis to estimate the price responsiveness of consumers and chapter 5 uses this data in simulation models to predict the impact of different taxation regimens on tax revenues, tobacco consumption, tobacco use prevalence, and tobacco-related mortality. Fritz et al (2014) argue that these solutions are technically sound but may not be feasible in practice. PEA demands a reconsideration

of these policy options in the context of political economy drivers to come up with technically and politically feasible policy solutions.

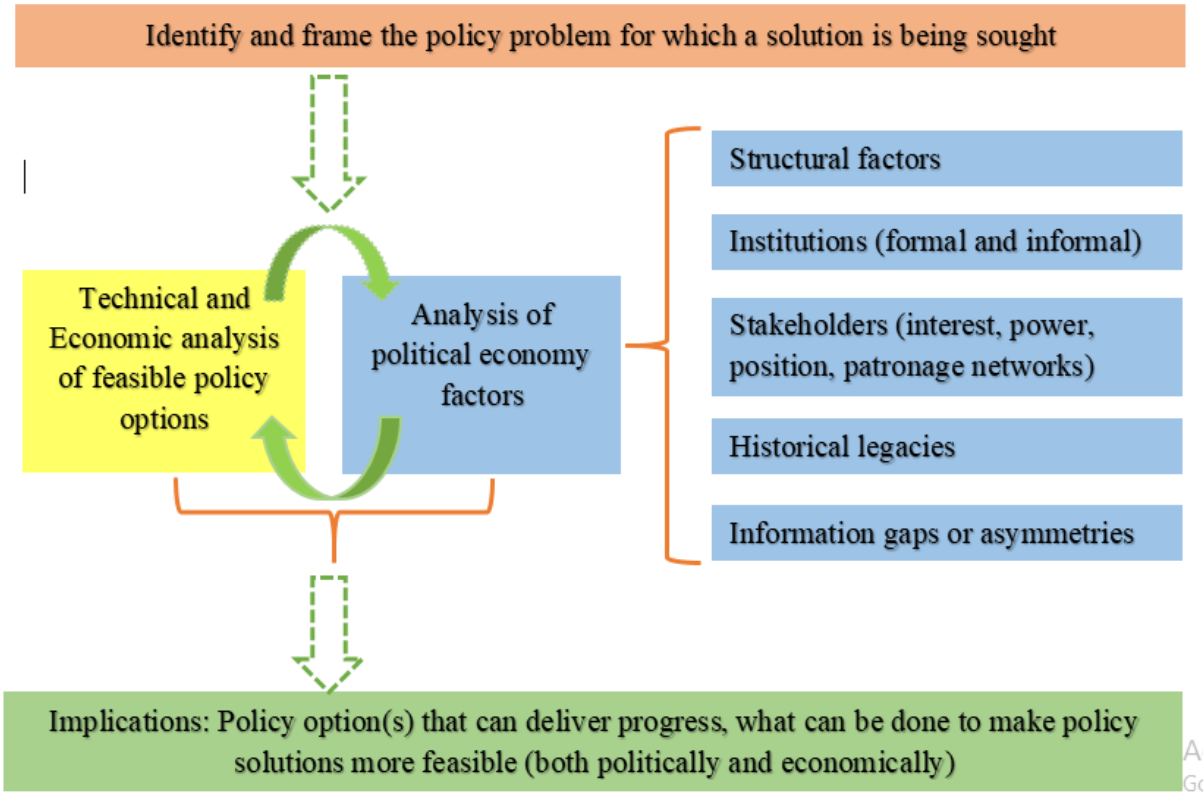

Figure 1-1. Conceptual framework of political economy analysis
Adapted from the World Bank's problem-driven PEA framework (Fritz, Levy, and Ort; 2014)

Step 3 of the framework involves an in-depth analysis of the political economy drivers to understand why the problem exists and which policy options (step 2) can be feasible considering the specific policy context. Chapter 6 uses stakeholder analysis and a qualitative study to analyse political economy drivers facilitating or hindering tobacco taxation reform in Pakistan. Fritz et al (2014) recommend that this step should essentially cover the analysis of three dimensions: 1) structural factors, 2) existing institutions, and 3) stakeholders' interests and constellations. They also highlighted the importance of historical legacies which can influence stakeholders' current views and expectations. Bump and Reich (2013) in their work on the political economy of tobacco use stressed

exploring information asymmetries in addition to other political economy drivers. For the purpose of this thesis, all these five factors were considered as part of PEA. As shown in figure 1-1, all of these factors are interdependent. The operational definitions and descriptions of these factors are given in table 1-2. PEA guided the data collection, analysis and interpretation in chapter 6. It also helped in forming the conceptual basis of discussions in chapters 3-7.

Step 2 and step 3 feed into each other and together inform the 4th and final step of determining policy implications. This implies an identification of the ways forward, including analytical recommendations on how to initiate change and identify the potential entry points to engage different stakeholders. Chapters 7 covers the fourth step of the PEA to collate findings and identify ways forward.

Table 1-2. Variables in the political economy analysis

Variables	Description
Information problems and asymmetries	Information problems refer to situations where some or all of the actors in a decision-making process do not have perfect knowledge and/or when one actor has more knowledge than the other (asymmetric information). In these situations, actors who know more have significant advantages over others and, hence, have high bargaining power. These actors have interests in conserving and promoting such discrepancies. An exploration of information problems involves how policy actors understand tobacco use, its harms, and the effectiveness of taxation as a tobacco control measure. A deeper understanding of how their opinions are formed focusing on sources and distribution of information is also needed.
Structural variables	These are the broader factors at the country level which influence any policy. Although theoretically subject to change, these factors are beyond the direct control of actors involved in the concerned policy environment. For example, a country's geography, climate, resources, demography, poverty burden, inequities, etc. The policy reforms need to consider and adapt to these factors both in the short and long run.

Institutional variables	Institutions refer to existing laws and regulations, policy processes both formal and informal. Also include the structure of government and ministries, political system, policy and budgetary processes. Formal institutions include constitutions, written laws and procedures, regulations, legal agreements, and contracts. While informal institutions are the unwritten norms, customary practices, conventions and traditions which are often deeply embedded in the culture.
Stakeholders analysis	Identifying and mapping stakeholders (individuals, groups or organizations) and their interests, plans, relative influences, power relations, and patronage networks.
Historical legacies	Analysing historical legacies involves summarizing prior experiences with reforms in the concerned sector, key trends, events, processes and policies, in relation to the problem (policy) under consideration. It also involves reflecting on how these historical events shape current policies and their impact on stakeholder positions and actions.

Source: Adapted from World Banks's How-to Notes: Political Economy Assessments at Sector and Project Levels (WB, 2011)

1.6. Justification of methods

This study used a mixed-methods approach to answer the research questions. The research questions and the conceptual framework of PEA guided the selection of this approach. The mixed-methods approach comprised four studies: a policy document analysis, two econometric studies and a qualitative study. The detailed methodology of each study component is described in individual chapters later. A mixed-methods approach was considered necessary to attain an in-depth and complete understanding of the phenomenon to guide policy reforms.

The mixed-methods design in this thesis involved integration through *connecting* (where study component 1 guided development of sampling frame for study component 4), *building* (where study components 1 and 2 guided the selection of modelling variables for study component 4 and development of interview guide for study component 4, and through *merging, the analytical integration* (where data from the study component 1, 3 and 4 were brought together for analysis and comparison. The analytical integration step

focused on finding the convergent and dissonant findings from the qualitative and quantitative components.

1.6.1. Study component 1-critical analysis of TTPP

This study component was based on analysing the existing TTPP in Pakistan. The analysis covered all relevant policy documents, the overall legal environment of tobacco taxation and the impact of policies on the affordability of tobacco products (details in Chapter 3). Political economy analysts typically start with a comprehensive review of documents to develop a complete picture of the legal and policy framework as well as the formal economic relationships concerned with the problem under consideration (Pact, 2014). Health policy analysts emphasize that any kind of analysis to inform future policies should be done in the backdrop of current policies relevant to the policy problem under consideration (Buse, Mays, & Walt, 2012). This involves an in-depth understanding and critical assessment of current policies. Existing policies can be analysed in multiple ways; a situation analysis of the outcomes of previous policies, understanding agenda setting context, analysis of policy contents, or policy implementation issues. Analysing documents is also important in policy research because they can provide insights which help in understanding the historical roots of specific issues and track progress and change over time. Drawing on the conclusions by Buse et al. (2012) and process steps of PEA, this PhD was started with an in-depth understanding and critical assessment of the existing TTPP in Pakistan. This not only helped in understanding the strengths and weaknesses of the policies but also highlighted the areas which need to be worked on in future policies.

Qualitative Document Analysis (QDA) technique was used to analyse the TTPP documents in this study. QDA is an established research methodology that involves systematic and rigorous examination and interpretation of documents to gain understanding, elicit meanings and develop empirical knowledge (Corbin & Strauss, 2012; Rapley, 2007). QDA specifically focuses on analysing the meaning and implications of the text which gives it an edge over the quantitative word analysis which merely analyses word frequency or location (Gouais & Wach, 2013).

QDA, though, can be used standalone but is usually combined with other methodologies. Bowen (2009) highlights the usefulness of documents analysis in mixed methods studies, as it can provide the context and background of the research issue, can also provide additional questions to be asked in the follow-up qualitative or quantitative studies, and can be a supplement to overall research findings. In this Ph.D., this QDA helped in all these three ways.

1.6.2. Study component 2-estimation of price elasticity of cigarette demand

Policy makers are interested in knowing the impact of tax increases on tobacco consumption and revenues in their own country before taking any decision. The relationship between tax, price and tobacco consumption is mainly determined by price elasticity (PE) of demand. The WHO FCTC guidelines also recommend governments to design tobacco taxation policies based on PE of tobacco products. This study component is an econometric study to estimate the PE of cigarettes in Pakistan. These estimates were then used in econometric modelling to predict the impact of tax increase on tobacco consumption and tax revenues.

PE for cigarettes and other products can be estimated using a variety of methods and data sources; for example, aggregate time-series data, cross-sectional time-series data, single cross-sectional data, and panel data (Gallet & List, 2003; Yurekli & Bayer, 2001). Although the use of panel (cohort) data seems ideal for this purpose, such data is often not available in LMICs. Given the limitations of data availability, Decicca and Kenkel (2013) support estimating demand function in a way that controls for maximum possible confounders. For this study, data from the Global Adult Tobacco use Survey (GATS, 2014) was used. Using GATS data allowed controlling for multiple confounders like age, sex, education, knowledge about smoking hazards, exposure to cigarette advertisement, and smoking restrictions at home. It is beneficial to use already collected data (secondary data analysis) for this purpose because it offers a nationally representative sample which was not possible to achieve for the researcher given the logistical and financial constraints.

1.6.3. Study component 3-econometric simulation modelling

Simulation studies are used to predict the impact of the tax change on tobacco consumption, revenues, tobacco use prevalence and tobacco-associated mortality. Such studies are important for evidence-based policy making. In this study two types of modelling were done, one to estimate the fiscal outcome of tax revenues and the other to determine the impact on public health outcomes (smoking prevalence, number of smokers, smoking-attributable deaths).

The fiscal model was a dynamic model which predicts tobacco consumption as a function of changing tax levels, tax pass-through, inflation, and changing illicit market activity. Dynamic econometrics allows modelling which closely mimics real-life situations where cigarette consumption is dependent on multiple factors that are also changing. The predictive ability of such models is quite high as compared with other models which consider the impact of only price (Cobiac, Ikeda, Nghiem, Blakely, & Wilson, 2015; Ikeda, Cobiac, Wilson, Carter, & Blakely, 2015).

The public health model was a simple single cohort model based on current adult smokers in the country, in the year 2019, to quantify the impact of changing tax rates on public health outcomes. The static cohort model includes only current smokers and does not include future smokers in estimations. Ranson et al (2002) and Goodchild et al (2016) prefer this model for it gives more conservative estimates of reductions in smoking as price increases, as future smokers are expected to be more responsive to tobacco control policy. They further argued that most of the deaths over the next five decades will be among the current smokers, hence targeting this group with tobacco control policies is most desirable to avoid deaths. Measuring the impact of reducing mortality among this group is more policy-relevant. Dynamic cohort models are more complex to construct as they require data on changing population of smokers as a result of smoking initiation and quitting and movement between a smoker and ex-smoker stage, future life expectancies, future deaths rates, and competing mortality (Goodchild et al., 2016). Most of these data are not available for Pakistan.

1.6.4. Study component 4- Qualitative study to assess the political feasibility of introducing TTPP reforms

Political feasibility is usually assessed by studying actors and the overall context of a policy (Webber, 2005). Researchers have typically used stakeholder analysis for this purpose. Policy analysts argue that the stakeholders are central to any policy debate, they are the ones who can prevent or bring issues for consideration within the policy agenda; influence policy contents, and can also support or resist policy implementation (Buse et al., 2012). Stakeholder analysis is a tool to generate knowledge about actors and how they affect policies (Varvasovszky & Brugha, 2000). This tool can assist in understanding actors' positions, interests, intentions, behaviours, ability, and readiness to influence policy decisions/actions, in this case, tobacco taxation reform. Chantornvong et al., (2000) stress that such in-depth knowledge about policy actors is crucial for controlling the tobacco epidemic in local contexts. Research suggests that accurate assessment of stakeholders leads to increased understanding of their potential as change agents. It also helps in designing appropriate strategies for dealing with resistance or building alliances (Brugha, 2000; S Chantornvong et al., 2000; Varvasovszky & Brugha, 2000).

This study went beyond the classic typology of stakeholders' positions, interests and power; and also explored the perceived challenges and facilitators for introducing the TTPP reforms in Pakistan. A qualitative study based on in-depth interviews was carried out to serve both purposes. A qualitative study is best suited for the research question as it allows the researcher to explore the world through the perspectives of informants (in this case, the stakeholders). In-depth interviews are a method of choice when exploring the interests, values, and perspectives of individuals (Kvale, 1996). This allows the researcher to ask broad open-ended questions and then follow the interviewee's response to guide further questions to get a deeper understanding of their viewpoints (Kvale, 2007). This form of data collection adds to the richness of data beyond initial aspects thought of by the researcher as new concepts may emerge during the discussion (Green & Thorogood, 2014). Given the diverse nature of stakeholders, it was important to interview them individually so that they can share their unique stance and experiences in tobacco

taxation reforms. Considering the potentially competing interests of stakeholders in tobacco taxation policy, individual in-depth interviews were considered suitable as actors could have felt uncomfortable in voicing their views in front of other actors in focus group discussions.

1.6.5. Analytical integration (Discussion)

Findings from the political feasibility assessment were considered together with the econometric simulation modelling options to reassess the models and recommend the best-fit TTPP for Pakistan. Based on this integration, different strategies were identified to manage the issues involved in the adoption of tobacco taxation reforms in Pakistan. This integration of findings was important to get the benefit of using mixed methods research. Otherwise, the findings would have been a reflection of two separate and independent studies (Barbour, 1999).

1.7. Scope of the thesis

This study was carried out to present a PEA of the affordability of tobacco products in Pakistan. Pakistanis use a variety of tobacco products both smokeless (snus, betel quid) and smoked (manufactured cigarettes, *bidi*, waterpipe/*hukka*, cigars and cigarillos). Considering both the variety of tobacco products consumed in the country and the availability of data, the study had some delimitations. The first research objective (Chapter 3) of the thesis involved a critical analysis of TTPP and covered all tobacco products. However, the econometric simulations studies (Chapter 4 and 5) focused only on manufactured cigarettes; due to limitations of data availability on prices and consumption of other tobacco products. Chapter 6 attempted to capture policy actors' views on the political feasibility of TTPP reforms in the country which was intended to focus on all tobacco products, however, the discussion was mainly limited to the locally manufactured cigarettes in the country due to their popularity and absence of a taxation regimen on smokeless tobacco products. One of the main challenge in introducing TTPP reforms in any country is the tobacco industry

interference in policy making. Chapter 6 did capture some views on tobacco industry influence in Pakistan however this was not explored in depth, considering it beyond the scope of current research. Further, the scope of this study is limited to the political economy of tobacco taxation in Pakistan.

1.8. Original contributions

This study is intended to make a number of original contributions to the field of the political economy of tobacco taxation in the context of LMICs in general and specifically for Pakistan. The research outputs of this thesis can be used by policymakers and in future research.

This research is the first attempt to analyse the regulatory framework of tobacco taxation in Pakistan through a systematic analysis of policy documents against the FCTC guidelines. Although the MPOWER reports (WHO, 2011, 2019, 2021) and the recently published cigarette tax scorecard (Chaloupka et al., 2020) analyse the cigarette tax structure and affordability in Pakistan, they lack a thorough review of the legal framework for tobacco tax structure and administration. In PEA this refers to the analysis of formal institutions (Table 1-2). The first component of this thesis (chapter 3) gives a detailed picture of tobacco regulation, movement of tobacco from the harvesting till it reaches consumers in the form of cigarettes along with different taxation and monitoring points on its way, and comparing Pakistani legislation against the FCTC guidelines for implementation of tax and price measures. This analysis contributed to understanding the legal loopholes and potential of different points to be monitored for effective tax administration. In particular, the analysis highlighted the areas which need to be worked on for complying with the FCTC requirements.

The second component of this thesis used econometric analysis to estimate the price elasticity of cigarettes in Pakistan. Although other studies (Burki et al., 2013; Mushtaq, Mushtaq, & Beebe, 2011; Nayab, Nasir, Memon, Khalid, & Hussain, 2020) have also estimated the price elasticities, their price elasticity estimates are aggregate. This thesis is

the first to estimate the price elasticity for smoking participation (decision to smoke) and smoking intensity (number of cigarettes smoked in a specific time) separately in the Pakistani context. This gives the advantage to assess the impact of a price change not only on overall consumption but also on smoking prevalence. Through the use of the GATS data, the analysis was able to better adjust the price elasticity estimates for multiple risk factors. Through the use of stratification of data based on sex, socio-economic status, and price of cigarettes; the study has also elucidated the heterogeneity in the elasticity estimates and identified the target group for more robust interventions.

This study also used econometric simulation modelling to predict the impact of tax regimes on the price and consumption of cigarettes in addition to the tax revenues. Other studies (Burki et al., 2013; Levy, Fouad, Levy, Dragomir, & El Awa, 2016; Mushtaq et al., 2011; Nayab et al., 2020) have also used simulation modelling for the same purpose. However, their modelling did not account for inflation and illicit market activity. Chapter 5 of this thesis made a unique contribution to simulation modelling in the context of Pakistan by covering the limitations of the previous studies and predicting the impact of tax on fiscal and public health outcomes accounting for the illicit market and inflation in the country. This helped in predicting outcomes that are closer to real-life situations.

The use of qualitative study to understand the challenges and facilitators of introducing taxation reforms in Pakistan, is the key contribution of this thesis to the field of the political economy of tobacco taxation in LMICs context, a gap highlighted by Bump and Reich (2013). To the best of my knowledge, there is only one study from Pakistan which explores the political economy of tobacco taxation in Pakistan (Nayab, Nasir, Memon, Khalid, & Hussain, 2018), however, this study focuses more on tax administration issues and does not shed light on the stakeholders' power dynamics and bargaining process in policy negotiations. The stakeholder analysis, in this thesis, generated several new insights, identifying those actors who are in power and those who are not in power to influence policy choices for tobacco taxation. This study also identified the reasons for the low power of different stakeholders for example the ministry of health, civil society, and smokers. In-depth interviews data gave unique insights about the challenges and

facilitators for introducing tobacco taxation reforms. These included, the nature and extent of conflict of interest, tobacco industry interference, strategies used by local and multinational companies to influence decision making, the information gaps among key stakeholders about tobacco harms and using tobacco taxation as a tobacco control tool, political considerations particular to Pakistani context and role of global tobacco control strategy and how it is becoming a challenge for introducing long term taxation reforms.

Another contribution of this thesis comes from its focus on using taxation as a public health tool in LMICs. The new policy direction of using such taxation on sugar-sweetened beverages and unhealthy foods for the control of non-communicable diseases can learn from the findings of this thesis about the challenges a country can face in introducing such measures.

1.9. The research setting, country profile of Pakistan

This research was carried out in Pakistan, a LMIC. This section provides a brief geo-political, socio-demographic, and burden of disease profile of Pakistan to put the political economy analysis in context.

1.9.1. Socio-demographic profile

Pakistan is the fifth largest country by population and the 33rd largest country by area in the world. It is home to over 220 million people (One World - Nations Online, n.d.). It is situated in South Asia, sharing borders with China, India, Iran and Afghanistan (Figure 1.2). Pakistan was formerly part of British India and became an independent state in 1947. Since independence, it has been in conflict with India over the disputed region of Jammu and Kashmir. Sharing borders with Afghanistan has predisposed Pakistan to the Taliban war for decades. This geo-political position demands a significant budget allocation for the military, 18.4% of the total government expenditures were dedicated to the military (World Bank, 2019b).

Pakistan is administratively a federal parliamentary state with four provinces: Punjab, Khyber Pakhtunkhwa (KPK), Sindh and Balochistan; two federal territories: the capital territory and federally administered tribal areas; and two autonomous territories of Gilgit-Baltistan and Azad Kashmir. An administrative map of the country illustrates these provinces and territories in figure 1.2. Provinces are autonomous bodies in making legislation and taking decisions about their health, education, other social services, agriculture and roads. The federal government allocates a budget for each province and territory from the central pool.

Figure 1-2. Administrative map of Pakistan

Source: http://www.maps-of-the-world.net/maps/maps-of-asia/maps-of-pakistan/large-detailed-administrative-divisions-map-of-pakistan-2010.jpg

With a GDP of 278.2 billion USD, the WB classifies Pakistan as a lower middle-income country (World Bank, 2019a). The agricultural sector plays an important role in the country's economy with a 19.2% contribution to GDP and by absorbing more than one-third of the labour force and by providing livelihood to more than 65-70 percent of the population (Government of Pakistan, 2021b). The industry contributes 17.69% and over half of the contribution to the country's GDP comes from the service sector (Statista, 2021). Pakistan ranks 154th out of 189 countries in the human development index with scores of 0.557 while the global average is 0.737 (UNDP, 2020). A socio-demographic profile of the country is given in table 1-3.

Table 1-3. Socio-demographic profile of Pakistan

Indicators		**Source**
Population	220.9 million (2020)	https://www.worldometers.info/world-population/pakistan-population/
Area	796095 sq. kilometer	
Population density	287 per Km^2 (742 people per mi^2).	https://www.worldometers.info/world-population/pakistan-population/
Urban population	35.1% of total population (2020)	https://www.worldometers.info/world-population/pakistan-population/
Median age	22.8 years (2020)	https://www.worldometers.info/world-population/pakistan-population/
GDP per capita	1284.7 USD (2019)	www.datacatalog.worldbank.org
Literacy rate	59% (2017)	https://www.statista.com/statistics/572781/literacy-rate-in-pakistan/#:~:text=Literacy%20rate%20in%20Pakistan%202017&text=The%20literacy%20rate%20measures%20the,than%2071%20percent%20of%20men.
Mean years of schooling	5.2 (2019)	http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/PAK.pdf
Life expectancy at birth	67.79 years (2020)	https://www.worldometers.info/world-population/pakistan-population/
Population growth rate	2.0% (2020)	https://www.worldometers.info/world-population/pakistan-population/
Religion	Muslim (official) 96.4%	
Human development index	0.557, ranking at 154th position out of 189 countries (2019)	http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/PAK.pdf

1.9.2. Burden of disease profile

Pakistan suffers from a dual burden of disease where communicable, maternal, neonatal and nutritional diseases contribute to 38.98%, non-communicable diseases 55.33% and cancers 11.96% of the total mortality. Cardiovascular diseases alone are responsible for 22.73% of the total death in the country (Global health data exchange, 2019). Based on the global burden of disease study (WHO, 2020), the top ten causes of the total number of deaths in the country are given in table 1-4.

Table 1-4. Top 10 causes of total number of deaths in Pakistan

Rank	Cause of death	Deaths per 100 000 population
1	Ischemic heart disease	111.2
2	Neonatal disorders	95.3
3	Stroke	65.3
4	Diarrheal diseases	48.2
5	Chronic Obstructive Pulmonary Disease (COPD)	40.2
6	Lower respiratory tract infections	38.5
7	Diabetes	29.5
8	Chronic kidney disease	26.2
9	Cirrhosis of liver	25.3
10	Tuberculosis	19.4

Tobacco use is among the top five risk factors which contribute to the total disability-adjusted years lost (DALYs) due to combined mortality and morbidity. Table 1-5 gives the list of the top 10 risk factors contributing to the total number of DALYs in 2019, all ages combined (GBD, 2019).

Table 1-5. Risk factors contributing to the total number of DALYs in 2019, all ages combined

Rank	Risk factors contributing to the total number of DALYs
1	Malnutrition
2	Air pollution
3	High blood pressure

4	Dietary risks
5	Tobacco
6	Water Sanitation and Hygiene
7	High fasting plasma glucose
8	High body-mass index
9	High levels of Low-Density Lipoprotein
10	Kidney disinfection

1.10. Chapter summary

This chapter aimed to give a brief overview of the thesis by introducing the research problem, research questions, conceptual framework and justification of the overall mixed-methods approach. I also shared my personal experiences that aroused my interest in this topic. Finally, an introduction of the study setting- Pakistan, is given to place the overall thesis in context.

2. LITERATURE REVIEW

This chapter gives a non-systematic review of the literature around the topic to set the theoretical context of the study. It starts with an overview of tobacco use and its public health consequences. It then outlines the evidence-based interventions to control tobacco use with a focus on international efforts and legal regimes. The review then narrows down to taxation as a tobacco control tool, summarising the literature available on its effectiveness. The review concludes with exploring the literature on challenges in using this tool and also identifies the main gaps in the existing knowledge base in this regard.

2.1. Tobacco use and consequences

Tobacco use is the leading cause of mortality worldwide, killing almost eight million individuals every year (WHO, 2019). This death toll is larger than the mortality associated with HIV/AIDS, malaria and tuberculosis combined (WHO, 2016). Adverse impacts of tobacco are not only limited to premature deaths but also include a huge burden of morbidity, adverse societal and environmental impact. A significant number of systematic reviews and meta-analyses have shown the association of tobacco use with cancers, other non-communicable diseases, tuberculosis and HIV/AIDS (Reitsma et al., 2017; U S Department of Health and Human Services, 2014). This translates into 200 million DALYs lost and a financial burden of up to USD 1.85 trillion to the global economy every year (Chaloupka et al., 2020; Reitsma et al., 2021). This is a huge amount of money that could be spent on food, health, or education if not spent on tobacco both at the individual and country level. Despite the wide recognition of the harms of tobacco and the availability of effective solutions, almost 1.1 billion individuals currently use it worldwide and over 80% of these live in LMICs (Reitsma et al., 2021; Tobacco Atlas, 2015a). If considerable action is not taken, tobacco use is expected to kill 10 million individuals annually in LMICs by 2025 (Bilano et al., 2015).

Pakistan is one of the LMICs with a high number of tobacco users. There are currently over 24 million tobacco users in the country (GATS, 2014). Although smoking is the dominant form of tobacco use with 15.6 million users, almost 10 million adults in Pakistan use smokeless tobacco (SLT) in one or another form (GATS, 2014). This high level of tobacco use also translates into adverse health and economic consequences. Currently, more than 160,000

Pakistanis die prematurely every year owing to tobacco use (Cahn et al., 2018). The total economic cost of tobacco attributable diseases was USD 3.85 billion (PKR 615.07 billion) in 2019 in the country (Nayab, Nasir, Memon, & Siddique, 2021). There is an urgent need for Pakistan, to make use of evidence-based policies to protect people from tobacco use and its harms.

2.2. Tobacco control strategies

A number of evidence-based tobacco control strategies are available to protect people from tobacco and tobacco harms (table 2-1). Collectively these interventions have reduced smoking prevalence by almost 30% between 1990 and 2019 (Reitsma et al., 2021). However, the magnitude of success varies across countries depending on the context, choice of interventions and way of implementation.

These tobacco control strategies are based on two basic principles of economics governing any market; demand and supply. Demand refers to the quantity of any good that consumers are willing and able to buy. According to economic principles, the demand for any product is a function of its price, assuming all other factors remain constant (Hayes, n.d.). This implies that demand for tobacco products can be decreased by increasing the prices (often called price measures to control tobacco). Economic theory also assumes that consumers are rational and make informed decisions after weighing all costs and benefits of products (Hayes, n.d.). However, in real life, these assumptions may not apply in the tobacco market considering the addictive nature of tobacco products, aggressive marketing by the tobacco industry, and lack of adequate knowledge about tobacco harms (Jha & Chaloupka, 1999).

Table 2-1. Strategies to control tobacco use based on the FCTC

Strategies		**Interventions**
Demand Reduction	Reduce affordability	Taxation and minimum price laws
	Decrease popularity	Warning and labelling
		Creating awareness
		Smoking bans (clean air policies)
		Ban advertising and marketing

	Promote cessation	Tobacco cessation programmes
Supply Reduction	Decrease supply and availability	Control illicit sale Licensing of retail outlets Sales to and by minors Promote cultivation of alternative crops

Source: FCTC

2.3. International commitment to control tobacco use

Tobacco control slowly started making its way up the WHO's agenda in the 1970s mainly in response to the globalisation of the tobacco epidemic. One of the driving forces was a series of World Conferences on Smoking and Health, held in New York in 1967, in London in 1971, and again in New York in 1975 (Derek Yach, 2014). Both clinical scientists and epidemiologists from all over the world came together and discussed and highlighted the devastating effects of tobacco on health which led to the recognition of the issue at the global level.

The World Health Assembly (WHA) passed its first resolution against tobacco in 1970. A total of 17 resolutions were passed between 1970 and 1988 for effective tobacco control measures (World Health Organization. Regional Office for South-East Asia., 2000). Celebration of a no tobacco day started after a resolution passed in 1987 to celebrate World No Tobacco Day (WHO, n.d.-b). The aim behind this resolution was to encourage the global community to quit tobacco use. WHO has been celebrating *World No Tobacco Day* since 1988 on May 31 with a different theme attached to it every year. Multiple resolutions and celebrations of No Smoking Days mark the initial journey of WHO in tobacco control (Yach, 2014). However, these resolutions and days had little or no influence on tobacco consumption. Voices raised against tobacco in a series of conferences the World Conference on Tobacco or Health, All Africa Tobacco Control Conference in Zimbabwe, 1993 and particularly the 1994 World Conference on Tobacco and Health in Paris, and the global burden of disease report (highlighting the death of 3 million people as a result of tobacco use in 1997) had stimulated the WHO to take solid actions against tobacco use (Yach, 2014). However, it was not until the dawn of the 21st century

that WHO realised its constitutional power to influence tobacco control through the Framework Convention on Tobacco Control (FCTC) (Roemer, Taylor, & Lariviere, 2005).

2.4. FCTC and MPOWER

The WHO FCTC is a global public health treaty adopted in 2003 by countries around the globe as an agreement to implement policies that work towards tobacco cessation. It is the first-ever public health treaty in the history of WHO where all parties are legally bound to fight against tobacco by reducing its consumption (WHO, 2003). There are 181 parties to the WHO FCTC to date (Framework Convention Alliance (FCA), n.d.). Seven UN member countries; Argentina, Cuba, Haiti, Morocco, Mozambique, Switzerland, and the United States; have signed but have not yet ratified the treaty. However, 9 states have neither signed nor ratified (Andorra, Dominican Republic, Eritrea, Indonesia, Liechtenstein, Malawi, Monaco, Somalia, South Sudan). The FCTC came into force in 2005.

The WHO FCTC identifies key areas which need to be targeted to control tobacco use globally. In its Article 3, FCTC makes its goal explicit, 'to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke'. This objective can be achieved by taking a series of demand and supply reduction measures and with global cooperation. Table 2-2 gives a brief list of such measures.

Table 2-2. Tobacco control provisions of FCTC

Article No.	Tobacco control strategies
Demand reduction strategies	
6	Price and tax measures to reduce the demand for tobacco
8	Protection from exposure to tobacco smoke
9	Regulation of the contents of tobacco products
10	Regulation of tobacco product disclosures
11	Packaging and labelling of tobacco products
12	Education, communication, training and public awareness
13	Tobacco advertising, promotion and sponsorship
14	Demand reduction measures concerning tobacco dependence
Supply reduction strategies	
15	Illicit trade in tobacco products
16	Sales to and by minors
17	Provision of support for economically viable
Other measures	
18	Protection of the environment and the health of persons

20	Research, surveillance and exchange of information

In 2008, WHO developed MPOWER package to complement and monitor FCTC implementation and reporting. MPOWER is a package of six evidence-based measures to reduce tobacco prevalence worldwide. The MPOWER package includes 1) Monitor tobacco use and prevention policies; 2) Protect people from tobacco smoke; 3) Offer help to quit tobacco use; 4) Warn about the dangers of tobacco; 5) Enforce bans on tobacco advertising, promotion and sponsorship; and 6) Raise taxes on tobacco (WHO, 2013a). As part of MPOWER adoption, WHO publishes a report on the Global Tobacco Epidemic every 2 years. Eight reports have been published so far in the years 2008, 2009, 2011, 2013, 2015, 2017, 2019, and 2021. These reports track both the tobacco epidemic and tobacco control efforts worldwide.

2.5. Current situation

The latest global tobacco epidemic report (WHO, 2021a) recognises the remarkable achievement of FCTC and MPOWER measures to control global tobacco use. Currently, 146 countries, almost 69% of the world's population is covered by at least one effective tobacco control measure. However, the report also highlights that the decline in tobacco use is not homogenous among countries and is not enough to end the tobacco epidemic. Effective tobacco control strategies are available but are underutilised (WHO, 2021b; World Bank, 2017). The report identifies tobacco cessation and taxation measures as two of the least used interventions to control tobacco use (WHO, 2021a). There is a strong need to adopt the MPOWER package and speed up tobacco control globally. Delay would mean additional hundreds of thousands of tobacco users with each passing day and associated poor health, economic and environmental consequences. The sustainable developmental goals (SDGs) also acknowledge tobacco control as a key for global development (SDG target 3a).

The next section of the write-up describes tobacco taxation in detail as a tool to control tobacco use and as the central element of the FCTC.

2.6. Using taxation for tobacco control

A series of empirical evidence and official reports of the WHO and the WB have shown that tobacco taxation is the most effective tobacco control measure globally (Chaloupka, Yurekli,

& Fong, 2012; Jha & Chaloupka, 1999; WHO, 2010; WHO 2014; WHO, 2008). Tobacco taxation not only decreases per capita consumption but also discourages uptake by new individuals and promotes cessation (L. M. Wilson et al., 2012). Another advantage of using taxation as a tobacco control tool is its potential to generate revenues, making it a highly cost-effective intervention. Tobacco has been historically taxed for both fiscal and health reasons, however, its use caught momentum after the WB's report on the economics of tobacco control (Jha & Chaloupka, 1999) and ratification of the WHO Framework Convention on Tobacco Control (FCTC) in 2003. Article 6 of the WHO FCTC demands governments to raise taxes on tobacco products to curb their use. Recent 2030 Agenda for Sustainable Development (2015) and Addis Ababa Action Agenda (United Nations, 2015) have further stressed the importance of tobacco taxation and its use as a key to sustainable development. Many countries are currently using tobacco taxation for both fiscal and health reasons. However, only 40 countries covering 13% of the world's population have so far employed robust tax measures to control tobacco use (WHO, 2021a). It shows the underutilisation of an effective policy, sacrificing both tax revenues and health gains. Bump and Reich (2013) argue that this poor utilisation of an effective policy is due to the poorly understood political economy of tobacco taxation in different contexts. Van Walbeek, Blecher, Gilmore, and Ross (2013) stress the need to explore country-specific reasons behind both implementing and not implementing effective taxation policies.

2.7. Tobacco taxation-Pakistani context

Pakistan historically had a hybrid and complex system for tobacco taxation, which was simplified in 2013/14 by limiting it to specific tax on two tiers. Since then, the tax had been consistently increased every year till 2016/17. The federal excise duty (FED) ranged from 49.7% to 66.0% in 2016/17 for lowest priced and highest priced cigarettes respectively; a level that is quite far below the benchmark of 70% set by the WHO. However, it resulted in a sharp decrease in sales volumes and also decreased the government revenue from PKR 114.19 billion in 2015/16 to PKR 83.69 billion for the fiscal year 2016/17 (Ahmadani, 2018). The tobacco industry attributed this sharp decrease in consumption and revenues to the illicit market and argued that the real consumption had not decreased rather shifted towards the illegal market (Oxford Economics, 2017). In response to declining revenues, the government of Pakistan reverted back to three-tiered tax structure for cigarettes with quite low tax on the lower tier in

June 2017. This translated into a tax burden of 39% on low priced and 67.3% on high priced cigarettes. Tobacco control advocates fear that the lower prices might have resulted in increased consumption (Dawn, 2018b). The government abolished the third tier in 2019 and the system now continues with two tiers. This raises a question on what could be the best or optimal taxation policy in Pakistan to decrease consumption while sustaining revenues in the short run.

2.8. Challenges in implementing effective tobacco taxation policies

Countries can face multiple challenges while implementing tobacco taxation policies. The main challenge in adopting effective policies could be a controversy around the solutions (Bardach, 2000), in this case, a lack of consensus on the right tax level for tobacco products. Current tax rates vary from 31% to over 65% on a pack of cigarettes, in different countries with varied impacts on tobacco consumption (WHO, 2017a). The other challenge could be the issues with overall taxation policy and administration that can dilute the impact of higher taxes. The tobacco industry's marketing strategies including point of sale discounts can also undo the impact of taxation policies. Finally, the country's political economy may also hinder the adoption of effective taxation policies. This literature review is structured around these three issues while exploring specific aspects of the Pakistani context.

2.8.1. Question of optimal tax level for tobacco products

There have been ongoing debates among economists, academics, and policymakers on what should be the optimal taxation level. This section focuses on different theories used to guide optimal taxation levels.

2.8.1.1. Maximizing welfare function

Economists initially answered this question of optimal taxation level with the theory of maximizing welfare function. According to this theory, the products and services with negative externalities should be taxed at a level that at least covers the social cost imposed on others by using such products and services (Cordes, Nicholson, & Sammartino, 1990; Pogue & Sgontz, 1989; Sindelar, 1998; Saffer & Chaloupka, 1994). Saffer and Chaloupka (1994) state that

taxation models should be determined in a way that not only consider the social costs generated by the good itself but also the complementary and substitute goods. Gruber and Koszegi (2008) estimated health damage caused by a pack of cigarettes in monetary terms which is over $35 for an average smoker in the US. This indicates an ample room for a tax increase there. However, estimating such costs in all countries is not an easy task considering the lack of data, multiple diseases associated with tobacco use and when other risk factors also exist for such diseases. Moreover, such costs do not include social costs in terms of the suffering of individuals and their families, and harms caused to the broader environment by tobacco growing, curing, manufacturing and use. Taxing tobacco for maximizing social welfare is questionable in countries like Pakistan where the majority of people pay out of pocket for their health care.

2.8.1.2. Maximizing revenues

Another solution to the question of optimal taxation level can be explained through the economic argument put forward by Laffer (2012). He studied various tax models and came up with a curve (a figure which indicates that as the tax level increases, revenues also increase but then comes a hump in the curve beyond which an increase in the tax rate would lead to decreased revenues due to altered economic activity and/or black market (Laffer, 2012). The tax rates at which this hump occurs is the optimal level because it generates maximum revenues for the government. Laffer suggests that the shape of the curve and position of the hump varies from country to country and product to product. There is a need to construct such curves for tobacco products at the country level to decide on the optimal tax level. A typical drawback of using the Laffer curve to guide optimal taxation for tobacco is its limitation on not considering the impact on use. The Laffer point could be the one where use is also maximum.

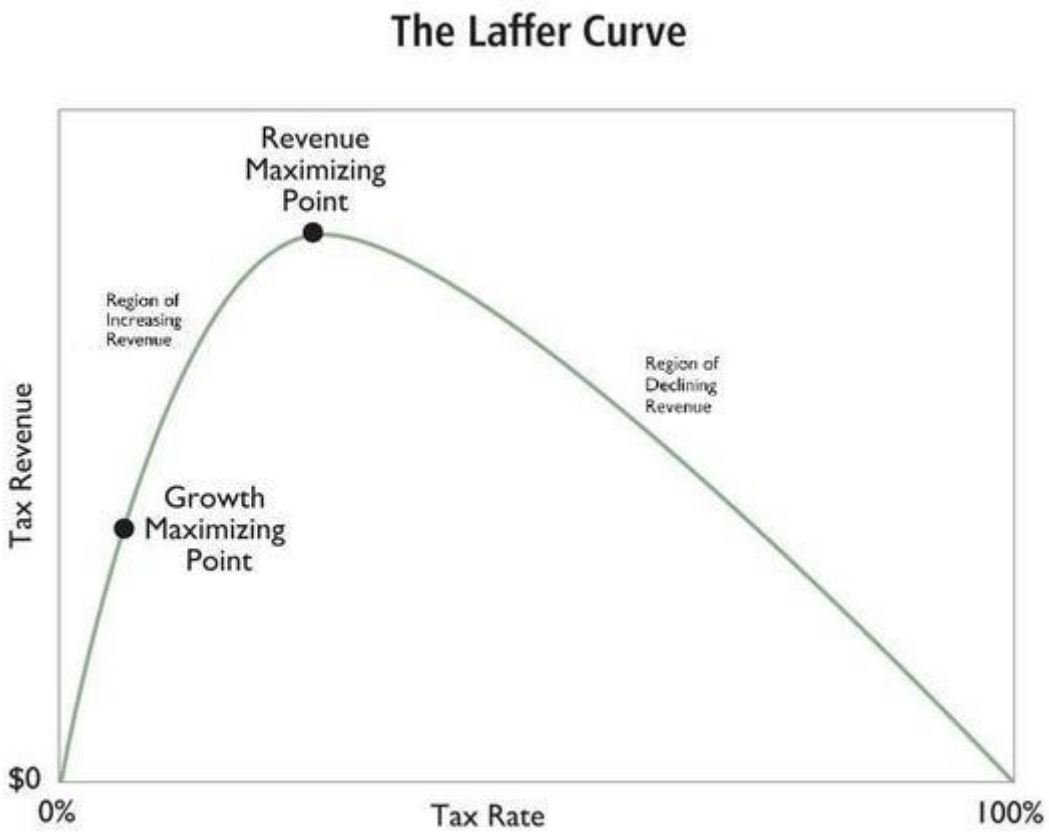

Figure 2-1. Sample Laffer curve
(Source: copied from frobes.com)

2.8.1.3. The World Bank and WHO benchmark

The World Bank and the WHO have concluded this debate by setting a benchmark of the tax burden for a pack of tobacco product. The WB recommends that tax should account for two-thirds to four-fifths of the retail price of cigarettes (Jha & Chaloupka, 1999). The WHO (2010d) has further specified this benchmark as an excise tax of at least 70% and a minimum total tax burden of 75% per pack for tobacco products. WHO in its toolkit for tax administration and other reports claims that this benchmark would be a win-win situation as tobacco consumption would decrease and government revenues would continue to rise. However, recent data shows that this benchmark is rarely met, currently, only 14% of the global population is covered with this *effective* tax burden (WHO, 2021a). A much lower tax burden (on average 57.5%) has resulted in decreased consumption but also a loss of revenues in Pakistan (The Network for Consumer Protection, 2017). A common understanding in using taxation as a regulatory tool

is that it is not an example of *one size fits all* policy. There is a need to critically assess this benchmark and its moderators in the context of countries with different political economies.

2.8.1.4. Affordability benchmark

Blecher and van Walbeek (2004) argue that a higher tax burden does not necessarily result in higher prices. Some countries despite having a high tax burden, have affordable cigarettes owing to high income. Others have cheap cigarettes in order to maintain their affordability to those on a low income. Blecher and van Walbeek recommended using affordability as a benchmark for tobacco control. They defined affordability as a percentage of GDP per capita required to purchase 100 packs of cigarettes. Using an affordability benchmark would mean governments committing to reduce affordability by a specific percentage every year. For Pakistan, this value has increased from 2008 till 2016 indicating that cigarettes have become less affordable over the years (WHO, 2017a). However, the data need to be interpreted cautiously as this is based on the price of the most popular brand of cigarettes and people may have shifted to other cheaper brands instead of quitting or decreasing consumption.

2.8.1.5. Econometric modelling to define optimal tax level

Considering the complexity involved in deciding the optimal taxation level using different theories and benchmarks, it is usually recommended that countries apply econometric techniques using their local data to decide on the optimal taxation levels. FCTC guidelines on the implementation of taxation policies also highlight the importance of using such models to guide taxation policies (WHO, 2014b). Globally countries have made use of such techniques to decide on taxation models for tobacco and other products with negative externalities (Decicca & Kenkel, 2013). This kind of econometric modelling essentially involves a two-step process estimating the price responsiveness of consumers to tobacco products and then using this price responsiveness along with other key variables to simulate different models for optimal taxation levels.

The key factor here is the price responsiveness of consumers for tobacco products i.e. the price elasticity (PE) of demand. PE is a unitless measure, which is often interpreted in terms of percentage. For example, a price elasticity of -0.4 for cigarettes means that a 10% increase in the price of cigarettes would reduce the demand (quantity consumed) of cigarettes by 4%.

To date, three published studies have measured the PE of cigarette demand in Pakistan with differences in results (Burki et al., 2013; Mushtaq, Mushtaq, & Beebe, 2011; Nayab, Nasir, Memon, Khalid, & Hussain, 2020). To ensure all PE estimates from Pakistan are considered in this literature review, a systematic literature search was carried out using the search strategy "(Cigarette OR cigarettes OR tobacco OR smoking) AND (elasticity OR demand OR tax* OR economics OR price OR 'price responsiveness' OR 'price sensitivity') AND Pakistan". The search strategy was applied to the databases of EconLit, MEDLINE and PubMed without any time restrictions. In addition, experts in the field who were working on tobacco taxation and price elasticity studies with Pakistani data were contacted to confirm the coverage of all studies estimating PE in the country. Mushtaq and colleagues (2011) calculated the long-run PE of demand as -1.17 and suggested that the optimal tax rate for decreasing consumption would be 58.5% beyond which revenues would start falling. In contrast, Burki et al (2013), a group led by FJ Chaloupka, estimated a PE value of -0.495 and claimed that Pakistan would earn higher revenues even at a 74% excise tax burden. Mushtaq et al suggest a negative relationship between income and consumption while Burki et al suggest a positive relation in harmony with other LMICs. Nayab et al's (2020) study estimated PE which was closer to Mushtaq and colleagues' study i.e., -1.06 based on cross-sectional data. Given the inconsistency in elasticity estimates for the country, there is need to have new estimates to better inform policies.

The main difference between these studies was the modelling technique. Burki et al (2013) used conventional modelling on aggregate time-series data while Mushtaq and colleagues (2011) used a special type of addictive model, myopic modelling. Considering tobacco as an addictive product, use of addictive models is recommended in evaluating the impact of prices on consumption (Decicca & Kenkel, 2013). Myopic modelling techniques involve the use of previous consumption as an explanatory variable in the model believing that current consumption decisions are based on previous consumption and hence addiction levels. While conventional models are based on the assumption that current decisions are based on current price only. Nayab et al (2020) used cross-sectional data with Deaton modelling. A meta-analysis concludes that these modelling assumptions have a statistically insignificant influence on elasticity estimates (Gallet & List, 2003). However, available data from Pakistan is conflicting with the findings of their review. New PE estimates are needed to add to the knowledge base from Pakistan.

The two studies based on aggregate time-series data have used legal sales data as a measure of cigarette consumption in their PE calculations. The illegal market can badly influence the modelling estimates if not considered in calculations. Using legal sales data usually overestimates the PE as the illicit market is not taken into account. Two aspects of the illegal market should be considered in econometric modelling: the illicit market share and prices of cigarettes in the illegal market. The illicit market in Pakistan is believed to be a mix of smuggled cigarettes and locally manufactured tax-evaded cigarettes that may bear the same name and packaging as the legal ones. Data on the illegal market in Pakistan is controversial. The tobacco

Table 2-3. Comparison of models for estimating price elasticity-existing data from Pakistan

S.No.	Variables/characteristics of the model	Mushtaq et al., 2011	Burki et al., 2013	Nayab et al., 2020
1.	Price Elasticity of Demand	-1.17 (long run), -0.48 (short run)	-0.58	-1.06
2.	Income Elasticity of Demand	-0.84 (long run), -0.34 (short run)	0.78	-
3.	Dependant variable	Per capita cigarette consumption per year		Cigarette consumed per person
4.	Calculation	Annual cigarette consumption/mid-year population older than or equal to 15 years Annual cig. Consumption = production – export + import	Annual cigarette consumption/mid-year population older than or equal to 15 years	As reported in the survey data
5.	Data source: outcome variable	MoF, US department of agriculture, PTB, UN Comtrade	Euro monitor	Household Integrated Income and Consumption Survey 2015-16
6.	Independent variable (s)	**Price** = average price of a pack for first tier brands with 10 sticks in each pack	**Price**=Weighted average price	Household size, mean household education, highest degree obtained by a member of the household, education of the head of the household, number of adults in the household, number of male members in the household, number of earners in the household, region and province of residence

		Income= GDP per capita	Income= GDP per capita	
7.	Equation for elasticity	$\ln Q_t = \beta_0 + \beta_1 \ln P_t + \beta_2 \ln Y_t + \beta_3 \text{tren}$		
8.	Time period	1981-2009	1990/91 - 2007/08	2015-16
9.	Modelling type (elasticity)	Myopic	Conventional	Deaton model

industry claims it to be quite high i.e. 43.7% of the total market in 2016 (Oxford Economics, 2017). However, an international tobacco advocate Ross Hanna has incalculably criticized such reports previously and labelled them as not trustworthy at all (Ross, 2015). A study by Brown et al. (2017) based on a census of all cigarette packs (available for sale) suggests that 81.2% (310 out of 382) of the packs in Pakistan are illegal, the highest proportion among 14 LMICs. But this does not indicate the market share in terms of volume. A report launched by Pakistan National Heart Association estimated the illegal market share at 9% (Dawn, 2018a) and the latest empirical evidence based on Pakistani cities show illicit market share between 16.8% and 17.8% (A. Khan et al., 2021).

The two studies based on aggregate data have used official prices for constructing PE models in Pakistan. However, there is evidence that the consumer price of tobacco products is different from the official ones in the country. Brown et al. (2017) state that the median price of illegal cigarettes is higher than legal cigarettes in Pakistan. In contrast, a report compiled by Business Recorder (2017) states that some cigarettes are sold at one-third of the price of legal cigarettes while others are sold at prices (PKR 12 per pack) which are even below the specific FED rates of government (PKR 43). One reason for the difference in these findings is the definition of illegal cigarettes used by Brown et al (2017), based on compliance of pictorial and textual health warnings with law. This needs a careful interpretation, as the majority of the illegal segment in Pakistan is based on counterfeit cigarettes which look similar to legal ones (IREN, 2018). It is important to have real price data incorporated in the models estimating price elasticities.

Nayab et al (2020) have used cross-sectional data with actual household expenditures on tobacco products reported by survey respondents which covers the above-mentioned limitations. However, they had a limited number of explanatory variables (Table 2.3). In reality, cigarette demand is a function of the broader list of factors including socio-demographic characteristics, knowledge about smoking hazards and exposure to

advertisement. Building a demand model including all these factors as determinants would yield more valid PE estimates.

Once the PE estimates are available, additional variables are also needed to simulate models for estimating optimal taxation rates. These variables mainly deal with technical issues that may dilute the impact of taxation and are discussed in detail in section (2.7.2) below. Models based on only PE assume that other factors (like the income of consumers, illegal market share, price gaps and the rate of tax shifting) do not influence the tobacco market (Table 2.4). Based on such models, tobacco control advocates and civil society urge the Pakistani government to increase the tobacco excise tax to the WHO recommended benchmark of 70% (Dawn, 2018a; The Network for Consumer Protection, 2017). They suggest that the impact would be immediate resulting in higher revenues and lower consumption. However, even much lower tax rates have not worked in Pakistan and resulted in a sharp decrease in revenues. Pakistan needs a practical modelling solution considering the simultaneous impact of income, illicit market, tax shifting and prices of illegal cigarettes and then forecasting consumption and revenues over the years. Gartner et al (2009), Mendez et al (1998), Ikeda et al (2015) and Cobiac et al (2015) have built dynamic models forecasting tobacco consumption and revenues for a period of up to 60 years considering all these important market factors in the US, NZ, and Australia. The predictive ability of such models is quite high as compared to static models considering the impact of only price.

Table 2-4. Comparison of Simulations to define optimal tax rates in existing literature from Pakistan

S.No.	Model specifications	Mushtaq and Colleagues	Burki et al.	Nayab et al.
1.	Model type	Static	Static	Static/Single cohort
2.	Baseline price	*Average* price of a pack of 10 cigarettes of the first-tier in 2009	Average of prices within price tiers and the share of the market accounted for by each tier	Average of prices within price tiers and the share of the market accounted for by each tier
	Baseline excise tax	52%	67.5%	
	Baseline consumption	75620.35 million cigarettes (actual consumption in 2009)	3.2 billion packs of 20 cigarettes (in 2013)	
3.	Model variables	Long run *price* elasticity (-1.17)	Price elasticity (-0.4, -*0.495*, -0.58)	Price elasticity (-1.06)

4.	Income	-	-		-
5.	Time (years)	-	-		-
6.	Illegal market share	-	-		-
7.	Illegal cigarette prices	-	-		-
8.	Tax shifting	-	-		100%, 80%
9.	Optimal tax rate	58.5% tax burden	70%	74%	No optimal tax scenario rather simulates the impact of different tiered taxation regimens (e.g., average FED share of 45% in two-tier system)
10.	Revenues	Increase by 6% (PKR 30.09 billion contributions in total)	Increase by 27.2 billion	Increase by 39.5 billion	Increase by 5% (additional 3.5 billion rupees as excise revenues)
11.	Consumption	Decrease by 30% in the long run	Decrease by 7.5%	Decrease by over 26%	Decrease by 41.6%

2.8.2. Technical factors diluting the impact of taxation policies

Several technical factors may hinder or dilute the effects of taxation policies even when the right tax rate is applied.

One main problem in tobacco taxation policies is the use of ***complex taxation structures***. WHO (2014) recommends a uniform specific tax on all tobacco products (where the tax rate is based on the quantity of a good irrespective of the price of the good) as the best type of taxation policy. Such systems would increase the prices of all tobacco products and brands with the same magnitude, leaving no option for consumers to switch to cheaper products. In contrast, ad valorem tax where the tax rate is decided based on consumer price results in huge price differentials where high price cigarettes are taxed more and low priced less. However, an advantage of using ad valorem duties is their ability to keep pace with inflation (Chaloupka et al., 2012). The most disliked system from the public health perspective is the tiered system where cigarettes are divided into multiple groups based on some characteristics and are taxed at different rates (World Bank, 2017). The reported success of the South African tobacco control policy lies in the fact that the tax raised was uniform on all tobacco brands with a specific tax (Sanni, Hongoro, Ndinda, & Wisdom, 2018). In contrast countries like Pakistan, Bangladesh, India, Indonesia and Senegal, could not reduce tobacco

consumption significantly because of complex and tiered taxation systems (WHO, 2015). It is important to understand why the taxation systems in these countries are this complex and if it serves the purposes of any particular powers. Global evidence suggests the tobacco industry lobbies to keep tax structure complex and rates low (Matthes, Lauber, Zatoński, Robertson, & Gilmore, 2021; Smith, Savell, & Gilmore, 2013). The role of tobacco industry lobbying also needs to be explored in Pakistan in this regard.

Inability to use the same taxation strategy for all tobacco products can lead to ***brand shifting and/or product substitution***. People either shift from expensive cigarette brands to cheaper ones or tend to shift from expensive products (cigarettes) to cheaper alternatives (snus, snuff, hand-rolled cigarettes, beedies etc.). This phenomenon has been observed in the past in the US, where the use of non-cigarette tobacco products has significantly increased in contrast to cigarettes because of relatively low tax rates on these products (Connolly & Alpert, 2008). Pakistan is a country where multiple brands of cigarettes and other tobacco products exist with huge price differentials. The tobacco pack surveillance group has collected 382 brands of cigarettes (available for sale in the Pakistani market) as part of their tobacco packs census from Pakistan in 2013 (Brown et al., 2017). The prices ranged from $0.09 to $7.36 per pack. Considering this huge price gap, it becomes important to consider the rate of shifting to cheaper brands while estimating the optimal tax level using the modelling exercise. Believing that a price increase would limit tobacco use as per elasticity estimates, ignoring the brand shifting behaviour would undermine the predictive power of the model in countries like Pakistan. Availability of discount policies at the point of sale can also badly outweigh the impact of increased taxes if not dealt with appropriately (Golden et al., 2016).

Another factor that may hinder the impact of tax increase is the ***rate of tax shifting to consumer prices***. It is generally assumed that the taxes would be transferred to consumers at a 100% rate and would result in a price increase. However, sometimes the tobacco industry absorbs the increase in taxation on lower-priced bands (tax under shifting) thus keeping the products affordable for low and middle-income consumers while over-shifting tax to consumers on high-priced cigarettes (Smith et al., 2013). Consumers of high-priced products have high purchasing power and are not as affected by the increased price. A recent study by International Monetary Fund has shown that taxes are under shifted to consumers in Pakistan, at the rate of 0.8% (Cevik, 2016).

Therefore, these variations should be part of the econometric models to inform optimal taxation policies.

Moreover, the overall ***tax collection system and its administration*** (registration of tobacco companies, products and prices; monitoring tax compliance; penalties for violations) may dilute the impact of stringent taxation policies in some countries (World Bank, 2017). There is a need to deeply understand each country's tobacco taxation and pricing system to identify and manage idiosyncratic issues which may dilute the impact of taxation policy.

2.8.3. Political feasibility of introducing tobacco taxation reform

There is no doubt that econometric modelling is crucial to inform optimal tax levels but the translation of such models into policies and the adoption of tax reforms is a highly political process. The WHO Technical Manual on Tobacco Tax Administration says that any government's decision on tobacco tax reforms is determined by political and economic feasibility (WHO, 2010). WHO further stresses considering these factors to understand the failure of current tobacco control policies and assessing the feasibility of future policies. Webber (2005) in his work on policy studies highlights that even technically sound policies fail to implement because of a lack of political feasibility. On the other hand, being politically feasible is not the sole criteria for a policy to be effective. There is a need to balance both factors when planning for policy reforms. This demands supplementing the technical econometric models with political feasibility analysis to inform policies. The majority of studies from LMICs have solely focused on econometric modelling to recommend optimal taxation levels for tobacco products without considering the political feasibility. Bump and Reich (2013) have highlighted the dearth of political economy literature from LMICs on tobacco control. Assessing political feasibility would facilitate overall policy by identifying mobilization actors and resources.

2.9. Conclusion

Tobacco use is the single largest risk factor responsible for global morbidity and premature mortality. Its adverse effects disproportionately affect LMICs like Pakistan. Multiple interventions are available to control tobacco use, the most effective being the use of tobacco taxation and pricing policies (TTPP) to reduce tobacco affordability. Despite the availability

of clear evidence, the TTPP are not effectively utilised by many LMICs, and Pakistan is not an exception. This is of concern, as uncontrolled tobacco use could impose huge health and economic costs.

The main reasons for not effectively utilising TTPP in any country's context could be lack of clarity on the right tax level for tobacco products, issues with design and administration of TTPP which can dilute the impact of taxes, and the country's overall political economy which may also hinder adoption of effective policies. There is a lack of consensus on optimal tax levels for tobacco products in Pakistan; two studies recommend different levels as optimal, an excise share of 58.5% and 74%. There is a lack of empirical data on the impact of design and administration issues of taxation policies on tobacco consumption and on the political feasibility of introducing TTPP reforms in the country.

3 Critical analysis of tobacco taxation and pricing policies (TTPP) in Pakistan

3.1. Introduction

In this chapter, I address my first research objective of critically analysing tobacco taxation and pricing policies (TTPP) in Pakistan, against the FCTC guidelines. Before presenting the findings of the analysis, an overview of tobacco regulation in the country is given to set the context. This overview covers the main regulating bodies and legislation concerning tobacco products with their implementation status. The findings are structured into three main elements: assessment of the tax structure & administration mechanisms, assessment of pricing policies, and overall impact of TTPP on the affordability of tobacco products in Pakistan. The specific objectives of this study were:

1. To assess the tobacco tax structures & tax administration mechanisms against the FCTC guidelines and the best practices recommended by the WHO.
2. To evaluate the tobacco price control measures adopted in Pakistan
3. To estimate the changes in real and nominal prices and affordability of tobacco products in Pakistan over the last ten years.

3.2. Tobacco regulation bodies

Pakistan regulates tobacco through three national-level bodies; the ministry of commerce, the ministry of finance and the ministry of health. The ministry of health works through provincial authorities while the other two work at the federal level. In addition to health authorities, provincial food authorities are also involved in implementing some tobacco-related legislations. There are competing interests between the ministry of health and the other two ministries.

The ministry of commerce exercises its control through the Pakistan Tobacco Board (PTB) established under the Tobacco Board Act, 1968. The board was established for promoting financial and economic stability in Pakistan using tobacco growth. On its website, PTB makes its objective explicit as "*the promotion of cultivation, manufacture and export of tobacco and*

tobacco products, marketing, fixation of prices and other information ancillary thereto" (PTB, 2017). The PTB mainly facilitates and oversees the cultivation of tobacco and trade between farmers and purchasers. The board also collects cess on tobacco purchased by registered tobacco buyers and uses this cess to meet its expenses (PTB, 2017).

The ministry of finance through the Federal Board of Revenue (FBR) and Customs department is responsible for taxation and pricing of tobacco products to generate revenues for the government. It uses two types of tax on domestically produced tobacco products in Pakistan; the federal excise duty (FED) and the general sales tax governed under the auspices of the Federal Excise Tax Act, 2005 and the Sales Tax Act, 1990 respectively. For imported tobacco products, import duties are applicable under the jurisdiction of the Customs Act, 1969. The Customs department aims at generating revenues by encouraging domestic industry and discouraging the use of luxury imported goods.

In contrast to the ministries of commerce and finance, the ministry of health operates with a clear aim to reduce tobacco consumption in the country. Pakistan has been controlling tobacco use since its independence in 1947. However, the efforts got momentum once Pakistan became a party to the WHO FCTC in 2004 and as a result, established a national-level body in July 2007, the Tobacco Control Cell (TCC), within the ministry of health, to coordinate multi-sectoral tobacco control efforts in the country. The national TCC operates with an objective of decreasing tobacco prevalence in Pakistan using administrative, legislative and coordination measures for FCTC implementation (TCC, 2017). Currently, two main legal instruments, the *Cigarettes (Printing of Warning) Ordinance, 1979* and *the Prohibition of Smoking in Enclosed Places and Protection of Non-smokers Health Ordinance, 2002* govern tobacco control in the country. Based on the inputs by the TCC, the government of Pakistan has made Rules and issued several Statutory Regulatory Orders (SRO) from time to time to communicate advances and changes in the current regulations. Table 2 details a list of main tobacco control measures under both ordinances along with their implementation status.

Provincial governments in Punjab and Sindh have further enacted laws to ban the manufacture, purchase, storage, and sale of Gutka and Mainpuri in the respective provinces (Government of Punjab, 2018). These laws are implemented by district food authorities in collaboration with the police department.

Another legislation concerning tobacco, the Punjab Tobacco Vend Act, 1958 was recently revived in the capital city and some other cities in Punjab. This law mandates retail sale licenses to cigarette sellers in urban areas of Pakistan. Almost 1400 such licenses have been issued in the capital city since 2013. This law was implemented under the Bloomberg Initiative of the Tobacco-Smoke Free Capital, and now is part of the "Islamabad model city project" ("Tobacco-Smoke Free Capital City," 2017). The Capital Administration is taking multiple administrative and coordination steps for creating awareness of hazards of tobacco use in the general population and implementation of the Prohibition of Smoking in Enclosed Places and Protection of Non-smokers Health Ordinance, 2002. The ultimate aim is to execute a model of a tobacco-smoke-free city. The timeline to achieve this aim is not yet specified. However, a recent evaluation shows suboptimal law enforcement (Capital Administration and Development Division (CA&DD), 2014).

3.3. Tobacco control legislation in Pakistan

3.3.1. International legislation

Pakistan is a party to the WHO Framework Convention on Tobacco Control (FCTC) since 2005 and is legally bound to show political commitment to and take actions towards the objectives of the treaty. In Article 3, the FCTC makes its objective explicit, '*to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco consumption and exposure to tobacco smoke*'(WHO, 2003). This objective can be achieved by taking a series of demand and supply reduction measures as identified by the FCTC. The FCTC secretariat also arranges for regular conferences of FCTC parties to discuss issues and develop guidelines for the implementation of its articles. These guidelines are available for all the demand reduction strategies. The main purpose of the guidelines is to assist governments in meeting the obligations under the FCTC.

3.3.2. National legislation

Pakistan has taken several legal and administrative actions for compliance with the FCTC provisions. Table 3.1 gives the details of the enacted laws in this regard. The majority of these laws have not been implemented fully which leaves gaps in using these regulatory tools.

Table 3-1. Tobacco control laws and their implementation status in Pakistan

S.No.	Main provisions	Law	Relevant Section/SRO	Implementation status
SMOKE-FREE PLACES				
1	A complete ban on smoking and tobacco use in public places*	The Prohibition of Smoking in Enclosed Places and Protection of Non-smokers Health Ordinance, 2002	Section 5 and the SRO 51(KE)/2009	Almost 70% of people are exposed to smoke at their place of work and 86% at restaurants (GATS, 2014).
2	A complete ban on smoking and tobacco use in public service vehicles		Section 6	Almost 80% of the divers/ conductors were found to be smoking in such vehicles (Javed, 2009). Recent GATS (2014) also suggest that 76.2% of the people are exposed to smoke on public transport.
3	Mandatory display of boards stating "No Smoking Zone" and 'Smoking is an Offence' at public places		Section 10	Only one-third (36%) of the public places have a 'no smoking' board while only 8% have the board 'smoking is an Offence' (Javed, 2009).
4	Ban on imports, sale and use of shisha on commercial basis			The legislation is not being implemented to the full extent (Haider, 2015). Shisha smoking is common among medical students with a prevalence of 21.5 % (Zavery et al., 2017).
5	Storage, sale and distribution of any tobacco product is prohibited within 50 meters of the vicinity of any educational institute		Section 9	Almost 8% of educational institutes sell cigarettes in their cafeterias and 57% of institutes have at least one shop selling tobacco products within 50 meters (Javed, 2009).
CIGARETTE PACKAGING				

1	Cigarette packs to contain health warnings (pictorial & textual) on both front and back side of pack written in Urdu and English	Cigarettes (Printing of Warning) Rules, 2009	Rule 6,7,8	9% and 3.5% of the used packs do not comply with pictorial health and textual health warning respectively. While the proportion was 11.6% and 2.2% for the packs available at retail outlets (Ross, Islam, Aftab, & Janjua, 2018).
2	Size of warning was increased to 50% on both front and back side** (implementation from 1st June 2018 and size 60% to be implemented from 1st June 2019)		SRO 127 (KE)/2017, Rule 6 (1) and 6 (2)	
3	Printing of manufacturer's name, retail price and sales tax on packs of cigarettes is mandatory	The Federal Excise Duty Act, 2005 The Sales Act, 1990	Section 19 (9) of the FED Act	8.9% of the used packs do not have price and sales tax mentioned on packs, the similar proportion for packs available in retail outlets is 11.6% (Ross et al., 2018).
4	Package labelling with any information promoting cigarettes use or a particular brand is banned	Cigarettes (Printing of Warning) Rules, 2009	Rule 8A	Law is not fully implemented, some cigarette packs bear promotional phrases (The Network for Consumer Protection, 2015)
5	Cigarette pack size (at least 20 sticks)	The Prohibition of Sale of Cigarettes to Minors Rules, 2010	Section 2(3)	100% packs had 20 cigarettes in each pack (Euromonitor, 2017)
6	Ban on sale of loose cigarettes from opened up cigarette packs		SRO (I)/2018 Rule 3 (4)	The sale of loose cigarettes was common before the law (WHO, 2014a), implementation to monitor after June 2018.
CIGARETTES AND MINORS				
1	Prohibition of sale of cigarettes to and by minors (under 18)	The Prohibition of Sale of Cigarettes to Minors Rules, 2010	Section 3(1)	87.6% of current smokers aged 13 to 15 years easily bought from shops, kiosks, school canteen (WHO, 2014a), 100% shops selling cigarettes in Lahore and over 83% such shops in Karachi, 91% in Rawalpindi do not have
2	Prominently display warning on the premises, *sale of cigarettes is prohibited to minors (under 18 years of age) and it is a law*.		Section 3(2)	

3	Each cigarette pack to be labelled with instruction to not to be sold to people under 18 years of age, printed in Urdu		Section 2(2)	the board prohibiting sales to minors (The Network for Consumer Protection, 2016).
TOBACCO ADVERTISEMENT				
1	Ban on tobacco advertisement in print media, on television, radio, cinema, theatre, at shops, kiosks, mobile trolley, and on billboards	Tobacco advertisement guidelines	SRO 1086 (I)/2013	Almost one-third of smokers (34.4%) and 17.4% of non-smokers are exposed to in-store tobacco advertisements (GATS, 2014). Almost 42% of smokers and 30% of non-smokers have reported exposure to marketing other than an in-store advertisement (GATS, 2014).
2	Introduction of a ban on free goods, cash rebates, free samples, discount or goods below the market value to consumers for advertisement of tobacco or tobacco products		SRO 53(KE)/2009	9.3% of the students (aged 13-15 years) have been offered a free tobacco product (WHO, 2014a)
3	Ban on incidental advertisement of smoking in any media by tobacco industry		SRO 882(I)/2007	No available data
4	No toys, sweets, snacks should be manufactured or offered for sale that are in the form of cigarettes	The Prohibition of Sale of Cigarettes to Minors Rules, 2010	Section 2(1)	No available data
OTHER TOBACCO PRODUCTS				
1	Paan (Betel quid) shop licensing	Punjab Food Authority		Data not available
2	Ban on manufacture, purchase, storage and sale of Gutka	Provincial regulations in Punjab and Sindh	Punjab pure food regulations, 2018 (Regulation 11.1)	Several raids were carried out and huge amounts of gutka worth millions of rupees have been confiscated by district authorities.

3	Warning labels on all chewing tobacco products (textual and pictorial)	Punjab Pure Food Regulations, 2018	Regulation 8.5 (18)	Not yet implemented

3.4. Methods

Qualitative Document Analysis (QDA) was undertaken to analyse policy documents, and secondary analysis of the price and affordability data to assess the impact of TTPP on affordability of tobacco products in Pakistan.

The analysis of this chapter was conducted in four steps:

1. Developing the analytical framework
2. Finding and selecting policy documents
3. The QDA of policy documents
4. Analysis of price data to assess the affordability of tobacco products

3.4.1 Development of the analytical framework

An analytical framework was developed to assess the TTPP in Pakistan against the standards set by the WHO FCTC. The FCTC and its complementary documents were reviewed to delineate the TTPP related standards. The final framework was based on the Article 6 of the FCTC (Price and tax measures to reduce the demand for tobacco) and the guidelines adopted for implementation of the Article 6. Some additional assessment standards were also included based on the WHO's Manual on Tax Administration (WHO, 2010)

The guidelines for the implementation of Article 6 were carefully reviewed. They have various sections with a number of recommendations. These recommendations were used as benchmarks to compare TTPP in Pakistan. Two analytical frameworks were developed: first for the assessment of tobacco taxation policy (table 3-2) and the second for tax administration mechanisms and control of illicit trade (table 3-3).

Table 3-2. FCTC guidelines for the design of tobacco taxation policies

Best practice criteria	Analysis base
Strategic level policy	
Include tobacco taxation as part of a comprehensive tobacco control programme	Policy documents related to tobacco control, official websites of tobacco control cell, tobacco board, the ministry of finance and ministry of health
TTPP should be designed in a way to reduce affordability of tobacco products over time in order to reduce consumption and prevalence.	
Need to have long term policies on tobacco tax structure to achieve public health, fiscal and other objectives	
When deciding on TTPP, take into account both price elasticity and income elasticity of demand, as well as inflation and changes in household income	
The TTPP should be protected from commercial and other vested interests of the tobacco industry swell as from any other actual and potential conflicts of interests	
Tax rate and structure	
Tobacco excise tax levels should be at least 70% of the retail price for	Finance Acts (2013-
Increase tobacco taxes by enough to reduce the affordability of tobacco products	Affordability analysis of price data
Automatically adjust specific tobacco taxes for inflation	Finance Acts (2013-2018), the Federal Excise Act, 2005
Tax rates should be monitored, increased, or adjusted annually (considering inflation and income growth) in order to reduce consumption of tobacco	Finance Acts (2013-2018)
Rely more on excise taxes than on import duties	Finance Acts (2013-
Specific tax should account for a greater share of total excise tax	Finance Acts (2013-
Similar tax burden on all tobacco products	
Apply comparable excise tax on all brands of the given tobacco products	Finance Acts (2013-2018), the Federal Excise
Decrease price gaps between products (consider the use of Minimum specific excise floor)	Finance Acts (2013-2018), the Federal Excise
Adopt comparable taxes and tax increases on all tobacco products	Finance Acts (2013-2018), FCTC compliance reports by Pakistan
Tax and duty free sale	
Prohibit or restrict (*eliminate*[*]) tax and duty-free sales of tobacco products	Federal Excise Duty Act, 2005
Use of revenues for tobacco control	
Consider using revenues to fund tobacco control programme	Finance Acts (2013-2018), the Federal Excise Act, 2005, Tobacco board website

Table 3-3. WHO recommended best practices for tobacco tax administration

Best practice criteria (Benchmarks)	Analysis base
Authorization or licensing or control systems	
Transparent licencing/registration systems should be in place for all involved in tobacco manufacturing and distribution: tobacco growers, manufacturers and importers of tobacco products, manufacturing equipment, distributers of tobacco products or manufacturing equipment, wholesalers and retailers	The Federal Excise Act, 2005 and the Federal Excise Rules, 2005; Tobacco board website
Warehouse system/movement of excisable goods and tax payments	
Adopt and implement systems of warehouses to facilitate excise controls on tobacco products	The Federal Excise Act, 2005 and the Federal Excise Rules, 2005; the Sales Tax Act, 1990 and Sales Tax Rules, 2006, the Customs Act, 1969 and the Customs Rules, 2001
Excise taxes should be imposed at the point of manufacture, imports or release for consumption from the storage or production warehouses	
Tax payments should be required to be made at fixed intervals or on a fixed date each month	
Tax payments should include reporting of production and/or sales volumes, and price by brands, taxes due and paid, and may include volumes of raw material inputs	
Tax authorities should allow for the public disclosure of the information contained within these reports through the available media, including those online	
Anti-forestalling measures	
Implement measures to restrict the release of excessive volumes of tobacco products immediately prior to a tax increase	The Federal Excise Act, 2005 and the Federal Excise Rules, 2005
Measures to levy the new tax on products already produced or kept in stock, including those in retail (known as a floor-stock or inventory tax)	
Fiscal marking to monitor production and imports of tobacco	
Use fiscal markings (such as tax stamps, banderols, or digital tax stamps) to distinguish legal tax paid products from illegal tax evaded products.	The Federal Excise Act, 2005 and the Federal Excise Rules, 2005;
Consider implementation of track and trace systems for tobacco products in line with Article 15 of the FCTC	
Enforcement	
Tax authorities should have the authority and capacity to conduct investigations, search, seizure, retention and disposal activities	The Federal Excise Act, 2005; the Sales Tax Act, 1990; the Customs Act, 1969
Different enforcement agencies should share information	
Appropriate range of penalties for non-compliance with tax law should be introduced such as suspension or cancellation of licence or the application of more stringent conditions on the licence, fines and/or jail, forfeiture of products, forfeiture of equipment used in the manufacture or distribution of products including machinery and vehicles, cease and desist orders	
Put in practice the penalties for late payment including interests	

3.4.2 Finding and selecting policy documents

To extract the data on the overall tobacco regulation in the country, the official websites of the National Tobacco Control Cell (TCC), Federal Board of Revenue (FBR), Inland Revenue Enforcement Network (IREN), and Pakistan Tobacco Board (PTB) were searched. Official websites of the civil society organizations dealing with tobacco and/or tobacco taxation were also scrutinised for relevant information including the Campaign for Tobacco-Free Kids (CTFK) Tobacco Control Laws' website. Another data source to supplement the information was the official reports submitted by Pakistan to the FCTC secretariat in compliance with the Article 21 of the FCTC (FCTC Implementation Database, n.d.).

The current government policies, Acts and laws pertaining to tobacco control and tobacco taxation were: the Finance Acts, 2006-07 to 2020-21 (for tobacco tax structure and rates); the Federal Excise Act, 2005 amended up to 30th June 2020 and the Federal Excise Rules, 2005; the Sales Tax Act, 1990 amended up to 30th June 2020 and Sales Tax Rules, 2006; Sales Tax Special Procedures Rules, 2007; the Customs Act, 1969 as amended up to 30th June 2020; the Customs Rules, 2000; the Cigarettes (Printing of Warning) Ordinance, 1979 and the Prohibition of Smoking in Enclosed Places and Protection of Non-smokers Health Ordinance, 2002. In addition, I reviewed the Statutory Regulatory Orders (SROs) published in the official gazette of Pakistan to update the legislation. The text on the official websites of PTB and TCC was also analysed to aid the interpretations of policy statements.

3.4.3 Qualitative Document Analysis

A review of all relevant policies was done with a specific focus on sections that were concerned with tobacco, tobacco products, or cigarettes were highlighted for thorough reading. In addition, general sections which were relevant and concerned with the licencing, registration, operation of the business, and tax administration in Pakistan were highlighted for further examination. The developed analytical frameworks (Table 3.2 and 3.3) served as a guide for identifying relevant sections.

Each highlighted section was carefully read and analysed to determine the extent of the match with the benchmarks set by the FCTC for TTPP. The strength of the match with each benchmark was then categorized into four categories: 'full match'; 'partial match'; 'unclear'

(the benchmark provisions were there in the policy, but details were lacking to make the decision); or 'not matching' the benchmark. In addition, the data for each benchmark was summarised to synthesise the findings. Analysis was done through qualitative assessment of the text which focused on interpreting the meaning rather than identifying the presence or absence of keywords or word frequency counts.

A summary of each policy document with relevant benchmarks in it was produced in addition to the original annotated documents. This audit trail was maintained to ensure the scientific rigor of the analysis process and to aid review and validation.

3.4.4 Analysis of price and affordability data

To measure the impact of TTPP on tobacco prices and affordability, the already available data on tobacco products' pricing were analysed. Average consumer prices for cigarettes, betel leaves and betel nuts were collected from the monthly statistics bulletin issued by the Pakistan Bureau of Statistics (PBS), while the price for snus was based on a market survey conducted in 2017 by the researcher (HM) in two Pakistani cities Attock and Islamabad. The methodology of the survey is briefly described in Box 3.1. Data on the official prices, tax rates and structure were sought from the FBR. Inflation rates and consumer price index data were accessed from the website of PBS (PBS, n.d.).

Box 3.1. Methodology of cross-sectional study for snus prices

A cross-sectional study was carried out in two main cities of Pakistan, Islamabad (the capital) and Attock to measure the price and affordability of Pakistani oral snus (*Naswar*) in 2017. Islamabad, being the capital is a highly developed and relatively expensive city. In contrast, Attock is a less developed region in the largest province (Punjab) of Pakistan. Both cities were divided into geographical clusters using city maps. Islamabad was divided into 10 clusters while Attock into three. A total of 5 stores (selling smokeless tobacco) were selected from every selected geographical cluster based on convenient sampling and all the available brands of *snus* were purchased. Both small and large stores and kiosks were included as these are cited as the major sources of SLT purchase in Pakistan (GATS, 2014). The retail price of products was recorded immediately after the purchase. All snus packs were weighed on a

digital balance to record their gross weight in grams. Then price per 10 and 20 grams were calculated. For pouches, the price per pouch was calculated.

Trends of change in (nominal and real) prices of the top 4 selling cigarette brands were described for the time period 2010-2020. The consumer price was considered as the nominal price while the real price was calculated by dividing the nominal price with CPI and multiplying by December 2020 prices. Similar calculations were done for betel leaves and betel nuts.

The affordability of tobacco products was estimated using two established measures of tobacco affordability; relative income price and the Big Mac index. The *relative income price,* a measure developed by Blecher and van Walbeek (2004), is the percentage of per capita GDP required to purchase 100 packs of cigarettes. In comparison, a higher ratio means less affordability and vice versa. The Scollo's *Big Mac Index* (Lal & Scollo, 2002) was also calculated, for measuring the affordability of cigarettes and *snus*. The BigMac Index calculates the number of cigarettes packs one can buy for the price of one BigMac. This index was adapted for snus as the number of packs of snus (20 grams each) for the price of one BigMac. For affordability calculations, the prices of cigarettes as reported in the WHO report on the global tobacco epidemic and BigMac prices published by the Economist were used to calculate the index (Economist, n.d.; WHO, 2017a). It was not possible to calculate the affordability for betel quids (paan) as the price data were available for only the raw materials of the product; betel leaves and betel nuts. However, a historical account of price changes for the main raw materials could indicate the changes in overall affordability and prices.

3.5. Results

First, I present an overview of the tobacco taxation in Pakistan. Second, I will focus on the analysis of TTPP. The analysis will be focused on three elements: assessment of the tax structure & administration mechanisms, assessment of pricing policies, and overall impact of TTPP on prices and affordability of tobacco products in Pakistan.

3.5.1. Tobacco taxation in Pakistan

Pakistan has been taxing tobacco leaves, processed unmanufactured tobacco, filter rods for cigarettes and manufactured cigarettes and other tobacco products (cigars, cigarillos, cheroots)

using excise duties and sales tax for decades. Currently, there are import duties of 10-25% on the cigarette wrapping materials (FCTC Implementation Database, n.d.). The tax on filter rods and unmanufactured tobacco is at zero-rating, implying that the tax is finally adjusted (returned to manufacturers). This is done to avoid double taxation. Figure 3.1 details the taxation system during the production and distribution of tobacco and cigarettes in Pakistan.

Tax structures for tobacco products are usually revised on an annual basis in Pakistan as part of the announcement of the fiscal budget in June. The FBR proposes the tax structure and tax rates for tobacco products, and these proposals are then put before the Parliament for approval. The TCC through the Ministry of Health gives suggestions for revision of tax rates. However, in absence of any comprehensive policy on using tobacco taxation as a tobacco control tool in Pakistan, adjustments in tax rates are made mainly on revenue goals. This is against the guidelines on the implementation of Article 6 which demands governments to revise taxes based on price and income elasticities of demand and taking into consideration the inflation and changing household income (WHO, 2014).

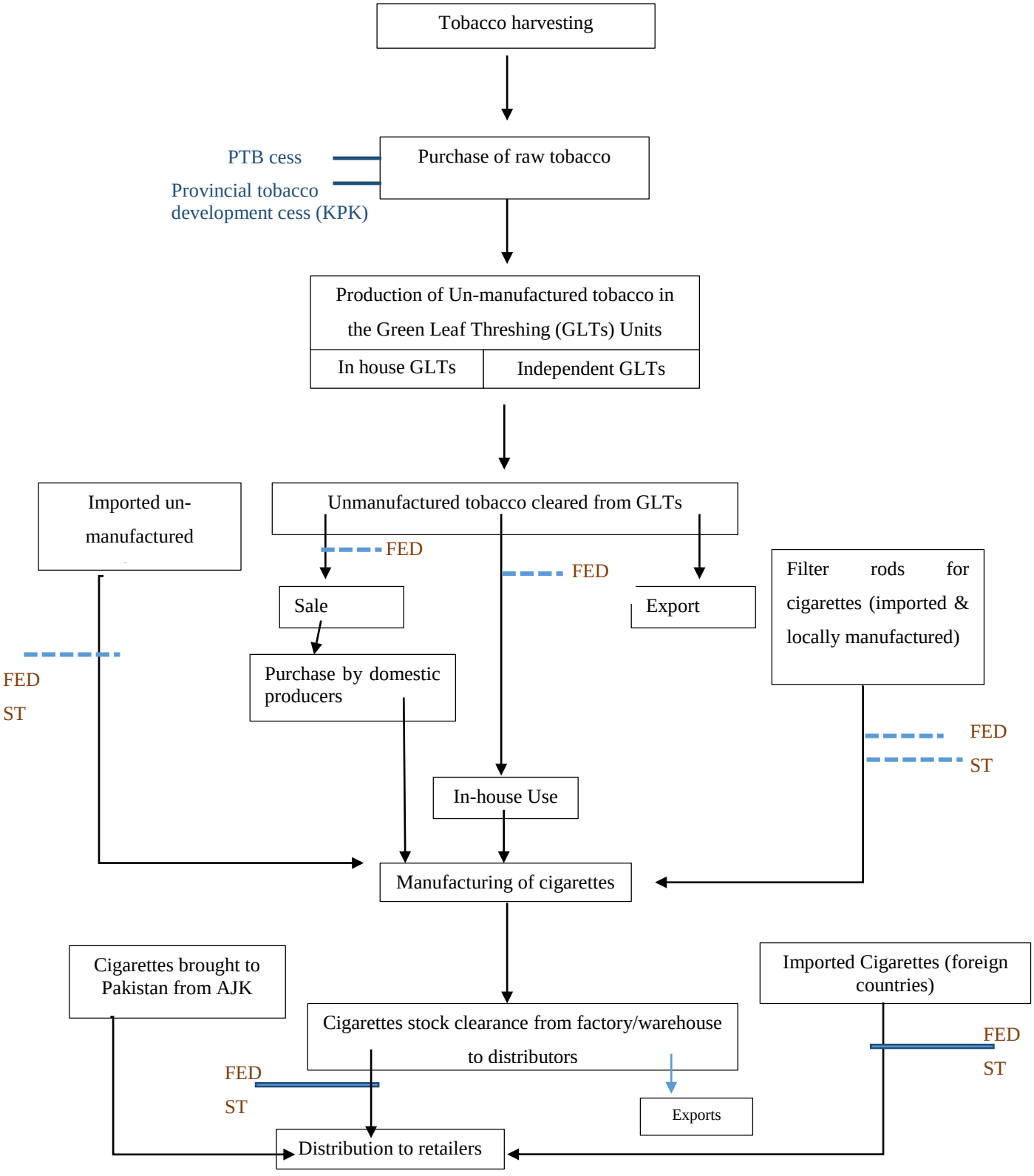

Figure 3-1. Taxation system flow for cigarettes in Pakistan

Zero rated taxation, FED=Federal Excise Duty, ST= Sales tax, PTB=Pakistan Tobacco Board, KPK= Khyber Pakhtunkha, AJK= Azad Jummu Kashmirs

3.5.2. Tax structure of tobacco products

Raw tobacco

Three types of tax are levied on raw tobacco in Pakistan, one under the auspices of the FBR, second under the PTB and the other by the provincial governments where tobacco is grown called the '*tobacco development cess*'.

PTB charges cess on the purchase of raw tobacco from all tobacco buyers. PTB uses this cess as its operational budget and it does not go to the national exchequer. This cess is charged at a specific rate per kilogram of the tobacco purchased. The rates are usually revised on a yearly basis. For the fiscal year 2017-18, the rate was PKR 3.67/kg, 2.01/kg, 2.01 per kg for Tobacum Nicotiana, Tobocum Rustica and Naswar/snuff respectively. Which was a very minimally increased from the previous year's cess of PKR.3.20/kg, Rs.1.82/Kg & Rs. 1.82/Kg for the concerned varieties.

Provincial governments, levy the tobacco development cess on purchasers of raw tobacco. This cess is meant to be spent on the districts where tobacco is grown (Government of KPK, 2007). The aim is to utilise this cess for the development of tobacco growing areas and on activities to further develop tobacco production.

The PTB has recently amended the definition of raw tobacco to rationalize the taxation system (PTB Ordinance amendment, December 2017). Earlier, tobacco was defined as '*the commodity which is made from the leaves of the plant Nicotiana tobaccum or Nicotiana rustica and is commonly known as tobacco and includes adjacent tender stalks or green tobacco but does not include tobacco waste*.' This definition excluded the tobacco stumps, cuttings, buds, seeds and roots which are often used in the production of tobacco products; rendering the taxable quantity quite less. According to the new definition, tobacco includes "*the commodity made from any part of the plant Nicotiana Tobaccum or Nicotiana Rustica used or consumed in the manufacture of cigarettes or any other tobacco product or by-product through any other modes, forms, and processes* (PTB Ordinance amendment, Dec 2017).

Unmanufactured tobacco

Unmanufactured tobacco refers to processed tobacco ready to be filled in cigarettes after treatment in the GLTs. The FBR charges PKR 10 per kilogram of unmanufactured tobacco as federal excise duty which is at zero-rating and is adjustable in final tax payments (Federal Excise Act, 2005).

Bidis, naswar, paan, snuff, khaini, and other smokeless tobacco products

Except for the cess on the raw tobacco, no tax (sales or excise) is levied on bidis or any of the smokeless tobacco products in Pakistan. The Federal Excise Duty Act, 2005 exempts un-manufactured tobacco that is used for the production of tobacco products other than cigarettes and smoking mixtures for pipes, cigars, and cheroots. The sales tax is not applied on products from cottage industries and small businesses having less than 5 million rupees annual revenues.

Cigars, cheroots, cigarillos and cigarettes, of tobacco substitutes

These products constitute a small fraction of the legal tobacco market and are taxed with ad valorem excise of 65% of the retail price (Finance Act, 2010). All imported cigarettes are also taxed at this rate.

Electronic cigarettes

Tobacco mixture in any electrically heated system without combustion is charged with an excise duty of PKR 5200 per kilogram (Finance Act, 2021). E-liquids intended to be used in electronic cigarettes have an excise duty of PKR 10 per mL (Finance Act, 2020).

Cigarettes

Pakistan has been using different tax structures and rates for cigarettes (Table 3.4). Before 2013, it had a mixed tax system of specific and ad valorem tax with multiple tiers of cigarettes. These tiers are formed based on retail prices (excluding sales tax), where lower tax is imposed on low price tier and higher tax on high price tier of cigarettes keeping cigarettes affordable for poor consumers. Large price differentials provide an opportunity for smokers to switch to cheaper brands in case they feel a decrease in affordability.

Table 3-4. Taxation rates for locally produced cigarettes

Year	Tax base	Excise Tax rate		FED share for economy brands*	Effective date
	Retail price per 10 cigarettes	**Specific** (per 10 cigarettes)	**Ad valorem**		
2011-12	≤ 11.50	6.04	-	52.52%	03-06-2011
	>11.50, ≤ 21.00	6.04	70% of the RP >11.50		
	>21.00	-	65% of the RP		
2012-13	≤ 13.36	7.02	-	52.54%	01-06-2012
	> 13.36, ≤ 22.86	7.02	70% of the RP >13.36		
	>22.86	-	65% of the RP		
2013-14	≤ 22.86	8.80	-	38.49%	12-06-2013
	>22.86	23.25	-		
2014-15	≤ 27.06	10.85	-	40.09%	04-06-2014
	> 27.06	26.32	-		
2015	≤ 33.50	13.2	-	39.40%	05-06-2015
	> 33.50	30.3	-		
2015-16	≤ 36.00	14.2	-	39.44%	30-11-2015
	> 36.00	31.55	-		
2016	≤ 40.00	15.34	-	38.35%	01-07-2016 to 30-11-2016
	> 40.00	34.36	-		
2016-17	≤ 44.00	16.49	-	37.47%	01-12-2016
	> 44.00	37.05	-		
2017-18	≤ 29.25	8.00	-	27.35%	01-07-2017
	> 29.25, ≤ 45.00	16.70	-		
	> 45.00	37.40	-		
2018-19	≤ 29.25	8.54	-	29.19%	19-05-2018
	> 29.25, ≤ 45.00	17.76	-		
	> 45.00	39.70	-		
2018 Finance amendment bill	≤ 29.25	12.50	-	42.73%	16-10-2018
	> 29.25, ≤ 45.00	18.40	-		
	> 45.00	45.00	-		
2019-20	≤ 59.60	16.50	-	27.68%	01-.7-2019
	>59.60	52.00	-		
2020-21	Unchanged				

* Based on the maximum possible retail price limit for the lowest price tier; tobacco companies may set lower prices thus increasing the tax share

In 2013–14, FBR removed the ad-valorem component and also reduced the number of tax tiers from 3 to 2. This has resulted in decreased consumption and increased revenues (Figure 3.2). However, in 2017-18, the third tier was reintroduced in response to increased tax evasion and loss of revenues in the financial year 2016/17 (Ross et al., 2018). This provided an opportunity

to produce low tax and priced cigarettes again. Despite the criticism by the ministry of health, civil society and concerns raised by the judiciary, the FBR continued with the same three tiers and low tax even in the budget for the year 2018-19 (Ali, 2018; FBR, 2018; H. Khan, 2017). However, the third tier was abolished in 2019.

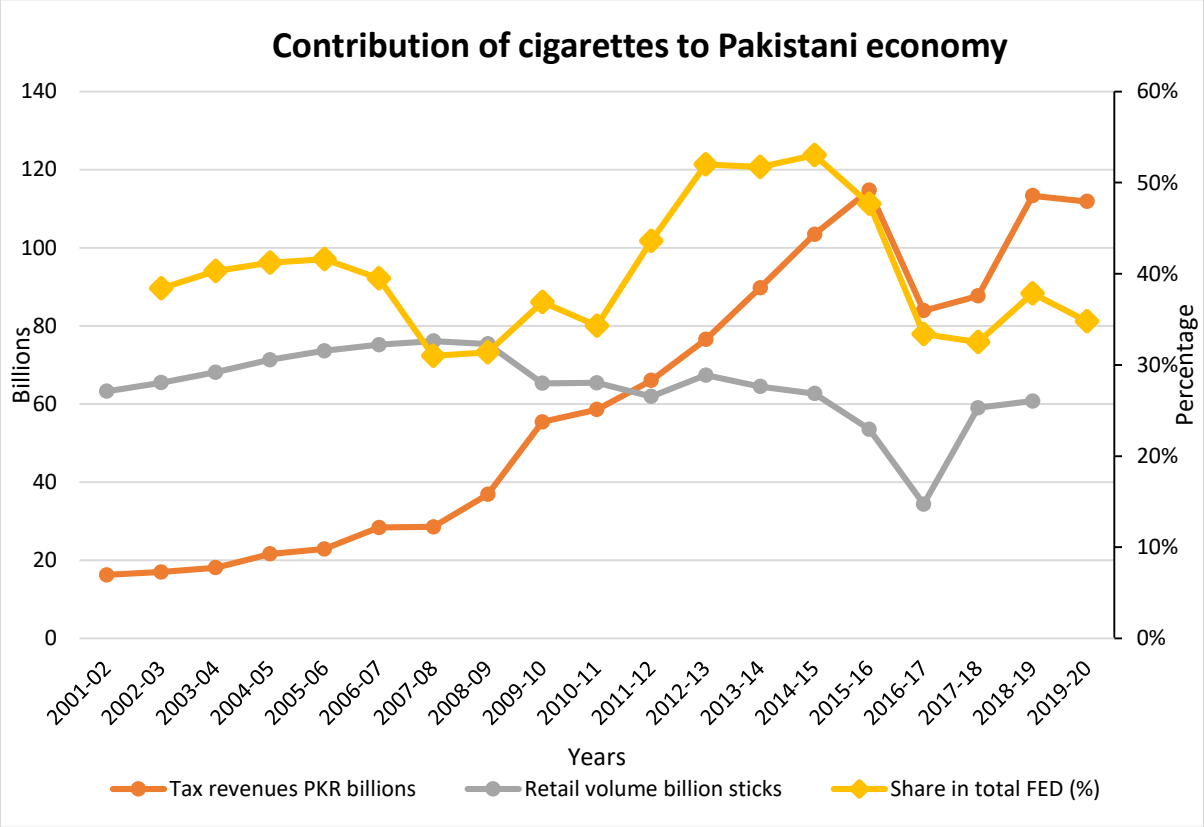

Figure 3-2 Contribution of cigarettes to Pakistani economy

Currently, cigarettes are divided into two price tiers with economy brand cigarettes (capturing over 80% of the market share) taxed at the rate of PKR 33 per pack of 20 cigarette sticks. The FED is not increased in the year 2020-21. The FED share in retail price for economy brands is almost 48% (Figure 3.3) as opposed to the minimum 70% benchmark set by the WHO. The FED share for the premium brand is 67% (Figure 3.4).

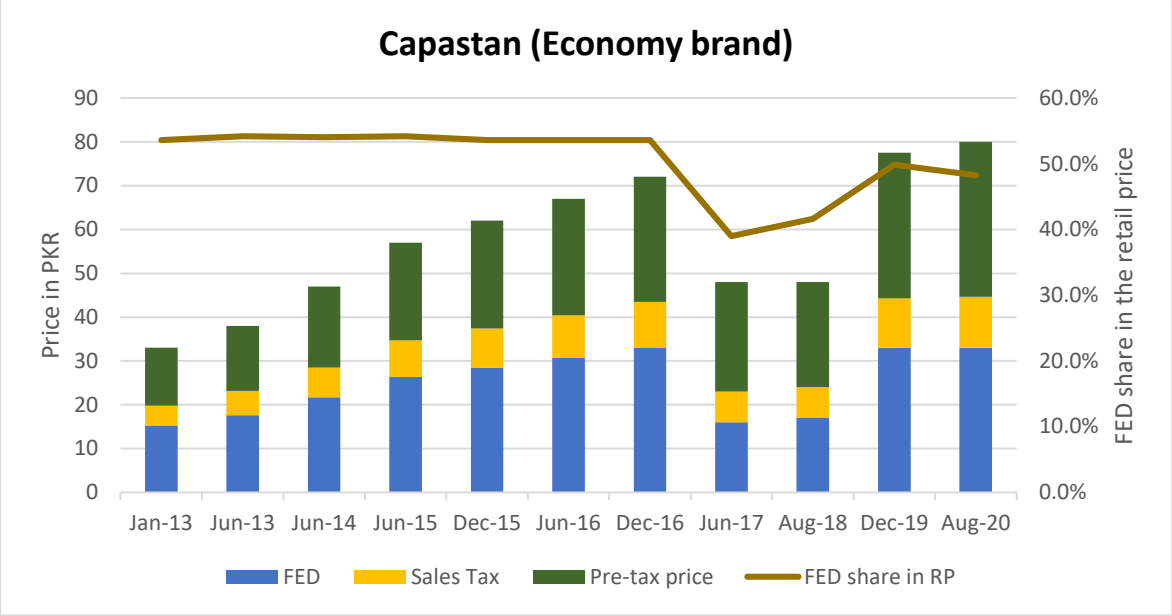

Figure 3-3. Changes in prices and FED share in retail price for market leader economy brand

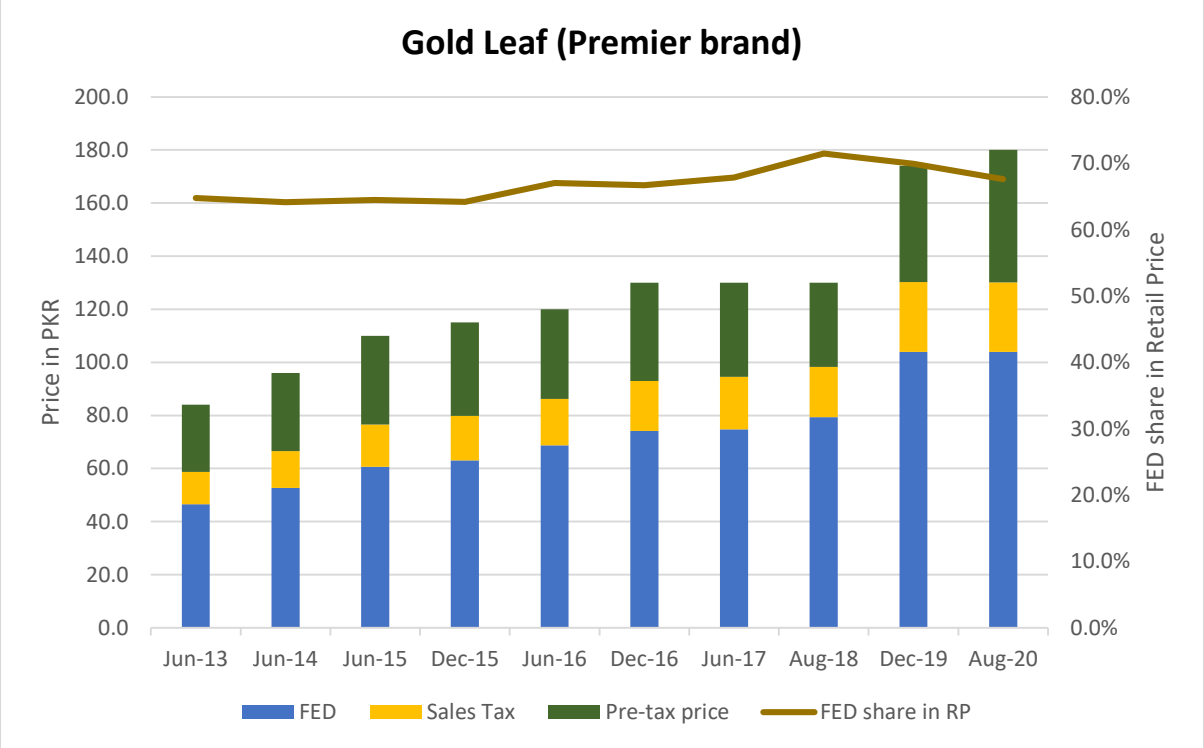

Figure 3-4. Changes in prices and FED share in retail price for market leader premium brand

The Federal Excise Act (2005) exempts all tobacco products from taxation if supplied for consumption to the Pakistan Navy onboard or the president of Pakistan, the president of Azad Kashmir, the provincial Governors and to their families and guests and the duty-free shops.

Table 3.5 gives a snap shot of the tobacco tax structure in Pakistan against FCTC guidelines and the best practices recommended by the WHO (2010). A quick look at the table shows that Pakistan does not meet these benchmarks in most of the respects which could undermine the use of taxation as a public health tool.

Table 3-5. Comparison of tobacco tax structure in Pakistan with the WHO FCTC recommended benchmarks

Sr. No.	Bench marks	Analysis base	Assessment	Comments
	Strategic level policy			
1.	Include tobacco taxation as part of a comprehensive tobacco control programme	Policy documents related to tobacco control, official websites of tobacco control cell, tobacco board, the ministry of finance and ministry of health	-	Currently, the FBR documents don't mention tobacco taxation as a tobacco control tool. However, the TCC has been continuously advocating and liaising with the FBR to increase tobacco taxation to control tobacco use in the country.
2.	TTPP should be designed in a way to reduce the affordability of tobacco products over time in order to reduce consumption and prevalence.		-	The FBR documents on tobacco taxation do not commit to reducing the affordability of tobacco products. In June 2017, cigarette prices were markedly decreased from PKR 70 to PKR 48 for the most commonly sold and other economy brands indicating no such commitment.
3.	Need to have long term policies on tobacco tax structure to achieve public health, fiscal and other objectives		-	There are no short or long term policies on tobacco taxation to achieve public health goals
4.	When deciding on TTPP, take into account both price elasticity and income elasticity of demand, as well as inflation and changes in household income		-/+	The FBR has never considered price elasticity or income elasticity as well as income growth in deciding on tobacco taxation. However, the historical account shows that price increase was keeping pace with inflation
5.	The TTPP should be protected from commercial and other vested interests of the tobacco industry swell as from any other actual and potential conflicts of interests		-	There are no policies to protect against potential conflict of interests and media reports show an influence of the tobacco industry on the FBR's decisions on tobacco taxation
	Tax rate and structure			
6.	Tobacco excise tax levels should be at least 70% of the retail price for tobacco products	Finance Acts (2013-2018)	-	The current tax share of the leading economy brands is 41% (which captures more than 80% of the market share). However, after the 2018 budget, the tax share for the premium brands has met the benchmark for the first time.

7.	Increase tobacco taxes by enough to reduce the affordability of tobacco products	Affordability analysis of price data	-/+	The affordability of cigarettes had been decreasing from 2012-to 2016 but they became more affordable in 2017. The 2018 budget has minimally increased the prices thus maintaining the affordability.
8.	Automatically adjust specific tobacco taxes for inflation	SROs by FBR, Finance Acts (2013-2018), the Federal Excise Act, 2005	-/+	There is no particular policy to adjust taxes for inflation, however, the historical account shows that inflation-adjusted prices had been increasing till 2016 after that the price was drastically reduced (for the economy brand, PKR 70 to PKR 48)
9.	Tax rates should be monitored, increased, or adjusted annually (considering inflation and income growth) in order to reduce consumption of tobacco products	Finance Acts (2013-2018)	-	Although tax rates are adjusted annually in Pakistan, the motivation for this adjustment is revenues, not the aim of reducing affordability or consumption
10.	Rely more on excise taxes than on import duties	Finance Acts (2013-2018)	+	Pakistan mainly relies on excise taxes
11.	Specific tax should account for a greater share of total excise tax	Finance Acts (2013-2018)	+	Pakistan is using specific excises for all domestically produced cigarettes (meeting over 95% of market share), however ad valorem tax on imported products.
	Similar tax burden on all tobacco products			
12.	Apply comparable excise tax on all brands of given tobacco products	Finance Acts (2013-2018), the Federal Excise Act, 2005	-	Pakistan has a tiered tax structure of cigarettes where it applies differential excises on cigarettes, lower tax on economy brands as compared to premium brands, thus keeping them affordable.
13.	Decrease price gaps between products (consider the use of Minimum specific excise floor)	Finance Acts (2013-2018), the Federal Excise Act, 2005	-	Pakistan has a huge gap in the prices of cigarettes, ranging from PKR 40 to 140 for a pack of 20 cigarettes. The minimum price law allows the price gap to be 45%
14.	Adopt comparable taxes and tax increases on all tobacco products	Finance Acts (2013-2018), FCTC compliance reports by Pakistan	-	Pakistan does not tax locally manufactured smokeless tobacco products, bidis, and smoking mixtures for *huqa* at all. The tax rate is comparable for premium brand cigarettes, cigars and cigarillos.
	Tax and duty-free sale			

15.	Prohibit or restrict (*eliminate*[*]) tax and duty-free sales of tobacco products	Federal Excise Duty Act, 2005	-	All tobacco products are exempted from taxation if supplied for consumption to the Pakistan Navy or the president of Pakistan, the president of Azad Kashmir, the provincial Governors and their families and guests, and the duty-free shops. Duty-free products are often available in local markets as well.
	Use of revenues for tobacco control			
16.	Consider using revenues to fund tobacco control programme	Finance Acts (2013-2018), the Federal Excise Act, 2005, Tobacco board website	-	A health levy was proposed in the Finance bill 2018 but was not approved. The provinces charge some cess on raw tobacco which is utilised in the development of tobacco growing districts. PTB charges cess to facilitate further tobacco growth and research
	Additional benchmarks as per WHO's technical manual on tobacco tax administration[*]			
17.	Use the tobacco taxation primarily to achieve public health goals (reducing tobacco-related deaths and harms)		-	(See above)
18.	Where revenue increase is a goal, rely on tobacco tax increases to achieve revenue increases (Do not rely on industry sales volume)	SROs by FBR Media watch and other documents	-	Tax share was revised downwards in 2016/17 in response to the decreasing sales of the legitimate sector
19.	Ensure tax is transferred to consumers (Evaluate under/over shifting of tax)		-	The FBR is not concerned with under or over-shifting of taxes. A recent study by IMF reveals that tax is under shifted to consumers for economy brands in Pakistan at the rate of 80%. This undermines the role of tax as a tobacco control tool.
20.	Do not view low taxes and prices for some tobacco products as a "pro-poor" policy	Yearly revenue books published by the FBR, Media watch and official websites of FBR,	No Data	-
21.	Do not allow concerns about the regressivity of higher tobacco taxes to prevent tobacco tax increases		No Data	-

22.	Do not allow concerns about employment impact to prevent tobacco tax increases	tobacco control cell, tobacco board	-	PTB website highlights the number of people employed in tobacco sector
23.	Do not allow concerns about the inflationary impact of higher tobacco taxes to deter tax increases		No Data	-

* Benchmarks prescribed by the WHO's technical manual on tobacco tax administration alone and not a part of the FCTC guidelines

+ indicates full-match with the guidelines, - indicates does not match with the guidelines' requirements, +/- indicates a partial match with the guidelines

3.5.3. Tax administration mechanisms

The Inland Revenue Department (IRD) of the FBR is responsible for tax administration on locally produced tobacco products. The IRD has its field offices in 15 major cities of Pakistan and is responsible for registration, collection, record keeping as well as monitoring.

A major strength of tobacco tax administration policy in Pakistan is the mandatory registration with tax authorities irrespective of the volume and value of production. All manufacturing (or service provider) companies are required to get registered with their concerned inland collectors for sales and excise duties. At the time of registration, all companies (irrespective of their products and services) are required to submit details of their premises, plants, machinery, raw materials and a list of taxable goods (and or services) to be produced. In case there is a change in these details after registration, the registered person (company) is obliged to update their records with the FBR within 15 days. In addition, all registered parties are required to maintain records of purchase of raw materials and manufactured goods (or services) along with accounts details. FBR can demand such records at any time (FED Act, 2005). Chapter VI of the Federal Excise Rules, 2005 is solely concerned with taxation procedures for tobacco products.

Another strength of the tax collection system is that the FBR collects tax (both excise and sales) on tobacco products from the manufacturers to make this process more efficient and effective. Involving distributors and retailers (over 600,000 in number) would further complicate the process (Competition Commission of Pakistan, 2009). Tax is collected monthly for the stocks supplied to the market. Manufacturers are required to issue a combined tax invoice (sales tax and FED) when the stock leaves their premises and are then obliged to make payment by the 15^{th} of the following month. This stock clearance from the factory does not involve supervision or monitoring by tax authorities.

Table 3.6 highlights that there are many weaknesses in the tobacco tax administration mechanism in Pakistan against the FCTC guidelines and WHO's benchmarks. The major is reliance on tobacco industry data for measuring tax liability and lack of surveillance and monitoring mechanisms. There is no proper mechanism to reproduce the list of cigarette brands (as declared by the companies) in the FBR. Considering the huge volume of the illicit tobacco market and tax evasion as highlighted by Neilson's report, the FBR established a special

enforcement network called Inland Revenue Enforcement Network (IREN) in 2016 to deal with the issue of the illicit tobacco market. IREN makes active raids and has confiscated over 1.63 billion cigarette sticks till May 2018. It is important to note that this IREN is an emergency measure and not a long-standing solution. Additional monitoring systems using modern technology are needed.

Table 3-6. Pakistan's tobacco tax administration mechanisms against the WHO recommended practices

Sr. No.	Best practice criteria (Benchmarks)	Assessment	Comments
1.	**Authorization or licensing or control systems**		
	Transparent licencing/registration systems should be in place for:		
	Tobacco growers	-	
	Manufacturers and importers of tobacco products	+	All manufacturing companies and importers need to be registered for taxation.
	Manufacturing equipment	-	Tobacco companies are obliged to declare details of equipment and their capacity but there is no licencing requirement
	Distributers of tobacco products or manufacturing equipment	-	There is no licensing, but the distributers of cigarettes are required by law to carry the excise and sales tax invoice issued by the manufacturers when transporting cigarettes (IREN, 2017)
	Wholesalers and Retailers	-/+	A process of licensing of the retail outlets is started in the capital and a few more cities under the Punjab Tobacco Vend Act, 1958.
2.	**Warehouse system/movement of excisable goods and tax payments**		
	Adopt and implement systems of warehouses to facilitate excise controls on tobacco products	+	All manufacturers are required by law to have a separate storage place in their premises for storing excisable goods (Federal Excise Rules, 2005; Rule 16)
	Excise taxes should be imposed at the point of manufacture, imports or release for consumption from the storage or production warehouses	+	Both excise and sales taxes are imposed at the stage of release of stock from production warehouses for locally produced products while at the importation stage for imported varieties (Federal Excise Rules, 2005; Rule 11)

	Tax payments should be required to be made at fixed intervals or on a fixed date each month	+	Tax is paid on monthly basis and all manufacturers should pay it by the 15th of the following month for the stock which is moved out from the warehouses (Federal Excise Act, 2005)
	Tax payments should include reporting of production and/or sales volumes, and price by brands, taxes due and paid, and may include volumes of raw material inputs	+	The sales and excise tax returns form demands the tobacco industry to report both the volume and value of the goods supplied in a specific period, as well as tax due and paid.
	Tax authorities should allow for the public disclosure of the information contained within these reports through the available media, including those online	-	Information is not publicly available
	Anti-forestalling measures		
	Implement measures to restrict the release of excessive volumes of tobacco products immediately prior to a tax increase	-	There are no specific anti-forestalling measures but cigarette manufacturers are not allowed to reduce their retail prices from the level which was adopted on the day of the last budget announcement. Furthermore, they are not allowed to introduce lower price variants in the existing brand family (Finance Act, 2017)
	Measures to levy the new tax on products already produced or kept in stock, including those in retail (known as a floor-stock or inventory tax)	-	
3.	**Fiscal marking to monitor production and imports of tobacco products**		
	Use fiscal markings (such as tax stamps, banderols, or digital tax stamps) to distinguish legal tax-paid products from illegal tax evaded products.	-	The FBR has announced on its website that the Track and Trace system for cigarettes will be rolled out from July 2021. However, none of such technology is currently adopted. Non-tax-paid cigarettes are very common in the country holding a market share of 9% ((Ross et al., 2018) to 35% according to a tobacco industry-funded research (Oxford Economics, 2017).
	Consider the implementation of track and trace systems for tobacco products in line with Article 15 of the FCTC	-	
4.	**Enforcement**		
	Tax authorities should have the authority and capacity to conduct investigations, search, seizure, retention and disposal activities	+	Federal Excise Duty Act, 2005 gives authority to its designated officials to conduct search, investigations, seizure, retention and disposal activities
	Different enforcement agencies should share information	-	There is no formal transparent channel to share information between different authorities.

	Appropriate range of penalties for non-compliance with tax law should be introduced such as suspension or cancellation of license or the application of more stringent conditions on the license, fines and/or jail, forfeiture of products, forfeiture of equipment used in the manufacture or distribution of products including machinery and vehicles, cease and desist orders	+	Cigarettes manufactured in non-compliance with taxation laws are required to be confiscated by law along with any conveyance carrying those cigarettes (Section 26; Federal Excise Act, 2005) Counterfeit cigarettes are required to be destroyed by law. (Section 27; Federal Excise Act, 2005) Section 19 of the Act also recommends a penalty with imprisonment for non-compliance with the Act and also seizure of any machinery and material involved. However, cancellation of registration is not a prescribed penalty.
	Put in practice the penalties for late payment including interests	+	There are penalties for late payment in the law but these are quite soft. In the case of non-filing, a fine of PKR 5000 ($41) is required along with the due payment. In case of short payment PKR 10,000 ($82) or 5% of the duty involved (whichever is higher) in addition to the due payment. (Section 19; Federal Excise Act, 2005)
	Penalties for non-payment may include back taxes, punitive taxes		
5.	**Additional benchmarks as per WHO's technical manual on tobacco tax administration***		
1.	Tobacco excise department: A tobacco excise department should be established to deal with all matters related to tobacco taxation	-	There is no special tobacco excise department
2.	Tax authorities should be able to assess production levels and accurately estimate manufacturers' tax liabilities, independent of claims filed by tobacco manufacturers	-	FBR relies on industry data which they report while paying taxes. There is no mechanism to assess actual production levels and tax liabilities
3.	Tax authorities should audit taxpayer account books periodically	-/+	Law allows FBR to do so, however, it is not a common practice. A recent audit is under process as directed by the Public Accounts Committee.
4.	Knowledge/data management: The tobacco excise department should also maintain and update a comprehensive database for use in assessing tobacco product markets, conducting analyses of demand for tobacco products, evaluating the impact of tobacco tax increases	-	There is no comprehensive data and FBR relies on the industry. A recent example is a reliance on industry-based illegal market share data. Tobacco excises, being the top contributor of FED are officially reported in the revenue

	and evaluating current tobacco excise taxes and the impact of increases in these taxes.		division year books and FBR seems to adjust tax rates based on last year's revenues.

* Benchmarks prescribed by the WHO's technical manual on tobacco tax administration alone and not a part of the FCTC guidelines

+ indicates meets the guidelines, - indicates does not meet the guidelines' requirements, +/- indicates partial compliance with the guidelines

3.5.4. Price control measures and regulations

Pakistan regulates cigarette prices using bans on price promotions and the minimum retail price laws.

The advertisement guidelines prohibit the sale of tobacco products below market value and any discounts as well including free samples, free goods, cash rebates [SRO 53(KE)/2009]. However, the implementation of such bans is quite poor. According to the global youth tobacco survey, almost one in 10 students had been offered a free tobacco product (WHO, 2014a), price discounts, other promotional offers and free gifts are also common (IREN, 2018; The Network for Consumer Protection, 2016)

The minimum retail price law currently requires cigarettes to be priced (at minimum) at a rate that is not below 45% of the price limit specified for highest priced tier brands (45% of >90 rupees: 53.64). This minimum retail price serves the twofold purpose of estimating the value of FED and the sales tax, as well as a minimum price below which it is illegal to sell cigarettes. However, it is not uncommon to find cigarettes being sold at prices lower or higher than the price written on the pack. Market data shows that cigarettes are being sold at even one-fourth of the minimum limit prescribed by the law (IREN, 2018). A recent survey had shown over 13% of smokers living in Pakistani cities have purchased cigarettes below the legal price (A. Khan et al., 2021). FBR admits that there are no mechanisms to ensure the application of this minimum price at the retail level (Competition Commission of Pakistan, 2009).

On the other hand, the Competition Commission of Pakistan (CCP) is of the view that FBR is overstepping its legal mandate while prescribing the minimum sale price for products. CCP is of the view that this law is against the spirit of market competition and violates manufacturers' right on deciding and placing their products at lower prices in the market to promote competition (Competition Commission of Pakistan, 2009).

3.5.5. Impact of TTPP on prices and affordability of tobacco products

3.5.5.1. Change in real and nominal prices of tobacco products over last decade

Cigarettes

Nominal consumer price for the premium brand (Gold Leaf) cigarettes had increased consistently from 2007 till May 2018. However, for economy brands, the price increase was observed from 2007 to June 2017 and then the price had dramatically decreased from PKR 74 to PKR 50 in 2018 (Figure 3.5). When adjusted for inflation, the trend is almost similar but the magnitude of the incremental increase is quite less (Figure 3.6). The change in inflation-adjusted price for the economy brand market leader was +33% from Jan 2007 to Dec 2017.

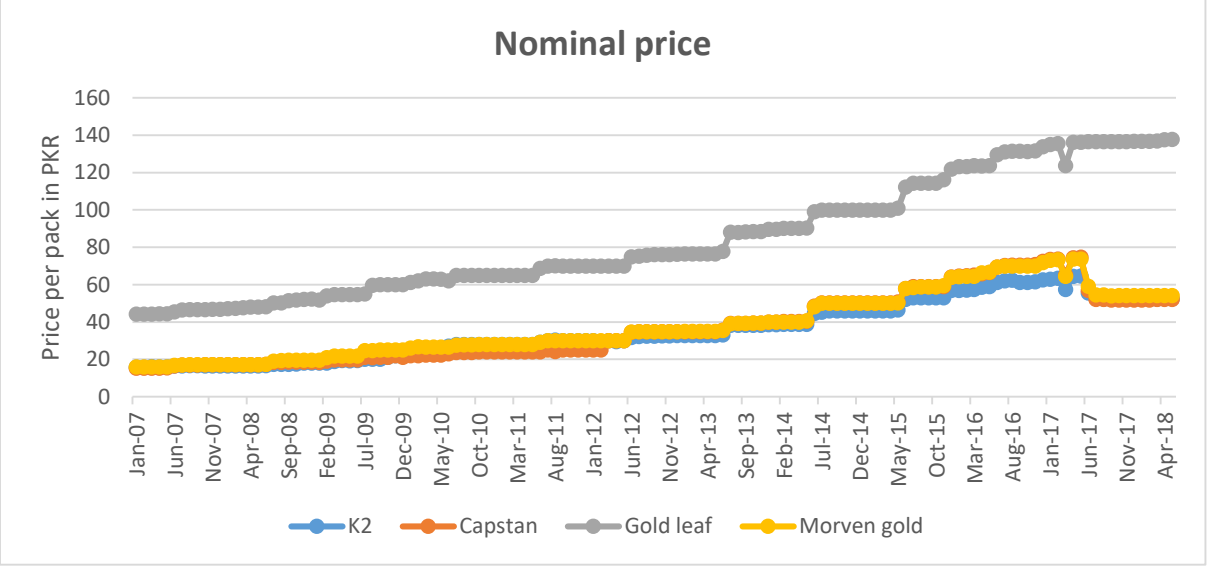

Figure 3-5. Trends in nominal consumer price for most popular cigarette brands

(source: Pakistan Bureau of Statistics-monthly statistical bulletin)

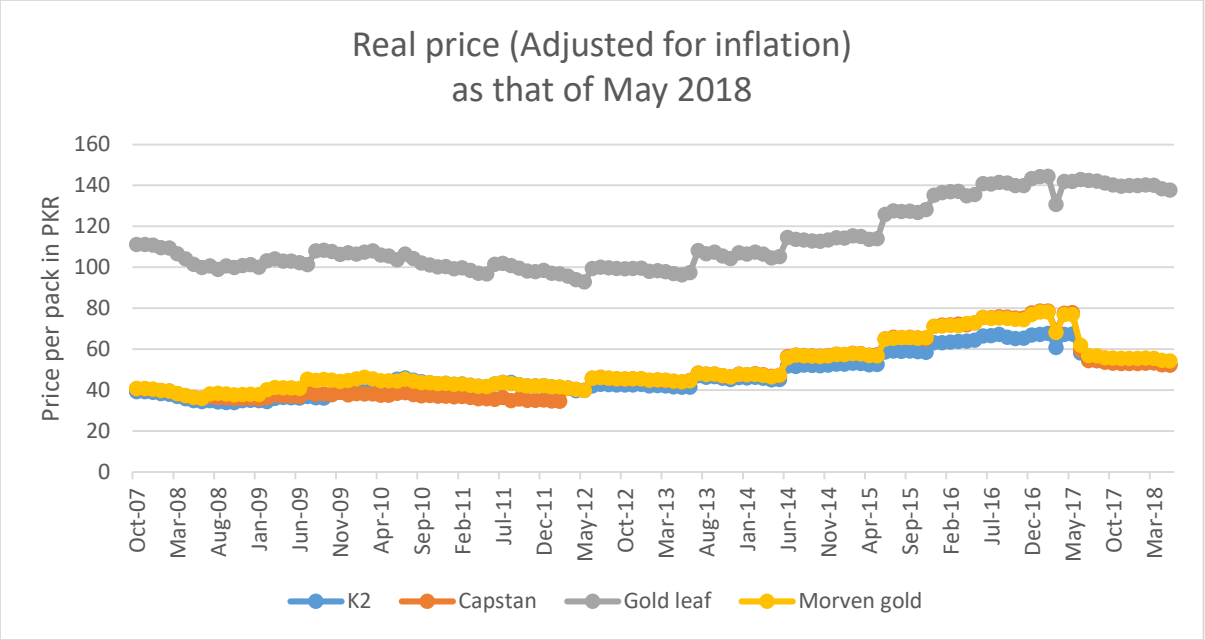

Figure 3-6. Trends in inflation-adjusted consumer price for most popular cigarette brands

(source Pakistan Bureau of Statistics- monthly statistical bulletin)

Price of snus (naswar)

The price per pack ranged from PKR 5 to 20 with a mean of 10.00 (SD=1.94) for loose pack naswar. The size of the packs was quite diverse, ranging from 23.68 to 85.30 grams. However, none of the packs had a weight tag labelled. The mean price per 20 grams was PKR 4.41.

Price for betel leaves and betel nuts

The current price for 1 kg of betel leaves is PKR 78.76 while for 1 kg of betel nuts, it is PKR 438.57. The inflation-adjusted price for betel leaves has not much changed over the last seven years. However, the prices for betel nuts have shown an increase. It is not clear how it has impacted the price of a betel quid (paan) serving.

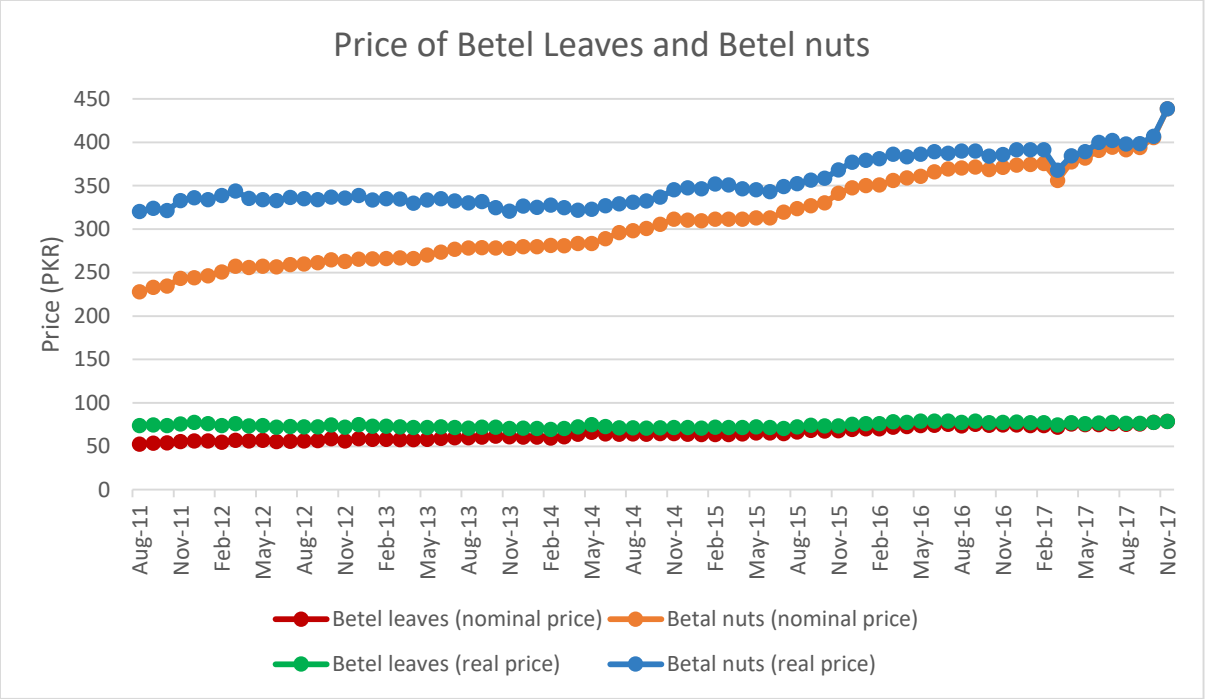

Figure 3-7. Price trend of betel leaves (per kg) and Betel nuts (per kg), source Pakistan Bureau of Statistics

3.5.5.2 Affordability

Cigarettes are highly affordable in Pakistan. One can purchase almost 8 packs of the market leader brand of cigarettes for the price of one BigMac in Pakistan (the price of a pack PKR 48, USD 0.42 using exchange rate averaged for Jan-May 2018)[1]. The other comparative data in figure 3.8 is based on the prices of market leader brands taken from the MPOWER country reports of 2017 (which state data for 2016).

[1] https://www.x-rates.com/average/?from=USD&to=PKR&amount=1&year=2018

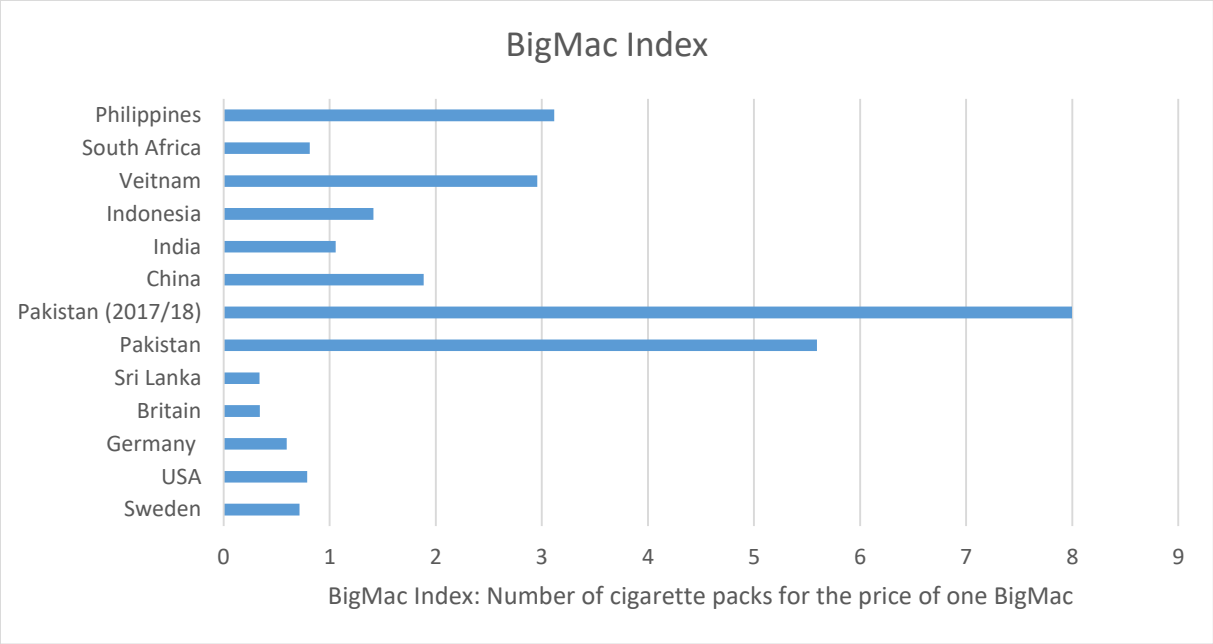

Figure 3-8. BigMac index for the most sold brands of cigarettes

(Source: Author calculated the index based on the prices reported in the MPOWER Country Reports, 2017)

On average, one can purchase 1702 grams (1.7 kilograms) of naswar for the price of one BigMac (375.31 PKR, USD 3.57[2]) in Pakistan. This translates into 87 packs of snus (20 grams each).

When using the relative income price indicator of affordability i.e. the % of GDP per capita required to purchase 100 packs of cigarettes; the amount for Pakistan is 2.76% which is quite low (indicating high affordability) (Figure 3.9). It is important to note that this is based on the price of the most sold brand and there are many legal and illicit cigarette brands available at lower prices indicating even higher affordability.

[2] Global prices for a Big Mac in July 2017, by country (in U.S. dollars)
https://www.statista.com/statistics/274326/big-mac-index-global-prices-for-a-big-mac/

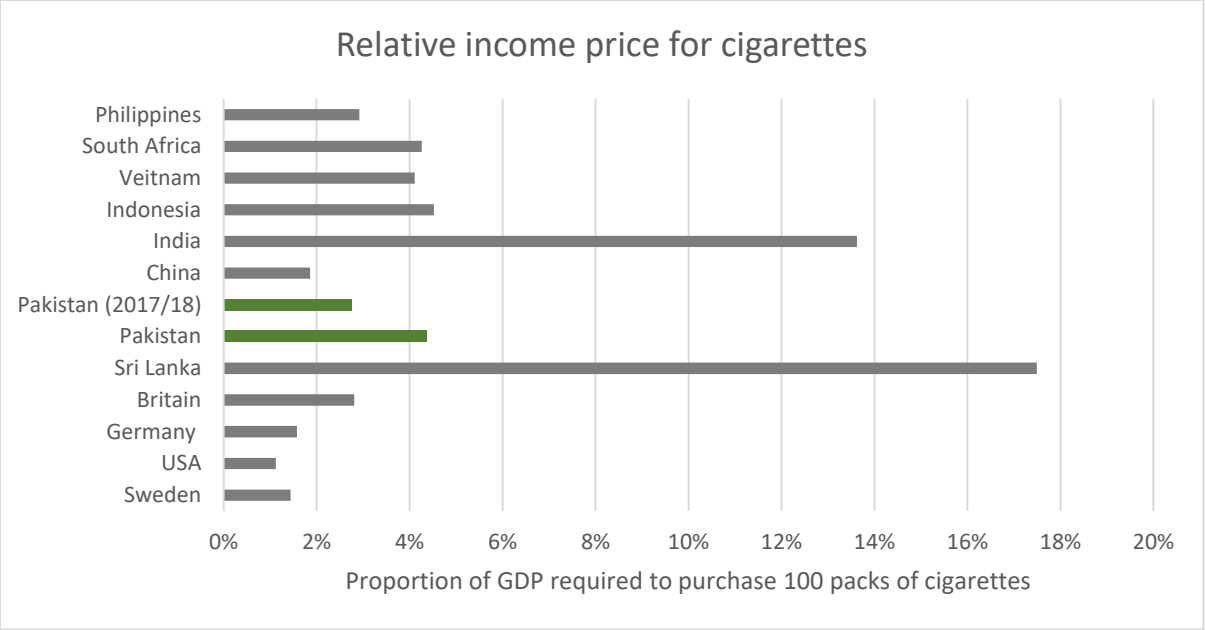

Figure 3-9. Relative Income Price: (most sold brand) based on MPOWER country report 2016 data

3.6. Discussion

Pakistan is a signatory to the WHO FCTC and legally bound to control tobacco through evidence-based practices prescribed by the treaty. Article 6 of the WHO FCTC demands its parties to implement effective taxation and pricing policies to reduce tobacco use. In this regard, the Conference of Parties adopted detailed guidelines for the implementation of Article 6 on its 6th session (WHO, 2014). This study was carried out to assess if the current tobacco taxation policies in Pakistan are in line with the WHO FCTC requirements as set in these guidelines.

Before discussing the main findings, it is important to first understand the overall legal status of the WHO FCTC guidelines. The WHO FCTC implementation guidelines are often misunderstood as not legally binding. The tobacco industry has tried to use this stance while litigating governments against strict tobacco control measures (Liberman, 2014). However, their status is legally binding under the Article 31(3) of the Vienna Convention on the Law of Treaties (FCTC/McCabe Center for Law and Cancer, 2017). Which states that 'any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions' 'shall be taken into account' while interpreting the treaties ("Vienna Convention on the Law of Treaties," 1969). Liberman (2014) explained this stance as the FCTC guidelines are based on

evidence and are negotiated and agreed in the conference of parties and thus essentially come under the category of 'subsequent agreements'. The FCTC guidelines have been used in 96 litigation cases in the courts to support tobacco control measures (Zhou, Liberman, & Ricafort, 2018).

The current analysis of the TTPP in Pakistan has used these guidelines as a benchmark for policy evaluation. The analysis shows that existing TTPP do not meet the requirements set by the WHO FCTC for implementation of the Article 6. The TTPP face dual issues of flawed structure and poor administration translating into highly affordable tobacco products and low revenues in the country.

The TTPP in Pakistan are designed in a way that keeps tobacco products cheap and affordable for all income groups in the country. Pakistan is a country with 23.9 million tobacco users, out of which 10 million use SLT and 3.7 million use water pipes. However, all tobacco-related laws including taxation are focusing on cigarettes. This leaves a huge gap in achieving targets of the FCTC about decreasing the overall prevalence of tobacco use and negative health consequences. Lack of taxation on SLT products has led to extreme affordability. One can purchase 87 packs of 20 grams snus for the price of one BigMac. This price is cheaper than the cost of buying even a loaf of bread (chapatti) or a cup of tea in the country. For cigarettes, one can purchase almost 8 packs for the price of one BigMac while this figure was almost 2.5 packs in 2012 (Michelle & Megan, 2015). This means Pakistan is the country with highly affordable cigarettes in the world and the affordability has markedly increased after the recent taxation reform of 2017. This trend in Pakistan is quite alarming, considering that cigarettes have become statistically significantly less affordable in almost 45% (80 out of 177) countries globally (Cherukupalli & Perucic, 2018). To further add to the adversity, illicit cigarettes are often sold at one-quarter of the price of legal cigarettes, and even at prices as low as PKR 10 (IREN, 2018). This involves both factors, the flawed tax structure and poor administration and monitoring.

The tiered system of cigarette taxation keeps cigarettes cheap in the country. The tax floor for economy brand cigarettes is only PKR 25 ($0.19). Although the introduction of uniform excise tax and thus the abolition of the tiered system is an ideal solution, increasing the tax floor could be a feasible solution in the short run. However, the reforms in tax rates or structures alone cannot be effective in reducing affordability unless strong administrative changes coupled with effective

monitoring are introduced. An example of a failure of the increase in tax rates alone can be seen in Pakistan for the years 2013-2016. In these years, tax increases led to high prices for legal cigarettes but also an increase in the illicit market and decreased government revenues thus undoing the positive impact of taxation (Business Recorder, 2017; Khan, 2017).

The current situational analysis gives a grim picture of tobacco tax law enforcement in Pakistan. Illicit market share is reported to range from 9% to 40% in different studies (Oxford Economics, 2017; Ross et al., 2018). However, the study reporting the illicit market share of 9% based its results on the definition of the illicit brand being violating the pictorial and textual health warning, and price stamps on packs. This needs to be cautiously interpreted as the majority of tax evaded cigarettes are locally produced and comply with the legal requirement of printing prices, textual and pictorial health warnings. Multiple examples of such situations are available on the IREN official website (IREN, 2018). Although the IREN is working actively in controlling the illicit market since Jan 2017, it is thought to cover only a small fraction of the illicit sector. Pakistan needs well-established and modern track and trace systems for monitoring production and taxation along the whole supply chain.

Currently, there is no national-level mechanism to monitor the production and consumption of tobacco products in the country. The ministry of finance is dependent on industry-furnished data which may not be true and under-reports the production which gives rise to the illicit market. This in turn decreases the government revenues and badly informs taxation policies. The recent introduction of a low tax slab /tier is an example of this issue. The tobacco industry successfully convinced the FBR that higher taxes had led to an increased illicit tobacco market and should be rolled back (Khan, 2017; Ross et al., 2018). The Use of advanced technology to monitor the production and movement of tobacco products can solve this issue, the recent successful example is the implementation of a modern track and trace system in Kenya which resulted in markedly reduced illicit market share and also increased the government revenues (Ross, 2017). There have been ongoing discussions about the introduction of such a system in Pakistan since 2005 (The Network for Consumer Protection, 2015). While waiting for the implementation of this system, Pakistan can make use of various data sources in the manufacturing flow of cigarettes as depicted in Figure 3.1. A key step is the manufacture of processed tobacco from raw leaves in the GLT units. Currently, there are 10 GLTs in Pakistan and all cigarettes manufactured in Pakistan and

Azad Kashmir use these units (Business Recorder, 2018). The Government of Pakistan,Federal Board of Revenue (2018) through SRO 1149(I)/2018 has recently introduced a law to personally monitor the working and records of the GLTS by officials from the IRD. Strict monitoring of these units using advanced technology can be helpful in cross-checking the quantities reported by the manufacturers. The number of filter rods (for cigarettes) manufactured can also be used to cross-check cigarette production.

Although a minimum price law exists in the country for cigarettes, the FBR lacks resources and mechanisms to monitor the implementation of minimum price law at the retail (Competition Commission of Pakistan, 2009). This results in the availability of low-priced cigarettes which had not been taxed. Moreover, there are concerns about the FBR's position to enact such laws as they violate market competition laws (Competition Commission of Pakistan, 2009). The lack of effective administration undermines the effects of taxation and pricing policies. A similar case is observed in Malaysia where poor control of cheap illicit cigarettes has undermined the impact of minimum price laws (Liber, Ross, Omar, & Chaloupka, 2015).

Another issue is the lack of coordination among different enforcement bodies for tobacco control. Several departments are independently involved in tobacco regulation such as the Inland Revenue department of the FBR, the PTB, national TCC, District Food Authorities, police department, provincial and district health departments. However, there is a lack of coordination in their operations. The district task forces responsible for the implementation of other tobacco-related laws or the provincial food authority inspectors can be coordinated with the FBR IRD to implement minimum price laws. Another potential venture could be the coordination between the Tobacco Vendors Act implementation with the IRD to keep track of all the markets and capture the illicit market at the retail level. This would also help in the implementation of the minimum sale price law, and bans on discounts and promotions at the point of sales.

The main reason for all these issues can be the lack of a national-level strategic framework for using taxation and pricing as a tobacco control tool. The WHO FCTC guidelines on the implementation of Article 6 clearly demand governments to have explicit long-term strategic plans with a numerical target for tobacco control. The Framework Convention Alliance has suggested a general rule for setting tobacco taxation policy target as, '*Increase tobacco taxes annually so that*

tobacco prices go up by [X] percent more than the sum of inflation and income growth, until smoking (or tobacco use prevalence) has declined by [X] percent' (FCA, n.d.). Countries like UK, NZ and Australia have set strategic policies for annual increases in taxation of tobacco products by 2%, 10%, and 12.5% above inflation respectively (HM Treasury, 2017; Scollo & Bayly, 2018; Wilson, 2016). However, no such objective policy is seen in Pakistan, not even a commitment to an annual increase in tax rates. This can be attributed to the inherent conflict and competing interests between different government departments in Pakistan. While the ministry of health is promoting higher tobacco taxation and reducing consumption, the ministry of commerce is operating to promote tobacco growth and manufacturing to bring economic and financial stability. To add to this anomalous situation, the ministry of finance is 'addicted' to huge cigarette revenues. One cannot ignore the fact that cigarettes are one of the main contributors, contributing almost 50% of the total federal excise duty in Pakistan. To improve population health, the government of Pakistan needs to be clear about its stance on using taxation as a tool for tobacco control as one unit rather than different ministries operating in conflict with each other.

One cannot ignore the possibility of tobacco industry interference as a contributing factor to poor TTPP in Pakistan. The design of the tiered tax structure with low excise duties has resulted from the continuous lobbying of the tobacco industry (Ross et al., 2018). The Public Accounts Committee and the National Accountability Bureau of Pakistan are currently investigating suspected corruption through the FBR and tobacco industry alliance that resulted in manipulation of the taxation system in 2017 and subsequent loss to the national exchequer (Haq, 2018). The delay in introducing tobacco track and trace systems since 2005 is also attributed to the tobacco industry in the country (The Network for Consumer Protection, 2015). There are concerns that the tobacco industry has influenced the implementation of legislation demanding 85% size of pictorial health warning since 2015 using the UK ambassador in Pakistan (Kmietowicz, 2015). This was hit by repeated delays in the implementation of the law and finally reversal. After three years of delay, now the law demands a health warning capturing just 50% of the pack. It is important to understand the overall policy arena and the political economy of tobacco taxation in Pakistan. There is need to understand how the tobacco industry influences or convinces the FBR to take protective and corrective steps in this regard.

The QDA was limited to the publicly available policy documents regarding tobacco taxation in the country. All efforts were made to collect and analyse all TTPP relevant documents, however the study was limited to the publicly available data on the official websites of the relevant ministries and civil society organizations. It could have been interesting to explore how these laws were made, for example, if the minutes of parliamentary committees and parliamentary debates were available for analysis. Considering the difficulty of obtaining such data and the limited timeframe, the scope of the study was limited to the approved laws only. The study also did not analyse the Finance Bills which might have different taxation regimens when compared to the approved Finance Acts. However, by examining the approved Finance Acts this work captures the current TTPP.

3.7. Conclusion

Pakistan does not have a clear strategy for using tobacco taxation and prices as a public health tool in the country. Existing TTPP do not meet the WHO FCTC requirements. The TTPP faces dual issues of flawed structure and poor administration translating into highly affordable tobacco products and low revenues in the country. Without deliberate policy action to decrease the affordability of tobacco products, their use is likely to remain highly prevalent affecting the lives of millions of people in the country.

4 Analysis of GATS data to estimate price elasticity of demand

This chapter deals with the second objective of Ph.D. which is to capture consumers' perspectives in terms of price responsiveness to cigarettes. The specific aim of this study component was to estimate the price elasticity (PE) of demand for cigarettes among adults in Pakistan. Secondary analysis of the available national dataset was set to estimate the price elasticity (PE) and other characteristics of tobacco users. This chapter first gives a summary of the dataset used, how data were cleaned, and variables constructed. Then states the findings of the PE estimates, discusses the findings in global and local context before giving concluding remarks.

4.1. GATS data

This chapter used data from the Global Adult Tobacco Survey (GATS) which is a part of the WHO's global tobacco surveillance system. GATS is a nationally representative household survey to monitor tobacco use and key tobacco control indicators among adults 15 years of age and older. GATS was carried out in Pakistan in 2014, and it is the latest data available for the country. Data were collected from urban and rural areas of all four provinces of Pakistan; Punjab, Sindh, KPK and Baluchistan, excluding Federally Administered Tribal Areas (FATA) and Military Restricted Areas. Some areas from Baluchistan were not surveyed due to political instability. A total of 9,856 households were sampled, the sample was distributed proportionally to size among four provinces. One individual was randomly selected from each participating household to complete the survey. A total of 7,831 individuals completed interviews. The overall response rate, a combined household, and the person-level response rate was 81.0% (GATS, 2014). The overall tobacco smoking prevalence was 12.4% and among this 10.4 % were manufactured cigarette smokers.

The country report of GATS gives details of sampling strategy, sample weights and sample size calculation (GATS, 2014). A three-stage, geographically clustered sample design was used. The primary sampling unit (PSU) were small geographical areas (called Enumeration Blocks) each consisting of approximately 200 to 250 households having well-defined geographical boundaries. A total of 352 PSUs were selected using the probability proportional to size method. These PSUs

were selected from GATS clusters (districts). Listed households within 352 sampled PSUs were treated as secondary sampling units, 28 eligible households from each selected PSU were selected using systematic random sampling. At the third stage, one individual (aged 15 years and older) was randomly chosen from each selected household. To give nationally representative estimates, sample weights were assigned based on design, adjustment for non-response, and a post-stratification adjustment of sample totals with the known population totals. Details are given in the GATS report (GATS, 2014).

4.2. Study Variables

WHO guidelines on using GATS data for economic analysis of tobacco demand (WHO, 2010b) were used to construct the variables for this econometric analysis. I first, computed descriptive statistics which then informed better computational options for condensing data categories.

4.2.1. Dependent variables

4.2.1.1. Smoking participation

A dichotomous variable was constructed where manufactured cigarette smokers were coded as 1 and non-cigarette smokers as 0; based on GATS variable B06a, B10a. The GATS asks all current smokers about their consumption of manufactured cigarettes in question B06a (*On average, how many of the following products do you currently smoke each day, manufactured cigarettes? Also, let me know if you smoke the product, but not every day?*) All respondents who specified a non-zero number for B06a were coded as 1 (daily_smoker) while others as 0 (including the 888 response for less than daily cigarette smoker and 999 for refused response). Likewise, the variable B10a was used to measure less than daily but weekly smokers of manufactured cigarettes. Question B10a asks less than daily smokers about their consumption of manufactured cigarettes. All respondents who specified a non-zero number for B10a were coded as 1 (lessthandaily_wklysmoker) while others as 0 including 888 (smokes but less than 1 per week). The cases against valid response for B06a1 was also incorporated in the lessthandaily_wklysmoker variable. The smoking participation was then be measured by adding variables daily smokers and Lessthandaily_wklysmoker. The details of recoding and transformation commands are given in table 4.1.

4.2.1.2. Smoking intensity

A new variable of weekly consumption (WKCIG_CON) was computed using GATS variables B06A and B10A. The variable B06a was first multiplied by 7, considering 888 (smokes but less than 1 per week) and 999 (refused) responses as zero. Then this new variable was added to B10a (table 4.1).

4.2.2. Independent variables

4.2.2.1.Price per pack

GATS asks individuals about the exact quantity and price of purchased cigarettes last time. The variable of price per pack was constructed in two steps using this information. First, the total quantity purchased was determined using questions F01A, F01BCIG, F01BPACK, F01DPACK, F01DPACKA, F01BCART, F01DCART, and F01DCARTA. Calculations are shown in Appendix table 4.1. Then the variable F02 (amount paid for purchase) was divided by the total quantity purchased and multiplied by 20 to get the price per pack of 20. However, the price per pack came out to be unbelievably low for almost 18% of the sample (142 cases), ranging from PKR 0.50 to PKR 5.25. I believe it was due to some issue in data entry/cleaning, where cigarettes purchased in a pack of 20 were labelled as 20 packs purchased. To handle the issues, the F01bPack was changed to F01cig for these 142 cases, which means instead of considering the number of packs purchased, it was considered as the number of cigarettes purchased. Those who purchased 20 packs were reclassified as having purchased 20 cigarettes thus 1 pack. And the price per pack was recalculated, this was labelled as Corrected Price per pack. PE was estimated based on both corrected and uncorrected prices.

The price per pack of cigarettes was averaged at the primary sampling unit (PSU) level to eliminate the simultaneity of individual smoking and price relationship. This was done to ensure that price is exogenous and the direction of the relationship flows from prices to smoking and not otherwise. Two different approaches were used to get the average price at the PSU level. The first approach involved calculating consumption weighted price for smokers in each PSU and assigning this price to both smokers and non-smokers of the PSU (WHO, 2010a). For those PSUs where individual responses on cigarette prices were not available, I averaged the average overall urban and rural

prices and assigned accordingly, as done by Kostova et al. (2014). Since the PSUs were small geographical areas and people could go to nearby areas to purchase cheaper or desired cigarettes, I used a second approach as well to calculate the average consumption weighted price for PSUs. This involved averaging the consumption weighted price at the PSU level based on the consumption weighted prices of all PSUs in a sampling cluster (excluding the concerned PSU). This calculated price was then assigned to both smokers and non-smokers in the concerned PSU. For those clusters where there was only one PSU selected, I averaged the overall urban and rural prices and assigned accordingly.

4.2.2.2.Other variables

Table 4.1 gives details of coding instructions for all other explanatory variables like age, gender, education, employment status, marital status, number of household members, urban/rural residence, knowledge about smoking hazards, exposure to anti-smoking messages, exposure to smoking advertisement and smoking restrictions at home. Variables on exposure to smoking advertisement and on exposure to anti-smoking messages were also averaged at the PSU level to avoid reverse causality.

The variables were selected based on their theoretical association with both the independent and dependent variables (i.e.: they are potential confounders, and by including them in the models the independent effect of price can be examined) and their availability in the dataset. Most of these are recommended for inclusion in the econometric models by the WHO's economics of tobacco toolkit for estimating PE using GATS data (WHO, 2010). The toolkit suggests age, gender, education, work status, income/assets, no. of people in the household, no. of males in the household, rules of smoking in the respondent's home, policy on smoking at the worksite, and if available: marital status, race/ethnicity, religion are all included in the model. Other published econometric models for PE estimates for cigarettes have included such variables (Kostova, Tesche, Perucic, Yurekli, & Asma, 2014; Nargis et al., 2014).

Table 4-1. Coding for preparing variables for analysis

Sr. No.	New variable				Original GATS variable involved		
	Name	**Label**	**Coding**	**Calculations/ Transformation**	**Name**	**Label**	**Coding**
1.	CSS	Current manufactured cigarette user	1= Smoker 0= Non-smoker	Code B06a as daily_smoker: Daily_smoker= 0 if B06a=0, B06a=888, or B06a=999 or blank Daily_smoker=1 for all other values of B06a Code B10a as Lessthandaily_wklysmoker: Lessthandaily_wklysmoker = 0 if B10a=0, or B10a = 888 or B10a=999 or blank; Lessthandaily_wklysmoker =1 for all other values of B10a. Add both variables Daily_smoker and Lessthandaily_wklysmoker to give CSS (current smoking status)	B06a	On average, how many of the following products do you currently smoke each day? Also, let me know if you smoke the product, but not every day. Manufactured cigarettes?	- 888= (Smokes Product But Not Every Day) 999= (Refused) Blank= (Missing/Not Applicable)
					B10a	How many of the following do you currently smoke during a usual week? Manufactured cigarettes?	- 888= Smokes Product But < 1 Per Week 999= Refused Blank= Missing/Not Applicable
2.	WKCIG_CON	Weekly cigarette consumption	-	Multiply B06a with 7 and add the resulting variable to B10a 888, 999 will be treated as zero in both cases (B06a & B10a)	B06a B10a	As above	As above
3.	A01_N	Gender	Male=1 Female=0	Recode A01 as A01_N: A01_N=1 if A01=1 and A01_N= 0 if A01=2	A01	Gender	1=Male 2=Female
4.	Age_N	Age in years	15-24= 0 25-44= 1 45-64= 2 65+= 3	Recode Age into Age_N where values of age 15-24 are coded as 0; 25-44= 1; 45-64= 2; and 65+= 3	Age	Age in years	-

5.	A04_N	Education	0=no or less than primary 1=primary or less than secondary, 2= secondary or high school, 3=graduate, 4=post graduate or higher. Responses with don't know, refused and missing answers are coded as 0.	Recode A04 into A04_N as: A04_N= 0 if A04= 1 or 2 or 77 or 99 or missing A04_N= 1 if A04= 3 or 4 A04_N= 2 if A04= 5 or 6 A04_N= 3 if A04=7 A04_N= 4 if A04=8	A04	Education	1=No Education. 2=Less Than Primary School Completed 3=Primary School/Equivalent Completed 4=Less Than Secondary School Completed 5=Secondary School/Equivalent Completed 6=High School/Equivalent Completed 7=Graduate/Equivalent 8= Post Graduate/Equivalent 77=Don't Know 99= Refused Blank= Missing
6.	A05_N	Employment status	1=Employed, 2=Not in labour market, 0=not employed Those who refused to answer and with don't know response and missing values are coded 0	Recode A05 as A05_N: A05_N= 1 if A05=1 or 2 or 3 A05_N= 2 if A05=4 or 5 or 6 or 8 A05_N= 0 if A05= 7 or 77 or 99 or blank	A05	Which of the following best describes your *main* work status over the past 12 months?	1=Government Employee 2=Non-Government Employee 3=Self-Employed 4=Student 5=Homemaker 6=Retired 7=Unemployed, Able To Work 8=Unemployed, Unable To Work 77=Don't Know 99=Refused Blank=Missing/Not Applicable
7.	A11_N	Marital status	0=single 1=currently married 2= separated/ divorced/widow	Recode A11 as A11_N: A11_N= 0 if A11= 1 or 2 or 9 or missing A11_N= 1 if A11= 3 A11_N= 2 if A11= 4 or 5 or 6	A11	Marital status	1=Single 2=Engaged 3=Married 4=Separated 5= Divorced 6=Widowed

			Refused and missing values will be coded as 0				9=Refused Blank=Missing/Not Applicable
8.	A06_N	Wealth index	1= Lowest 2= Second 3= Middle 4= Fourth 5= Highest	Recode variable A06a-A06j with 0/1 coding, 1 for possessing the item and 0 otherwise. Take inverse of the proportion of households possessing each item as weights and then multiply these weights with household status of possessing item or not (new variable A06a_w to A06j_w). Add all 9 of these variables except A06f_w (radio) to compute wealth status. Using visual binning in SPSS construct the ordinal wealth status	A06a-A06j	Whether this household or any person who lives in the household has the following items:	1= Yes 2= No 7= Don't know 9= Refused
						Electricity	
						Flush toilet	
						Fixed telephone	
						Cell phone	
						Television	
						Radio	
						Refrigerator	
						Car	
						Moped/Scooter/Motor cycle	
						Washing machine	
9.	Exp_adv	Exposure to cigarettes advertisement	-	Recode variables G204a1 through G204k1, as dichotomous variables with 1/0 coding (where 1 is having exposed to advertisement and 0 is not exposed to advertisement as well as not applicable and refused and missing responses) and then add up		In the last 30 days, have you noticed any advertisements or signs promoting the following tobacco products (cigarettes) in:	1= Yes 2= No 7= Not applicable 9= Refused
					G204a1	Stores where tobacco products are sold	
					G204b1	Television	
					G204c1	Radio	
					G204d1	Billboards	
					G204e1	Posters	
					G204f1	Newspapers	
					G204g1	Cinemas	
					G204h1	Internet	
					G204i1	Public transport vehicles or stations	
					G204j1	Public walls	
					G204k1	Anywhere else	
10.	Residence_N	Urban/Rural status	1=Urban 0=Rural	Recode Residence as Residence_N: Residence_N=0 if Residence=2	Residence	Urban/Rural status	1=Urban 2=Rural

				Residence_N=1 if Residence=1			Blank=Missing
11.	HH1	Household size	-	-	HH1	Household size	-
12.	E01_N	Smoking restrictions inside home	1= yes 0= no	Recode E01 as E01_N: E01_N=0 if E01= 1 or 2 or 4 or 7 or 9 or blank E01_N=1 if E01= 3	E01	Smoking rules inside home	1=Allowed 2=Not Allowed, But Exceptions 3=Never Allowed 4=No Rules 7=Don't Know 9=Refused Blank= Missing/Not Applicable
13.	Know_hazards	Knowledge about smoking hazards	-	Recode H01, H02A, H02B, H02C, H02D, H02E, H02F, H02G, H02H, as dichotomous variables with 1/0 coding (where 1 is having knowledge and 0 is no knowledge as well as don't know and refused and missing responses) and then add up	H01	smoking tobacco cause serious illness	1=Yes 2=No 7=Don't Know 9=Refused Blank= Missing/Not Applicable
					H02A	Stroke	
					H02B	Heart attack	
					H02C	Lung cancer	
					H02D	Bladder cancer	
					H02E	Stomach cancer	
					H02F	Throat/mouth cancer	
					H02G	Premature birth	
					H02H	Bone loss	
14.	QP	Quantity purchased last time		Add Cig_purchased_loose, Cig_purchased_pack_20, Cig_purchased_pack_other, Cig_purchased_carton <u>Calculations for above variables</u> **Cig_purchased_loose** = F01BCIG **Cig_purchased_pack_20**. A new variable F01DPACK_N was made by recoding original F01DPACK, where values 7 and 9 treated as missing, and value 1 replaced by 20. Then the F01DPACK_N was multiplied by F01BPACK **Cig_purchased_pack_other**. F01DPACKA will be multiplied by F01BPACK	F01A	The next few questions are about the last time you purchased cigarettes for yourself to smoke. The last time you bought cigarettes for yourself, how many cigarettes did you buy?	1 Cigarettes 2 Packs 3 Cartons 4 Other (Specify) 5 Never Bought Cigarettes 9 Refused Blank Missing/Not Applicable
					F01BCIG	(The last time you bought cigarettes for yourself, how many cigarettes did you buy?) [NUMBER OF CIGARETTES (NOT IN PACKS OR CARTONS)]	-

				Cig_purchased_carton= F01BCART*240 (As there is only one case of carton purchase which had 240 cigarettes in it, the variable calculations involved 240)	F01BPACK	(The last time you bought cigarettes for yourself, how many cigarettes did you buy?) [NUMBER OF PACKS]	
					F01DPACK	Did each pack contain 20 cigarettes or another amount?	1= 20 7= Other Amount 9= Refused Blank=Missing/Not Applicable
					F01DPACKA	How many cigarettes were in each pack?	
					F01BCART	(The last time you bought cigarettes for yourself, how many cigarettes did you buy?) [ENTER NUMBER OF CARTONS]	
					F01DCART	Did each carton contain 200 cigarettes or another amount?	1= 200 7= Other Amount 9= Refused Missing/Not Applicable
					F01DCARTA	How many cigarettes were in each carton?	-
15.	Price	Price per pack	-	F02 ÷ QP * 20	F02	In total, how much money did you pay for this purchase?	- 999= Don't Know/Refused Blank= Missing/Not Applicable

4.3. Data analysis

Data analysis involved four steps, starting from descriptive statistics followed by univariable and multivariable regression analyses, checking assumptions of the model and coming up with the final multivariable models to estimate elasticities. The WHO toolkit on *economic analysis of demand using data from the GATS* (2010) guided the whole analyses process. The details of regression analyses are given in the sections below.

4.3.1. Models for estimating elasticity

Price elasticity (PE) was estimated using the standard two-part model for cross-sectional studies; smoking participation and smoking intensity. Smoking participation is defined as the decision to smoke while smoking intensity is the conditional demand (based on participation) and refers to the number of cigarettes consumed by smokers per day. The price elasticity of demand is the sum of the elasticity of smoking participation (part 1) and elasticity of smoking intensity (part 2) as suggested by previous researchers (Cragg, 1971; Nargis et al., 2014; Yurekli & Bayer, 2001). I estimated PE for the overall sample and also for only males. I could not estimate PE for the female sample as the number of women smokers was only 37 in the total sample of 7831, limiting the power to apply regression models. Additional sensitivity analyses were performed to estimate price elasticities if the richest households were excluded in the analysis and also if the high price cigarettes (>PKR 150) were excluded from the analysis.

4.3.1.1. Logit model for smoking participation

The probability of smoking cigarettes was estimated using a logit model as a function of price, demographic characteristics (gender, age, marital status), indicators of the socioeconomic status of individuals (SES index, occupation, education), rural/urban residence, knowledge about smoking hazards and smoking restrictions at home. The regression was weighted to adjust for the national representation of the population using the weights reported in the official GATS file.

In this estimation, the dependent variable was the smoking status of individuals (dichotomous) as cigarette smoker or non-smoker. The model was built on a total sample of 7831 i.e. the number of participants in the GATS. The PE of participation was estimated by using the equation:

$PE = B_p X_p (1-E(y|x))$

where B_p is the co-efficient of the price variable, X_p is the average price and $E(y|x)$ is the average value of the dependant variable i.e., the smoking status of the individual (WHO, 2010a).

4.3.1.2. OLS regression, conditional demand model for smoking intensity

This model was built on a sample of manufactured cigarette smokers only. The smoking intensity variable measured as daily consumption of cigarettes was the dependent variable. This variable was transformed into a natural log form before analysis. It is a standard practice to subject this dependent to a logarithmic transformation to stabilize nonconstant error variances and/or to satisfy normality (WHO, 2010a). The log-linear specification of this conditional demand model was determined by using the Ramsey Regression Equation Specification Error Test (RESET): F(3, 788)= 0.18, p-value=0.911.

The Ordinary Least Square (OLS) regression model was used to measure elasticity. The same independent variables were used in both models. The PE was calculated as a product of price coefficient and average price (Wilkins, Yurekli, & Hu, 2001).

4.4. Main findings

A total of 7831 individuals aged 15 years and above participated in the survey. Gender distribution in the sample was almost equal with 51.2% males. Almost half of the participants (50.2%) had either no formal education or a formal education of fewer than five years. Table 4.2 shows the socio-demographic characteristics of the participants.

4.4.1. Smoking characteristics and cigarette price data

Out of 7831 participants, 814 reported the use of manufactured cigarettes at the time of the survey, translating into a proportion of 10.3% (95% CI: 9.4%-11.3%). The majority of the smokers were daily smokers (n=752, 9.5%), however 62 individuals (0.8%) reported use of cigarettes on less than daily but weekly basis. There were 4 individuals (0.05%) who reported the use of less than one cigarette per week. The average weekly consumption of cigarettes was 85.2 sticks, ranging from 1 to 420. Daily smokers consumed 91.3 cigarettes per week on average (median=70), ranging

from 7 to 420 while the average number of cigarettes smoked by less than daily but weekly smokers was 10.1 (median=5.0), ranging from 1 to 60 sticks.

Price data were available for 789 smokers, who reported paying PKR 52.47 (SE=2.27) on average for a pack of cigarettes containing 20 sticks, ranging from PKR 10 to 900 per pack. The mean price was PKR 44.96 (SE=2.44) ranging from PKR 0.50 to 900 if the corrections were not made to the GATS data as described in the methodology. Almost half of the smokers (50.3%) were consuming cigarettes that cost between PKR 41-50 per pack while 15.0% were consuming cigarettes priced at PKR 31-40 per pack. Almost 18% were using cigarettes that cost PKR 30 or less for a pack, and only 1.5% of participants had reported a pack price of more than 150 rupees.

Table 4-2. Socio demographic characteristics of participants

Characteristics	Un-weighted			Weighted		
	Smokers*	Non-Smokers	Total	Smokers*	Non-Smokers	Total
	N (%)	N (%)	N (%)	%	%	%
Gender						
Male	777 (9.92)	3005 (38.37)	3782 (48.30)	9.82	41.37	51.18
Female	37 (0.47)	4012 (51.23)	4049 (51.70)	0.50	48.32	48.82
Age (years)						
15-24	64 (0.82)	2046 (26.13)	2110 (26.94)	0.82	31.37	32.19
25-44	409 (5.22)	3289 (42.00)	3698 (47.22)	4.83	36.38	41.21
45-64	280 (3.58)	1285 (16.41)	1565 (19.98)	3.81	16.05	19.87
65+	61 (0.78)	397 (5.07)	458 (5.85)	0.85	5.88	6.74
Education						
No or less than primary	443 (5.66)	3575 (45.65)	4018 (51.31)	5.62	44.55	50.17
Primary or less than secondary	179 (2.29)	1375 (17.56)	1554 (19.84)	2.32	17.86	20.18
Secondary or high school	156 (1.99)	1489 (19.01)	1645 (21.01)	1.95	19.96	21.91
Graduate	18 (0.23)	364 (4.65)	382 (4.88)	0.19	04.49	04.68
Post-graduate or higher	18 (0.23)	214 (2.73)	232 (2.96)	0.23	02.82	03.05
Wealth quintile						
Lowest	193 (2.46)	1249 (15.95)	1442 (18.41)	2.27	14.00	16.27
Second	212 (2.71)	1614 (20.61)	1826 (23.32)	2.49	20.62	23.11
Middle	101 (1.29)	937 (11.97)	1038 (13.26)	1.22	11.56	12.78
Fourth	230 (2.94)	2429 (31.02)	2659 (33.95)	3.27	32.54	35.82
Highest	78 (1.00)	788 (10.06)	866 (11.06)	1.06	10.96	12.02
Employment status						
Employed	703 (8.98)	2552 (32.59)	3255 (41.57)	8.74	33.43	42.16
Retired	13 (0.17)	78 (1.00)	91 (1.16)	0.19	0.87	1.07
Student	4 (0.05)	619 (7.90)	623 (7.96)	0.03	9.25	9.28
Homemaker	29 (0.37)	3205 (40.93)	3234 (41.30)	0.39	38.62	39.01
Not employed	65 (0.83)	563 (7.19)	628 (8.02)	0.97	7.52	8.48
Marital status						
Single	77 (0.98)	1846 (23.57)	1923 (24.56)	0.97	29.63	30.61
Currently married	688 (8.79)	4698 (59.99)	5386 (68.78)	8.77	54.53	63.30
Separated/ divorced/widow	49 (0.63)	473 (6.04)	522 (6.67)	0.57	5.52	6.09
Region						
Urban	369 (4.71)	3428 (43.77)	3797 (48.49)	3.55	35.01	38.56
Rural	445 (5.68)	3589 (45.83)	4034 (51.51)	6.76	54.68	61.44

4.4.2. Determinants of smoking status and smoking intensity

The univariable regression analyses showed that males are more likely to smoke as compared to females but being male did not have any significant effect on the quantity of cigarettes consumed per day [Table 4.3]. Univariable regression analyses found that belonging to a household in a high wealth index, not being in the labour market, and having smoking restrictions at home decreases the likelihood of smoking, detailed results are shown in table 4.3.

Table 4-3. Univariable regression analysis for smoking participation and smoking intensity

Variables	Smoking Participation (logit model)		Smoking intensity (OLS regression)	
	Overall	Male	Overall	Male
	Coefficient (95% CI)	Coefficient (95% CI)	Beta (95% CI)	Beta (95% CI)
Cigarette price per pack	-0.01 (-0.02,.00)	-0.01 (-0.01, 0.00)	-0.005 (-0.007, -0.004)***	-0.006 (-0.007, -0.004)***
Age (relative to 15-24 years old)				
25-44 years	1.63 (1.28, 1.98)***	1.69 (1.32, 2.06)***	0.24 (-0.19, 0.67)	0.26 (-0.18, 0.69)
45-64 years	2.21 (1.84, 2.58)***	2.37 (1.98, 2.76)***	0.43 (-0.01, 0.86)	0.43 (-0.004, 0.87)
65 years or older	1.72 (1.25, 2.18) ***	1.79 (1.29, 2.28)***	-0.08 (-0.66, 0.50)	0.01 (-0.56, 0.58)
Male (relative to female)	3.13 (2.73, 3.54)***	-	0.38 (-0.11, 0.86)	-
Urban (relative to rural residence)	-0.20 (-0.40, 0.01)	-0.22 (-0.45, 0.00)	-0.13 (-0.34, 0.09)	-0.16 (-0.38, 0.06)
Education (relative to no formal education/less than primary)				
Primary or less than secondary	0.03 (-0.21, 0.27)	-0.38 (-0.64, -1.11)**	-0.13 (-0.35, 0.08)	-0.16 (-0.38, 0.05)
Secondary or high school	-0.25 (-0.53, 0.02)	-0.69 (-0.99, -0.40)***	-0.21 (-0.45, 0.04)	-0.26 (-0.51, -0.01)*
Graduate	-1.09 (-1.71, -0.46)**	-1.46 (-2.11, -0.82)***	-0.16 (-0.88, 0.56)	-0.20 (-0.92, 0.52)
Postgraduate or higher	-0.43 (-1.10, 0.24)	-0.91 (-1.60, -0.21)*	-1.91 (-3.17, -0.65)**	-1.96 (-3.22, -0.70)**
Marital status (relative to single)				
Currently married	1.59 (1.27, 1.90)***	1.88 (1.56, 2.21)***	0.07 (-0.24, 0.39)	0.09 (-0.22, 0.41)
Divorced/separated/widowed	1.15 (0.67, 1.62)***	1.80 (1.22, 2.37)***	-0.24 (-0.76, 0.29)	-0.24 (-0.69, 0.20)
Occupation (relative to unemployed)				
Employed	1.04 (0.57, 1.51)***	0.66 (0.16, 1.15)*	0.30 (-0.28, 0.88)	0.31 (-0.27, 0.89)
Not in labour market	-1.41 (-1.94, -087)***	-0.54 (-1.14, 0.06)*	0.18 (-0.45, 0.81)	0.24 (-0.44, 0.92)
Wealth index (relative to lowest wealth index)				
Low	-0.30 (-0.57, -0.03)*	-0.31 (-0.62, 0.01)	-0.22 (-0.45, 0.00)	-0.21 (-0.43, 0.00)
Middle	-0.43 (-0.76, -0.11)*	-0.43 (-0.80, -0.06)*	-0.06 (-0.27, 0.16)	-0.04 (-0.26, 0.17)

High	-0.48 (-0.75, -0.20)**	-0.42 (-0.73, -0.11)*	-0.27 (-0.49, -0.05)*	-0.29 (-0.52, -0.06)*
Highest	-0.51 (-0.93, -0.09)*	-0.36 (-0.81, 0.09)	-0.93 (-1.40, -0.46)*	-0.96 (-1.43, -0.49)***
Knowledge about smoking hazards	-0.00 (-0.04, 0.03)	-0.05 (-0.09, -0.00)*	-0.04 (-0.08, 0.00)	-0.04 (-0.08, 0.00)
Smoking restrictions inside home (as compared to no restrictions)	-1.75 (-2.14, -1.37)***	-1.76 (-2.16, -1.36)***	-0.62 (-1.04, -0.19)**	-0.64 (-1.08, -0.21)**
Local exposure to smoking advertisement	0.16 (0.00, 0.31)*	0.14 (-0.03, 0.31)	-0.11 (-0.34, 0.12)	-0.11 (-0.34, 0.13)
Local exposure to antismoking messages	-0.16 (-0.39, 0.07)	-0.27 (-0.52, -0.02)*	-0.30 (-0.55, -0.05)*	-0.34 (-0.59, -0.08) *

The multivariable analysis also confirmed that being male was strongly associated with a higher chance of smoking while having higher levels of education was associated with lower chances of smoking [Table 4.4]. It was estimated that having smoking restrictions at home was also associated with lower chances of smoking. However, the cigarette price was not a statistically significant factor determining smoking participation.

In contrast to smoking participation analysis, cigarette price was negatively and significantly associated with cigarette consumption among smokers [Table 4.5]. Smokers with a postgraduate or higher education level and those belonging to a household in the highest wealth quintile had statistically significantly less smoking intensity. Factors like knowledge about smoking hazards, the local rate of exposure to antismoking messages, and having smoking restrictions at home were negatively associated with smoking intensity, however, such associations were statistically insignificant.

A sensitivity analysis was also carried out where persons exposed to a cigarette price of more than 150 rupees were excluded [table 4.6]. This analysis estimated negative and statistically significant price co-efficient for both smoking participation and smoking intensity. The second sensitivity analysis excluded the individuals belonging to the highest wealth quintile household [results in table 4.7].

Table 4-4. Multivariate analysis to estimate price elasticity of smoking participation (logit model)

	Variables	Smoking Participation (Overall)			Smoking Participation (Male)		
		Coefficient	95% C.I for coefficient		Coefficient	95% C.I for coefficient	
			Lower bound	Upper bound		Lower bound	Upper bound
1.	Cigarette price per pack	-0.0033	-0.0106	0.0040	-0.0027	-0.0092	0.0039
2.	Age (relative to 15-24 years old)						
	25-44 years	0.93***	0.43	1.43	0.90**	0.39	1.41
	45-64 years	1.65***	1.11	2.18	1.58***	1.02	2.13
	65 years or older	1.29***	0.63	1.96	1.15**	0.46	1.84
3.	Male (relative to female)	2.89***	2.38	3.40	-	-	-
4.	Urban (relative to rural residence)	0.14	-0.16	0.44	0.09	-0.22	0.39
5.	Education (relative to no formal education/less than primary)						
	Primary or less than secondary	-0.18	-0.49	0.12	-0.17	-0.48	00.14
	Secondary or high school	-0.41*	-0.77	-0.04	-0.42*	-0.80	-0.05
	Graduate	-1.03*	-1.78	-0.29	-1.07**	-1.82	-0.32
	Postgraduate or higher	-0.87*	-1.68	-0.06	-0.93*	-1.75	-0.10
6.	Marital status (relative to single)						
	Currently married	1.01***	0.53	1.48	1.05***	0.57	1.54
	Divorced/separated/widowed	1.15**	0.46	1.84	0.94*	0.20	1.68
7.	Occupation (relative to unemployed)						
	Currently employed	-0.18	-0.72	0.36	-0.30	-0.85	0.25
	Not in labour market	-1.06***	-1.65	-0.47	-1.13**	-1.77	-0.49
8.	Wealth index (relative to lowest wealth index)						
	Low	-0.17	-0.51	0.16	-0.11	-0.45	0.23
	Middle	-0.07	-0.49	0.35	-0.06	-0.49	0.37
	High	-0.01	-0.38	0.37	0.10	-0.29	0.49
	Highest	0.39	-0.17	0.96	0.59*	0.01	1.18
9.	Knowledge about smoking hazards	-0.04	-0.09	0.01	-0.05	-0.10	0.00

10.	Smoking restrictions inside home (as compared to no restrictions)	-1.81***	-2.17	-1.45	-1.82***	-2.18	-1.45
11.	Local exposure to smoking advertisement	0.28**	0.07	0.50	0.32**	0.10	0.53
12.	Local exposure to antismoking messages	0.10	-0.23	0.42	0.09	-0.24	0.42
	Pseudo R square (p-value for model)	0.31 (0.000)			0.19 (0.000)		
	Average price per pack (PKR)	59.94			58.96		
	% smokers	10.3%			19.2%		

Table 4-5. Multivariate analysis to estimate price elasticity of smoking intensity (OLS model)

	Variables	**Smoking intensity (overall)**			**Smoking intensity (Male)**		
		Beta coefficient	**95% C.I for beta coefficient**		**Beta coefficient**	**95% C.I for beta coefficient**	
			Lower bound	**Upper bound**		**Lower bound**	**Upper bound**
1.	Cigarette price per pack	-0.005***	-0.0069	-0.0036	-0.005***	-0.0069	-0.0036
2.	Age (relative to 15-24 years old)						
	25-44 years	0.42	-0.06	0.90	0.43	-0.05	0.91
	45-64 years	0.61*	0.12	1.10	0.59*	0.11	1.08
	65 years or older	0.22	-0.48	0.91	0.32	-0.36	1.00
3.	Male (relative to female)	0.59 *	0.01	1.18	-	-	-
4.	Urban (relative to rural residence)	0.18	-0.02	0.39	0.18	-0.03	0.39
5.	Education (relative to no formal education/less than primary)						
	Primary or less than secondary	-0.16	-0.36	0.04	-0.15	-0.35	0.05
	Secondary or high school	-0.11	-0.34	0.12	-0.11	-0.34	0.12
	Graduate	-0.002	-0.73	0.73	-0.002	-0.73	0.72
	Postgraduate or higher	-1.62*	-2.84	-0.39	-1.62**	-2.85	-0.40
6.	Marital status (relative to single)						
	Currently married	-0.11	-0.48	0.26	-0.11	-0.47	0.26
	Divorced/separated/widowed	-0.36	-0.94	0.22	-0.53	-1.10	0.03
	Occupation (relative to unemployed)						

7.	Currently employed	0.15	-0.42	0.72	0.16	-0.42	0.74
	Not in labour market	0.19	0.59	-0.50	0.13	-0.56	0.81
8.	Wealth index (relative to lowest wealth index)						
	Low	-0.23*	-0.46	-0.01	-0.22	-0.44	0.00
	Middle	-0.04	-0.28	0.19	-0.03	-0.28	0.21
	High	-0.19	-0.45	0.06	-0.19.	-0.46	0.07
	Highest	-0.52**	-0.87	-0.17	-0.51**	-0.86	-0.16
9.	Knowledge about smoking hazards	-0.03	-0.07	0.00	-0.03	-0.07	0.01
10.	Smoking restrictions inside home (as compared to no restrictions)	-0.21	-0.56	0.14	-0.20	-0.56	0.16
11.	Local exposure to smoking advertisement	0.08	-0.11	0.26	0.10	-0.10	0.29
12.	Local exposure to antismoking messages	-0.04	-0.28	0.19	-0.09	-0.33	0.15
	R square (p-value for model)	0.19 (0.000)			0.199 (0.000)		
	Average price per pack (PKR)	53.45			53.85		

4.4.3. Price elasticity

The adult price elasticity of cigarettes demand was estimated to be -0.43. The overall PE is comprised of a statistically non-significant PE of smoking participation (-0.17) and statistically significant PE of smoking intensity (-0.26), indicating that a 10% increase in price is expected to reduce smoking prevalence by 1.7% on average and a 10% increase in price for smokers can decrease the average number of cigarettes smoked by 2.6%. The PE of smoking participation contributes 39.5%, while the remainder is explained by the PE of smoking intensity.

The price elasticity is slightly reduced if estimated for only males (-0.40) and the magnitude increased to -0.71 if the highest income quintile is excluded from the analysis [Table 4.6]. If individuals exposed to high price cigarettes (PKR > 150) are excluded from the study, an increase in the price of (low priced) cigarettes would significantly decrease both smoking participation and intensity and the impact would be higher for smoking participation (PE=-1.01).

Table 4-6. The estimates of price elasticity of demand for cigarettes in Pakistan

Sample	Smoking participation[1]	Smoking intensity[2]	Total[3]
Both male and female combined	-0.17	-0.26*	-0.43
Male only	-0.13	-0.27*	-0.40
When highest income quintile excluded (total)	-0.44	-0.27*	-0.71
When highest income quintile excluded (Male)	-0.34	-0.27*	-0.61
When high price cigarettes (>150PKR) excluded (total)	-1.01*	-0.46*	-1.47
When high price cigarettes (>150PKR) excluded (male)	-0.89*	-0.47*	-1.36

[1] Logit model, [2] OLS model, [3] Sum of PE of participation and intensity, * statistically significant with p-value <0.05

When the price of cigarettes was averaged at each PSU level, the PE estimates were slightly lower [Table 4.7]. The overall PE was estimated to be -0.19 comprising of a statistically non-significant PE of smoking participation, 0.04, and PE of smoking intensity, -0.15. The PE estimates are slightly reduced if the highest income quintile was excluded, -0.16. Appendix tables 1-6 contain the results of multivariate analysis for both smoking participation and smoking intensity.

Table 4-7. The estimates of price elasticity of demand for cigarettes in Pakistan (based on price averaged at PSU level without considering the neighbouring PSUs)

	Smoking participation	Smoking intensity	Total
Both male and female combined	0.04	-0.15	0.19
Male only	0.07	-0.15	-0.22
When highest income quintile excluded (total)	-0.12	-0.04	-0.16

When highest income quintile excluded (male)	-0.07	-0.03	-0.10
When high price cigarettes (>150PKR) excluded (total)	-0.30	-0.14	-0.44
When high price cigarettes (>150PKR) excluded (male)	-0.18	-0.09	-0.27
Uncorrected price (total)	0.04	-0.17*	-0.21
Uncorrected price (male only)	0.06	-0.17*	-0.23

4.5. Discussion

This study found negative price elasticities when both smoking participation and smoking intensity are considered in the adult Pakistani population. Negative price elasticity indicates that an increase in price would decrease consumption of cigarettes both by decreasing prevalence and by decreasing the number of cigarettes consumed on daily basis. The overall PE was found to be -0.43 which is slightly lower but comparable to the previous estimates based on aggregate time-series data from Pakistan, short term PE of -0.48 by Mushtaq and colleagues (2011), and -0.58 by Burki et al. (2013). However, different from the long run PE estimates of -1.17 (Mushtaq et. al, 2011) and the latest estimates of -1.06 from Nayab et al (2020). The difference could be due to the use of different methodologies for PE estimation. Current elasticity estimates are also lower than the overall estimates for LMICs (-0.53) based on analysis of GATS data (Kostova et al., 2014) indicating relatively low price responsiveness of Pakistanis towards cigarette prices. This relatively inelastic cigarette demand makes cigarettes a suitable commodity for imposing taxes to sustain revenues and reduce consumption.

These findings show that an analysis of the entire GATS sample gives statistically non-significant elasticity estimates for smoking participation in Pakistan, suggesting that there might be factors other than price responsible for individuals' decision to smoke. These could be social acceptability of smoking, easy availability, or exposure to cigarette advertisement which was found to be statistically associated with smoking participation in this study as well. However, the non-significant impact of price on the decision to smoke in the current analysis can also be attributed to the way cigarettes are taxed and priced in Pakistan keeping them always affordable to people. GATS data showed that the majority of smokers were consuming low-priced cigarettes, with a price per pack of PKR 30-50. Such cigarettes are always available in the market both legally and illegally. When the analysis was done for only those people in the sample who were exposed to low priced cigarettes (PKR $\leq$150), the PE of smoking participation became -1.01 and statistically significant, indicating a 10% increase in the price of low priced cigarettes would significantly

reduce smoking prevalence by the same magnitude (10.1%) among people exposed to low cigarette prices. The magnitude of PE of smoking intensity also increased for this sample, from -0.26 to -0.46, indicating a greater responsiveness to an increase in cigarette prices. These findings are highly important with respect to taxation policies and public health. Pakistan needs to work on the cigarette pricing policies in a way to increase the minimum price. One way could be introducing a uniform taxation policy without a tiered system.

There are a series of studies that support the view that poor people are more responsive to price change for tobacco products (International Agency for Research on Cancer, 2011). I also observed some effects of SES on cigarettes consumption, the number of cigarettes consumed is less in people belonging to richer households, and people with having a higher level of education are less likely to smoke. The price elasticity is increased to -0.71 if the highest income quintile is excluded from the analysis (as compared to the overall sample's PE of -0.43). This shows people that living in low-income households are more price responsive to cigarettes. Again, the major impact is due to a change in PE of smoking participation which is -0.44 for this sample (as compared to -0.17 for the overall sample). Nargis et al., (2014) highlight the importance of the proportion of the total PE that is accounted for by the PE of smoking participation based on the greater health gains if smokers quit or people don't start smoking rather than just decreasing the number of cigarettes consumed in response to a price increase. For high-income countries, the PE of smoking participation and smoking intensity contributes equally to total elasticity, 50% each (International Agency for Research on Cancer, 2011). However, for LMICs the contribution of smoking participation is estimated to be higher, almost 68% (Kostova et al., 2014). An analysis of Bangladesh data also illustrates this trend where the proportion was 59% indicating that an increase in tax/price would have a greater impact on tobacco consumption by decreasing smoking prevalence in LMICs translating into greater health benefits (Nargis et al., 2014).

4.6. Methodological limitations

This study estimated price elasticity using a cross-sectional dataset on tobacco use from Pakistan (GATS, 2014). Individual-level data based on cross-sectional survey comes with a strength of actual consumption and price data at the individual level giving benefits over the aggregate time-series data where consumption may not be true and illicit market activity is masked. However, it comes with the limitations of temporality and restricted variations. Repeated panel data is the first

choice to estimate PE. The lack of such data from Pakistan imposes a limitation on establishing the causality of price effect on consumption. The temporality and associated elasticity estimates could have been determined with greater precision if panel data or data from repeated GATS were available.

Traditionally it was assumed that the demand analysis using cross-sectional data implies that all households or individuals face the same average price without any variation. However, since 1950s economists agreed that price variation can exist in cross-sectional data due to various factors like region, price discrimination, seasonal effects, quality effects, and marketing strategies (Chung et al, 2001). If used properly, this variation can be used as the basis for constructing a demand curve and estimating price elasticities. In the present study, geographical variation in average cigarette prices calculated at the PSU level made the basis for such variation.

Another limitation is the issue of endogeneity in using cross-sectional data for estimating price elasticities (Decicca & Kenkel, 2013). In the case of determining the effect of price on the smoking decision or cigarette demand, the price paid by consumers is endogenous because it is simultaneously determined by the consumer's taste and addiction level. A heavy smoker may choose to purchase low-priced cigarettes while light smokers may choose an expensive brand. This issue is called 'simultaneity' in econometrics and is defined as a problem that arises when one or more of the independent variables are not purely independent but are jointly determined with the dependent variable. If not handled appropriately, the issue of endogeneity would lead to spurious estimates about the effect of price on smoking decision and demand (Decicca & Kenkel, 2013). In this research, endogeneity was addressed by using a consumption weighted price in a district averaged at a small geographical region, i.e. PSU (excluding the price of the respective PSU). Similar techniques are used by Nargis et al (2014) and others (Kostova et al., 2014). However, the endogeneity issue could not be empirically diagnosed, using the instrumental variable of tax as recommended by the WHO's toolkit on using GATS data for econometric modelling (WHO, 2010b). This was due to two main reasons: a two-tiered specific tax regimen for cigarettes at the time of GATS data collection would yield only two values for the tax variable thus limiting its use as an explanatory variable due to low variability. Moreover, it was observed that there were many cases (almost 16% of the smokers) where smokers were purchasing cigarettes at a price which was lower than the minimum level of tax on cigarette packs at the time of GATS data collection (federal

excise duty=PKR 21.7 and sales tax at the rate of 17% of retail price) (Government of Pakistan, 2014). The illegal market limits the use of tax as an effective instrumental variable for the analysis.

The commonly recommended two-part Crag's model for estimating PE of cigarettes from cross-sectional data were used (Kostova et al., 2014; Nargis et al., 2014; WHO, 2010a; Yurekli & Bayer, 2001). However, there are other analytical methods available (the Tobit model, the Heckman sample selection model etc.), considering the conditional demand of cigarettes based on smoking status, which might yield different estimates for elasticities.

The GATS data were collected in 2014, exact elasticity might have changed by now. However, such a time effect is usually not a concern (Gallet & List, 2003). It was not possible to calculate the income elasticity of demand as GATS data lacks information on individual household income or per capita income. Although the wealth index was used as an explanatory variable, it is an imperfect measure of income (Kostova et al., 2014). GATS data lack information on prices of non-cigarette tobacco products thus limiting its use to estimate the price responsiveness of these products and cross-price elasticities.

4.7. Conclusion

The analysis of GATS data yields negative price elasticity of cigarette demand for Pakistani adults, indicating a price increase would decrease cigarette use both by decreasing smoking prevalence and daily consumption among smokers in the country. It was found that an increase in the price of low-priced cigarettes would have a greater impact on smoking prevalence and daily consumption by smokers. These findings demonstrate that cigarette prices can be used as a policy tool to control smoking in Pakistan.

5. Simulation modelling to estimate the impact of tax increase

5.1. Introduction

This chapter presents the findings of the tax simulation study to estimate the fiscal and public health impact of a change in tobacco taxation policy in Pakistan. The fiscal impact is measured in terms of the government revenues and the public health impact in the form of level of cigarette consumption, number of smokers, smoking prevalence and number of deaths averted as a result of excise increase.

The first part of the chapter gives a summary of the base case scenario and the assumptions for simulation modelling. The second part presents the findings of the tax simulations to show both fiscal and public health impacts. In the third part, these findings are discussed before drawing a conclusion.

5.2. Methodology for tax simulation modelling

An econometric model of the national cigarette market in 2019 was used to estimate the impact of changing cigarette excise duties and illicit market activity on cigarette consumption and tax revenues.

I also constructed a simple single cohort model based on current adult smokers in the country in the year 2019 to quantify the impact of changing tax rates on public health outcomes. The static cohort model is based on current smokers and does not include future smokers in estimations. Ranson et al (2002) and Goodchild et al (2016) preferred this model as it gives more conservative estimates as future smokers are expected to be more responsive to tobacco control policy. They further argued that most of the deaths over the next five decades will be among the current smokers, hence targeting this group with tobacco control policies is most desirable to avoid deaths. Measuring the impact of reducing mortality among this group is more policy-relevant. Dynamic models are more complex to construct as they require data on changing population of smokers as a result of smoking initiation and quitting and movement

between a smoker and ex-smoker stage, future life expectancies, future deaths rates, and competing mortality. Most of these data are not available for Pakistan.

5.2.1. Modelling variables and assumptions

5.2.1.1. Output variables

There were four main output variables for this simulation modelling: number of cigarette smokers, smoking prevalence, cigarette consumption measured as the total number of cigarettes consumed in the country (this included both tax paid and illicit cigarettes), and tax revenues both from the federal excise duty (FED) and the general sales tax (GST).

5.2.1.2. Input variables

The main input variable in the modelling was the price of the cigarettes (based on tax, inflation and illicit market activity) and the price elasticity of demand. Other inputs in the fiscal model were the baseline cigarette consumption and baseline tax revenues. Additional inputs in the public health models were the baseline number of smokers and the number of smokers expected to die of smoking-related diseases. This section explains the definition, data sources, and estimation methods for all these variables.

Tax rates

I modelled both fiscal and public health outcomes forward from 2019 with three different taxation regimens: an annual 5% increase, annual 10% increase, and annual 15% increase in the FED.

An annual increase was chosen because Pakistan typically revises tax regimens on annual basis during the announcement of the official fiscal budget for the country in June every year. The rate of 5% was selected to get an estimate if the tax increase is below the inflation rates (five years average inflation rate of Pakistan was calculated as 5.76% for 2016-2020). A 10% annual tax increase regimen was selected based on the benchmark set by the NZ where the same commitment is made to achieve the smoke-free goal by 2025 (Ikeda, Cobiac, Wilson, Carter, & Blakely, 2015). A 15% annual increase rate was also simulated to estimate more robust effects

of taxation regimen and also because this is more likely to quickly achieve the WHO's recommended 70% tax share in tobacco products prices.

Baseline price estimation

The year 2019 was used as the base case scenario. Pakistan had a two-tiered specific tax regimen for locally produced cigarettes in 2019, with a higher tax on premium brands and lower tax on economy brands. Table 5.1. Gives a summary of the taxes per cigarette pack.

The baseline price for the simulation exercise was estimated using the production price including all profit margins, the FED, GST, and market share of premium and economy brands in 2019. The retail price of market leader brands for each tier was used as the average retail price for that tier. The FED rate as per the Finance Act 2019 and GST at the rate of 17% was used to work out calculations. These taxes and prices were then averaged and weighed based on the market share of the two tiers. The 2019 Euromonitor data shows the market share for premium cigarettes was 5%, the share for mid-price cigarettes was 45.9%, and 49.1% for economy brands. In absence of a different tax regimen for mid-price cigarettes, I combined the mid-price and economy brands into one tier to mimic the taxation regimen in the country (table 5.1). Based on these calculations, the average amount of FED was estimated to be PKR 36.55 constituting a share of 52.27% in the retail price of a pack for 2019. The average price of a legal cigarette pack was PKR 81.82. However, the average market price was adjusted for illicit market activity as well using different assumptions. Table 5.1 gives a summary of the baseline data and other assumptions for simulation modelling.

Table 5-1. Summary of key model assumptions and parameters

Variables	Parameters	Source	Notes
Baseline tax rate			
FED		Finance Act 2019-20	
Tier 1	PKR 104 per pack		
Tier 2	PKR 33 per pack		
General Sales Tax (GST)	17% of the retail price	Sales Tax Act 1990, amended up to July 2019	
Market data			
Total legal cigarette production	51662 million sticks	Pakistan Bureau of Statistics, Monthly Bulletin January 2020	For the months Jan-Dec 2019

Total cigarette consumption	Legal cigarette production + illicit cigarettes	Author's estimation	Illicit cigarette consumption was calculated based on the legal cigarette production
Market share for different price bands		Euro-monitor 2019	Economy and mid-price cigarettes were combined into one group as the taxation system had two tiers
Premium	5%		
Others	95%		
Price and tax share data		Author's estimates	Estimated average based on the price of premium and economy brand weighted by their market share
Average price per pack (legal pack)	PKR 81.82		
Average net-off-tax price	PKR 33.38		
Share of FED in average retail price	52.27%		
Average FED per pack	PKR 36.55		
Average GST per pack	PKR 11.9		
Simulation assumptions			
Increase in FED (annual)	5% , 10%, 15%		
Tax pass through	80%, 100%, 120%		
Price elasticity	0.43	Author's estimates (previous chapter)	
Inflation rate	5.76%	(Statistica, 2021)	Calculated as an average inflation rate of last five years (2016-2020)
Illicit market share	9%, 16%, 25% (increasing 5% annually up to a ceiling point of 50% share)	Research studies (Ross et al, 2018; WB, 2019; Khan et al, 2020; SPDC, 2019, Oxford Economics, 2018)	

Future price of cigarettes

Cigarette prices were calculated for each year until 2030, taking into consideration the baseline price and taxes, changing FED rates, GST, tax pass-through, inflation rate, and illicit market activity.

The effectiveness of tax increase on tobacco products depends on how tax is passed through to consumers. Evidence shows that tax pass-through can be full, under, or over depending on the market competition and the price bands of cigarettes (Cobiac et al., 2015; Wilson et al., 2020). Data from Pakistan shows that the tax is under shifted to consumers in Pakistan with a pass-through rate of 80% (Cevik, 2016). However, the same research found a nearly full pass-through for premium brands. For the purpose of the simulation exercise, I used three different tax pass

through levels; 80% (standard case), 100% and 120% (best case scenario) to calculate the changes in prices after tax regimen.

Producer costs including all the profit margins were adjusted for inflation for each year till 2030. Inflation rates over the last five years (2016-2020) were used to calculate an average inflation rate of 5.76% (Statista, 2020).

The impact of illicit market activity on cigarette prices was estimated by using three main factors; the illicit market share, rate of change in illicit market share, and the price of illicit cigarettes. Research in Pakistan has shown a varied extent of illicit market share for cigarettes, ranging from 9% based on 2012 market data (Ross et al., 2018) and GATS 2014 data (WB, 2019c), to 16.8% (Khan et al., 2021), to 17% (International Agency for Research on Cancer, 2011). However, tobacco industry-sponsored market research gives a relatively larger figure like the Oxford Economics group (2017) gives an estimate of 41.9% illicit market share while Neilson groups had given a figure of 23.7% in 2015 (Neilson report, 2015). Euromonitor gives a figure of 34.7% illicit market share for 2018 (Euromonitor, 2019). A recent report by a think tank in Pakistan estimates the extent of underreporting of cigarette production in Pakistan which ranges from 21.5% to 26.5% based on production and supply function data respectively for the year 2017-18 (Iqbal, Sabir, Saleem, Ali, & Aamir, 2019a). Considering the varied evidence on the extent of the illicit market share, cigarette prices were calculated for four different scenarios: 1) illicit market share of 9%, 2) illicit market share of 16%, 3) illicit market share of 25% and 4) illicit market share of 40%. I considered three scenarios for the rate of change of illicit activity; 1) it remains stable over the years, 2) it increases slowly at the rate of 5%, and 3) it increases rapidly at the rate of 20% per year as used by Cobiac et al (2014). Based on the global highest estimates of illicit market share, it was assumed that the illicit market share will not increase beyond 50% (Joossens, Merriman, Ross, & Raw, 2010). The price of illicit cigarettes was calculated based on the formula estimated by Joossens et al that is the legal price minus two thirds of the tax amount.

The market price for a legal cigarette pack (LP^*) was calculated using the formula

$$LP^* = PP^* + FED^* + GST^*$$

While PP^* is the new producer price adjusted for inflation, FED^* is the new excise amount per pack, and GST^* is the new GST level per cigarette pack.

The final market price for each year is calculated considering the illicit market activity, using the formula

Average market price per pack = (Legal market share x LP^*) + (Illicit market share x $ILLP^*$)

While $ILLP^*$ is the price of an illicit cigarette pack which is calculated using the formula

$$ILLP^* = LP^* - 2/3\ (FED^* + GST^*)$$

Price calculations for standard (close to reality scenario) are shown in table 5.2.

xc	Avg FED per pack	80% of FED	change in Avg FED	Wholesale price + retail margin	Inflation adjusted producer price	GST	Legal pack price	change in legal pack price (%)	total tax	illicit market share	illegal pack price	Average price per pack
2019	36.55	36.55		33.38	33.38	11.89	81.82		48.44	0.16	49.53	76.65
2020	40.21	32.16	3.66	33.38	35.30	11.47	78.94	-3.52	51.67	0.21	44.49	71.70
2021	44.23	35.38	4.02	33.38	37.34	12.36	85.08	7.78	56.59	0.26	47.35	75.27
2022	48.65	38.92	4.42	33.38	39.49	13.33	91.73	7.82	61.98	0.31	50.42	78.93
2023	53.51	42.81	4.86	33.38	41.76	14.38	98.95	7.86	67.89	0.36	53.69	82.65
2024	58.86	47.09	5.35	33.38	44.17	15.51	106.77	7.91	74.38	0.41	57.19	86.44
2025	64.75	51.80	5.89	33.38	46.71	16.75	115.26	7.95	81.50	0.46	60.93	90.27
2026	71.23	56.98	6.48	33.38	49.40	18.08	124.47	7.99	89.31	0.50	64.93	94.70
2027	78.35	62.68	7.12	33.38	52.25	19.54	134.46	8.03	97.89	0.50	69.21	101.83
2028	86.18	68.95	7.83	33.38	55.26	21.11	145.32	8.07	107.30	0.50	73.79	109.55
2029	94.80	75.84	8.62	33.38	58.44	22.83	157.11	8.11	117.63	0.50	78.69	117.90
2030	104.28	83.43	9.48	33.38	61.80	24.69	169.92	8.15	128.97	0.50	83.94	126.93

All prices are in PKR

Other tobacco control policies

I assumed that all other tobacco control (non-tax) policies remain unchanged as the business-as-usual scenario. This also referred to the level of their implementation.

Baseline cigarette production and tax revenues

Tax revenues were calculated based on the reported production of cigarette sticks (table 1) and the estimated average FED and GST per pack for year 2019. The average FED was estimated to be PKR 94.4 billion and GST as PKR 30.7 billion.

Baseline number of smokers and smoking attributable deaths

I used the smoking prevalence data from GATS (2014) in the baseline model being the nationally representative sample. Using the population from 2019, it was estimated that, under the base case scenario, there were 14.8 million cigarette smokers among the adult population in the country. Based on the assumptions outlined in table 2, at least one third of these smokers (4.9 million) are expected to die prematurely from some smoking attributable disease(s). An adjustment rate of 0.70 was applied for those who would quit smoking at some point in their life time. Research has shown that quitting smoking later in life cannot prevent smoking related mortality among all smokers (Goodchild et al., 2016; Nayab et al., 2020). Table 5.3 gives the details of the model assumptions for estimating the public health outcomes.

Table 5-2. Public health model inputs and assumptions

Variables	Parameter	Source	Notes
Smoking prevalence	10.5%	GATS 2014	Current cigarette smokers (adult)
Adult population (15 years and above)	140984021	United Nations, Department of Economic and Social Affairs, Population Division	Estimates for 2019 https://www.populationpyramid.net/pakistan/2019/
Number of smokers alive in 2019	14,803,322	Author's calculations	Calculated as 10.5% of the total adult population
Risk for smoking attributable deaths	33.33%	Research studies (Doll, Peto, Boreham, & Sutherland, 2004; Peto, Boreham, & Lopez, 2015)	Evidence shows that almost one third to half of the smokers will eventually die (prematurely) of some smoking related cause. I used more conservative value of one third.
Number of smokers alive in 2019 who are expected	4,933,947	Author's calculations	One third of the smokers alive in 2019

to die prematurely of smoking related disease(s)			
Mortality adjustments for quitters	70%	Research studies (Goodchild et al., 2016; John, Rao, Rao, Moore J, & Sengupta J, Selvaraj S, Chaloupka FJ, 2010; Nayab et al., 2020; Waters, de Miera, Ross, & Shigematsu, 2010)	The probability that an adult daily smoker in 2019 – who otherwise would have died from smoking – will avoid a smoking-attributable death by quitting. Mortality adjustment is intended to account for the fact that not all smokers will be able to avoid a premature, tobacco-related death by quitting.
Price elasticity of smoking participation	0.17	Author's estimate (Previous chapter)	

5.2.2. Estimation formulas for fiscal outcomes

The number of cigarettes consumed in the year 2025 and 2030 was calculated using the formula used by Goodchild et al (2016):

$$Q\ (1+\text{change in Price}*PE)$$

While Q is the quantity of cigarettes consumed in previous year (including both legal and illegal cigarettes) and PE is the price elasticity of demand. The quantity of legal and illicit cigarettes was calculated as per assumptions of illicit market share for different models. The quantity of legal cigarettes was then multiplied with the tax (FED and GST) per pack to estimate the tax revenues.

5.2.3. Estimation formulas for public health outcomes

Public health outcomes were measured using the formula developed for a static cohort model by Ranson et al (2002). Static cohort model is more conservative as it does not include increasing number of smokers every year due to smoking uptake. It is preferred when data is not available for incidence of smoking initiation and quitting. This model always give estimates towards the lower end which might be underestimate of the public health gains (Ranson et al, 2002). The change in number of smokers as a result of price increase was calculated using the formula used

$$\text{Change in Number of smokers} = \%\text{change in price} \times PE \times \text{Number of smokers in base year}$$

Using this figure, number of smokers in 2025 and 2030 were calculated and the adult population of both these years was used as denominator to estimate smoking prevalence. Smoking attributable mortality was calculated in the same way using the formula:

Change in number of deaths = Potential number of deaths in absence of any intervention x % change in price x PE x mortality adjustment factor for quitter

5.2.4. Main simulation models

Three main models were developed to estimate the impact of tax increase on fiscal and public health outcomes. The first model (the standard model) used the parameters close to the real situation like 80% tax pass-through, illicit market share 16% in the year 2019, and then an annual increase of 5% till a ceiling level of 50%, a 10% FED increase in every year.

I also modelled best and worst-case scenarios. The best-case scenario assumed a 15% annual FED increase, 120% tax pass-through, illicit market share of 16% which does not increase with increasing tax over time. While the worst-case scenario modelled the impact of an annual 5% increase in the FED, a tax pass-through of 80%, and an illicit market share of 25% in the base year which increases at a 5% annual rate till a ceiling level of 50%. Both scenarios assumed the price of illicit cigarettes as legal price minus two-thirds of the tax amount per pack.

5.2.5. Sensitivity analysis

Additional sensitivity analyses were done to see the impact of variables that might have different values over the years. For example, an FED increase of 5% and 15% was applied to the standard case assumptions under all tax pass-through scenarios of 80%, 100%, and 120%.

5.3. Findings

5.3.1. Tax simulations-Three main simulation models

5.3.1.1. Price change

The simulation modelling shows that a continuous FED raise at the annual rate of 5% (worst case scenario), 10% (standard case scenario) and 15% (best case scenario) increases the legal cigarette pack price from the baseline price of PKR 81.82 to 130.82 (78.1%), 169.92 (125.9%)

and PKR 311.05 (298.4%) respectively by the year 2030 (Figure 5.1). The raise occurs gradually over the years in a consistent manner as shown in the figure.

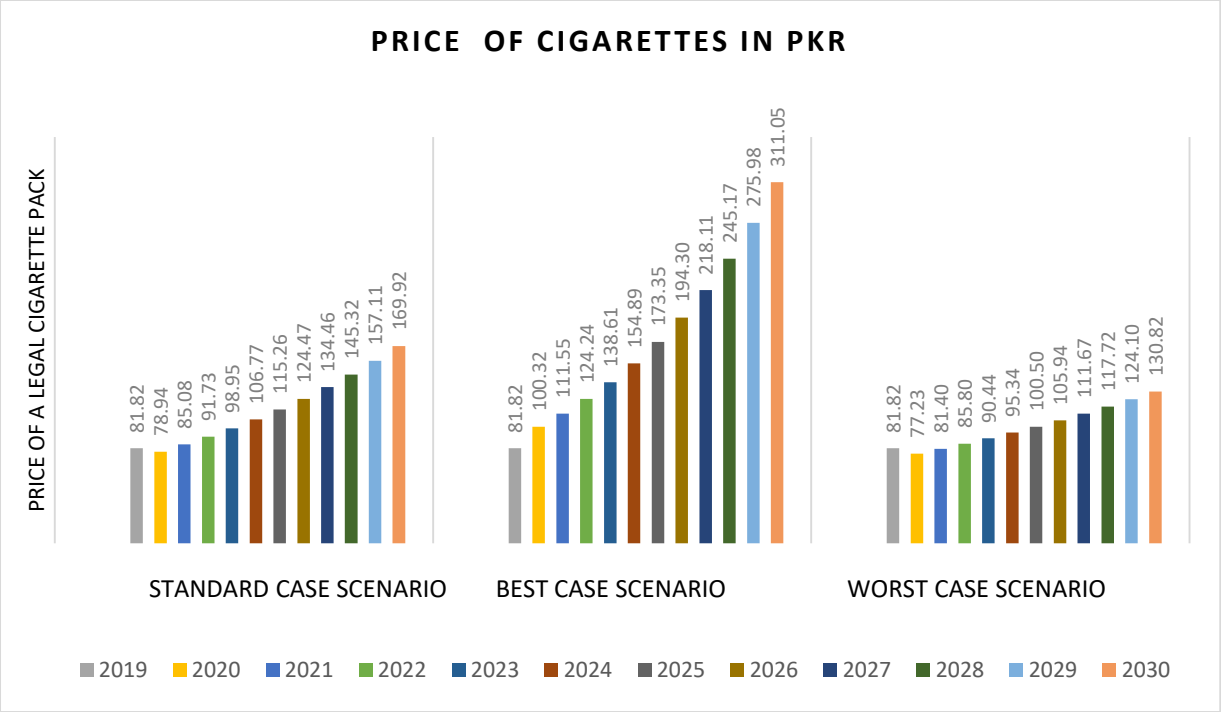

Figure 5-1. Change in the price of legal cigarette pack under different tax raise regimens

When the average consumer price of a cigarette pack in the market is considered, the raise in price from 2019-2030 is 88%, 299%, and 66% under the standard, best and worst-case scenario respectively.

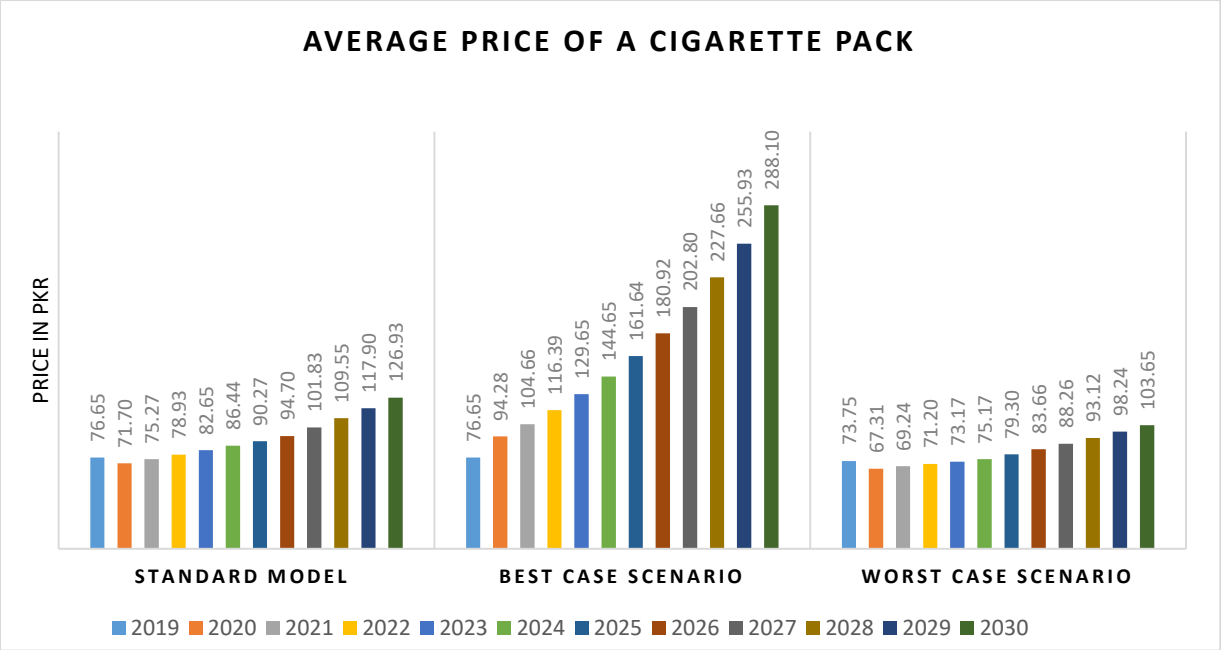

Figure 5-2. Change in the average consumer price of a cigarette pack under different tax raise regimens

5.3.1.2. Fiscal outcomes and consumption

Standard case scenario

An annual FED increase at the rate of 10% (standard case scenario) will increase the FED share by almost 20% in the retail price in 2030 (Table 5.4). This translates into a share of 71.8% as compared to the base case scenario of 52.3% in 2019. This will significantly increase the FED revenues by almost 30% despite an increase in illicit activity. Under the standard case assumptions, FED revenues will be over PKR 124 billion in 2030 which is a 31.6% increase from the base year 2019.

The change in the price of cigarette packs is estimated to decrease cigarette consumption by 20.5% from the baseline quantity of 2996 million in 2019 to 2383 million in 2030. This total quantity is assumed to have a share of 50% for legal cigarettes, the rest of the 50% market share will be occupied by illicit brands. This change in consumption shows a 54% reduction in legal sales and an increase of 188% in the sale of illicit cigarettes. However, the overall impact will be a decrease in consumption but an increase in excise revenues due to increasing rates.

The best-case scenario

The best-case scenario of a 15% annual tax increase and the non-expanding illicit market will increase FED revenues by almost 150% and is expected to reduce cigarette consumption by half (Table 5.4).

The worst-case scenario

The tax simulations show that raising the average FED consistently at the rate of 5% (under the worst-case scenario) every year will increase the FED share in the retail price of a cigarette pack by only 3.6% by 2030. However, this annual 5% FED increase will still decrease cigarette consumption by 2030 but the FED revenues will decrease by an expansion of the illicit market (Table 5.4).

Table 5-3. Fiscal impact and consumption in three main tax increase simulations (2030)

Variables	Standard case scenario	Best case scenario	Worst case scenario
Tax and Price			
Average FED per pack (PKR)	104.28	170.04	62.51
Change in FED per pack (%)*	+248.76	+428.69	+134.48
Average legal pack price (PKR)	169.92	311.05	130.82
Average pack price (PKR)	126.93	288.10	103.65
Change in average pack price (%)*	+88.94	+299.20	+66.81
FED as % of retail price	71.8	63.96	55.91
Change in the FED share in retail price* (%)	+19.53	+11.69	+3.64
Annual cigarette Consumption			
Cigarette (million packs)	2612.28	1602.66	2764.63
Change %*	-20.48	-50.36	-7.73
Annual excise revenues			
FED (million PKR)	81646.77	234934.1	86412.39
Change (%)*	+31.58	+148.84	-8.47

* Change as compared to the base case data of 2019

The year-wise analysis shows that in all FED increase scenarios consumption will consistently decrease till 2030 (Figure 5.3). Irrespective of the magnitude of decrease, simulations show the negative effect of raising excise duty on tobacco consumption even in the existence of the illicit market.

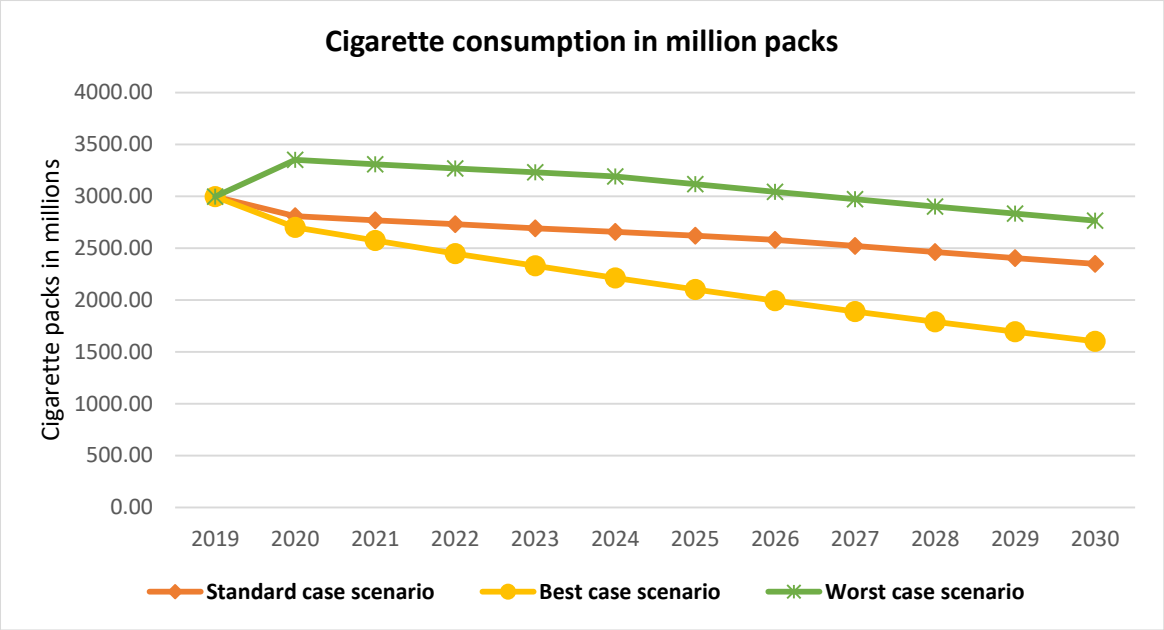

Figure 5-3. Cigarette consumption in million packs over the years under different tax regimens

5.3.1.3. Public health outcomes

Standard case

The change in the price will decrease the number of smokers by 11.5% (from 14.8 million smokers in 2019 to 13.15 million smokers in 2030) translating into a 30.2% change in smoking prevalence from 10.5% in 2019 to 7.33% in 2030.

A consistent rise in cigarette excise under the standard case scenario will eventually avert 0.39 million smoking-related deaths. This translates into an almost 8% decrease in the number of deaths from what is expected to occur without such tax increase intervention.

The best-case scenario

Cigarette consumption and the number of smokers will reduce by almost half under the best-case scenario and an increase of more than 200% in the tax revenues by the year 2030 as compared to the base year 2019 (table 5.5). This will result in a smoking prevalence of less than 5% which is the smoke-free goal of many countries.

Table 5-4. Public health impact of tax increase for three main simulation models

Simulation outcomes (2030)	Standard case scenario	Best case scenario	Worst case scenario
Number of smokers			
Number of smokers (million)	13.15	7.86	13.78
Change in number of smokers (million)	1.65	6.94	1.02
% change in number of smokers	-11.15	-46.89	-6.89
Smoking prevalence			
Prevalence of smoking (%)	7.33	4.38	7.69
Change in prevalence of smoking, %	-30.19	-58.25	-26.76
Smoking attributable deaths			
Number of deaths among smokers alive in 2019 (in thousands)	4549	3314	4696
Number of deaths averted (in thousands)	385	1620	238
Change in number of deaths (%)	-7.81	-32.83	-4.83

The worst case scenario

Simulations using the assumptions of the worst case scenario show that cigarette consumption and number of smokers will still decrease but tax revenues will also decrease (Table 5.5).

5.3.2. Tax simulations-Overall

The overall tax simulation findings which simulates the fiscal impact of annual 5%, 10% and 15% FED increase under three different tax pass through scenarios of 80%, 100% and 120% are shown in table 5.7. The tax simulations show that raising the average FED consistently at the rate of 5% every year will not increase the FED share in the retail price of a cigarette pack by 2030 if the tax pass through is 100% or over shifting of the tax to consumers. This is because the inflation rate is higher than the FED increase. However, this annual 5% FED increase will still decrease the cigarette consumption by 2030 despite growing illicit market share at the rate of 5% each year (Table 5.6). But the FED revenues will decrease by expansion of the illicit market.

An annual FED increase at the rate of 10% and 15% will increase the FED share by almost 10% and 20% respectively in the retail price in 2030 if the tax is 100% passed to the consumers (Table 5.6). This translates into a share of 62.8% and 73.3% as compared to the base case scenario of 52.3% in 2019. Both these scenarios are also expected to decrease cigarette

consumption by 2030 and increase the tax revenues for the government despite an increase in illicit activity.

Table 5-5. Fiscal impact of tax increase simulations (2030)

(Illicit activity 16% with an annual increase of 5%, 50% ceiling)

Variables	Annual FED increase (5%)			Annual FED increase (10%)			Annual FED increase (15%)		
Tax pass through	80%	100%	120%	80%	100%	120%	80%	100%	120%
Tax and Price									
Average FED per pack (PKR)	62.51	62.51	62.51	104.28	104.28	104.28	170.04	170.04	170.04
Change in FED per pack (%)*	71.02	71.02	71.02	185.31	185.31	185.31	365.22	365.22	365.22
Average legal pack price (PKR)	130.82	145.45	160.08	169.92	194.32	218.72	231.47	271.26	311.05
Average pack price (PKR)	103.65	117.57	131.49	126.93	150.15	173.37	163.58*	201.44	239.31
Change in average pack price (%)*	35.23	53.39	71.55	65.60	95.89	126.18	113.41	162.80	212.21
FED as % of retail price	55.91	-50.28#	-45.69#	71.80	62.79	55.78	85.95	73.34	63.96
% change in the FED share in retail price*	6.96	-3.81	-12.59	37.36	20.13	6.72	64.43	40.31	22.36
Annual cigarette Consumption									
Cigarette (million packs)	2612.28	2478.90	2348.15	2382.67	2213.64	2061.32	2114.42	1922.04	1760.09
Change %*	-12.82	-17.27	-21.63	-20.48	-26.12	-31.21	-29.43	-35.85	-41.26
Annual excise revenues									
FED (million PKR)	81646.77	77477.87	73391.31	124232.25	115419.25	107477.05	179768.00	163412.05	149642.64
Change (%)*	-13.52	-17.94	-22.27	31.58	22.25	13.84	90.41	73.08	58.50

* Change as compared to the base case scenario

FED share in retail price is below the base case scenario because the FED increase is at the rate of 5% while inflation rate is 5.76%

5.3.2.1. Cigarette consumption

The year-wise analysis shows that in all FED increase scenarios of annual 5%, 10%, and 15% increase (with 80% pass-through) consumption will consistently decrease till 2030. This is a decrease of 13%, 20% and 29% by 2030 in total cigarette consumption from the baseline year for annual 5%, 10% and 15% FED increase respectively. The legal cigarette consumption will decrease by a greater magnitude i.e. 49%, 54% and 59% by the year 2030 from the baseline year for annual 5%, 10% and 15% FED increase respectively due to expanding illicit market (Figure 5.4). This will happen if the illicit market share is 16% in 2019 and grows by 5% each year till it reaches a maximum of 50% market share.

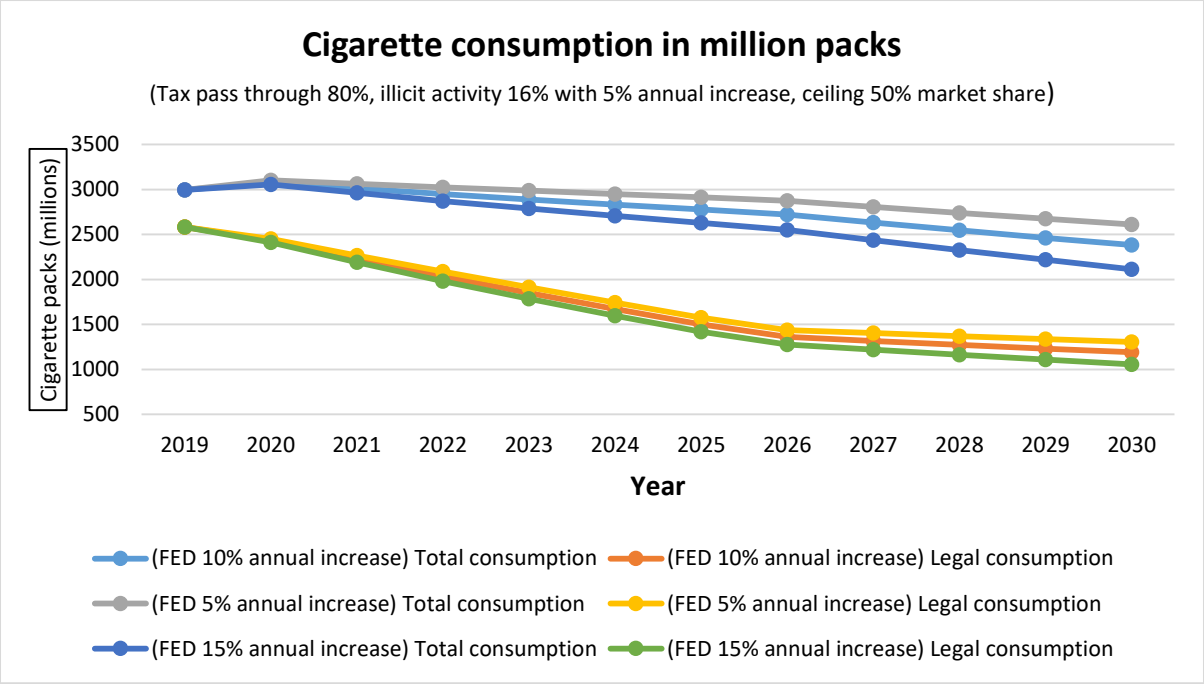

Figure 5-4. Cigarette consumption in million packs if illicit market share increases

If the illicit market share is kept constant at 16% till 2030 then the total consumption will decrease by 23%, 38% and 60% in 2030 for annual 5%, 10% and 15% FED increase respectively (Figure 5.5). A 10% annual increase in FED per pack with 80% pass through is predicted to decrease cigarette consumption by 20% in an expanding illicit market scenario as compared to the 38% decrease in a constant illicit market share case. Irrespective of the magnitude of decrease, simulations show the negative effect of raising excise duty on tobacco consumption even in the existence of illicit market.

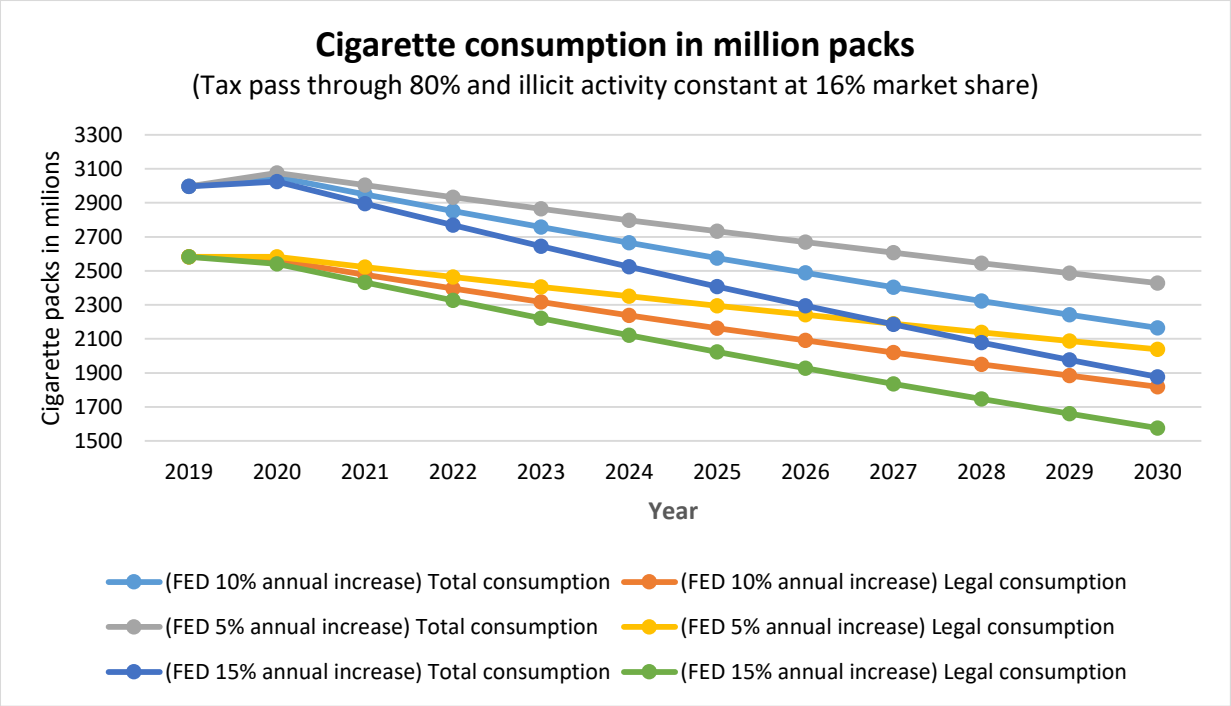

Figure 5-5. Cigarette consumption in million packs if illicit activity is constant at 16%

5.3.2.2. Public health outcomes

The simulation exercise shows that the number of smokers and smoking prevalence will decrease in all three scenarios of tax increase (Table 5.7). A consistent FED increase of 10% with an 80% pass-through effect is estimated to reduce the number of cigarette smokers by 11% by 2030. This means a reduction from 14.8 million cigarette smokers to 13.15 million cigarette smokers, and a decrease in smoking prevalence by 30% till 2030.

A consistent rise in cigarette excise will eventually avert 0.21 million, 0.39 million and 0.67 million smoking-related deaths for an annual tax increase of 5%, 10% and 15% respectively if the tax is passed 80% to the consumers. This translates into a 4%, 8% and 14% decrease in the number of deaths from what is expected to occur without a tax increase intervention. Table 5.7 gives details of these changes in public health outcomes for the different tax increase and tax pass-through scenarios.

Table 5-6. Public health impact of tax increase simulations (2030)

(Illicit activity 16% with an annual increase of 5%, 50% ceiling)

Public health outcomes	Annual FED increase (5%)			Annual FED increase (10%)			Annual FED increase (15%)		
Tax pass through	80%	100%	120%	80%	100%	120%	80%	100%	120%
Number of smokers									
Number of smokers (million)	13.92	13.46	13.00	13.15	12.39	11.63	11.95	10.71	9.46
Change in number of smokers (million)	0.89	1.34	1.80	1.65	2.41	3.18	2.85	4.10	5.34
% change in number of smokers	-5.99	-9.08	-12.16	-11.15	-16.30	-21.45	-19.28	-27.68	-36.08
Smoking prevalence									
Prevalence of smoking (%)	7.76	7.51	7.25	7.33	6.91	6.48	6.66	5.97	5.28
Change in prevalence of smoking, %	-26.10	-28.48	-30.95	-30.19	-34.19	-38.29	-36.57	-43.14	-49.71
Smoking attributable deaths									
Number of deaths among smokers alive in 2019 (in thousands)	4727	4620	4514	4549	4371	4193	4268	3978	3688
Number of deaths averted (in thousands)	207	313	420	385	563	741	666	956	1246
Change in number of deaths after tax increase simulations (%)*	-4.19	-6.35	-8.51	-7.81	-11.41	-15.02	-13.50	-19.37	-25.25

* Baseline number of deaths 4994 thousand, baseline number of smokers 14.8 million, baseline smoking prevalence 10.5%

5.3.3. Sensitivity analysis

The tax simulations were run for both fiscal and public health outcomes under three different scenarios of illicit market share, i.e., baseline illicit market share of 25% with 5% annual increase till a ceiling share of 50% is achieved, baseline illicit market share of 9% with 5% annual increase till a ceiling share of 50% is achieved, and a constant illicit market share of 16%. The ceiling level of illicit market share (50%) is reached in year 2024 for the baseline case of 25% share and in the year 2029 for the baseline 9% market share. The findings of these simulations are summarized in tables 5.8-5.10. In all illicit activity, tax pass through scenarios, a substantial decrease in smoking prevalence and deaths attributable to smoking is seen.

There is a little variation in the projected smoking prevalence in 2030 for both low and high illicit activity scenarios when illicit market share is expanding. Smoking prevalence is predicted to be 7.24%, with the base case illicit share of 25% (Table 5.8) and 7.40% if the baseline illicit activity is 9% (Table 5.9) when FED is increased consistently by10% every year till 2030 and the tax pass through is 80%. However, a relatively better decrease in smoking prevalence is projected (6.8%) when illicit market activity is considered as constant share of 16% (Table 5.10).

A similar pattern is seen for the number of deaths averted. The maximum number of deaths (1620 thousand) can be averted if FED is increased at 15% with 120% tax pass through and a constant illicit market share of 16% (Table 5.10).

Table 5-7. Model simulations results for year 2030 (Illicit share 25% with annual 5% increase, 50% ceiling)

Variables	Annual FED increase (5%)			Annual FED increase (10%)			Annual FED increase (15%)		
Tax pass through	80%	100%	120%	80%	100%	120%	80%	100%	120%
Cigarette consumption									
Cigarette (million packs)	2764.63	2624.37	2485.54	2520.18	2340.86	2180.54	2234.70	2032.00	1860.37
Change (%)	-14.38	-18.72	-23.02	-21.95	-27.50	-32.47	-30.79	-37.07	-42.38
Annual excise revenues									
FED (million PKR)	86412.386	82028.41	77689.04	131403.96	122054.19	113694.74	189999.75	172765.80	158173.01
Change (%)	-8.47	-13.12	-17.71	39.18	29.28	20.42	101.24	82.99	67.53
Number of smokers									
Number of smokers (million)	13.78	13.31	12.83	12.99	12.20	11.40	11.74	10.45	9.15
Change in number of smokers (million)	1.02	1.50	1.97	1.81	2.61	3.40	3.07	4.36	5.65
% change in number of smokers	-6.89	-10.10	-13.31	-12.26	-17.61	-22.97	-20.71	-29.44	-38.17
Smoking prevalence									
Prevalence of smoking (%)	7.69	7.42	7.16	7.24	6.80	6.36	6.55	5.82	5.10
Change in smoking prevalence (%)	-26.76	-29.33	-31.81	-31.05	-35.24	-39.43	-37.62	-44.57	-51.43
Smoking attributable deaths									
Number of deaths among smokers alive in 2019 (in thousands)	4696	4585	4474	4511	4326	4141	4219	3917	3616
Number of deaths averted (in thousands)	238	349	460	423	608	793	715	1017	1318
Change in number of deaths after tax increase simulations (%)*	-4.83	-7.07	-9.32	-8.58	-12.33	-16.08	-14.50	-20.61	-26.72

A significant decrease in cigarette consumption is predicted in all illicit activity, tax pass-through and FED increase scenarios. A continued annual increase in FED ensures that cigarette consumption decreases despite an expanding illicit activity. However, the same is not true for FED revenues, revenues do not increase in an expanding illicit market scenario if FED is increased at a 5% annual rate.

Table 5-8. Model simulations results for the year 2030 (Illicit share 9% with annual 5% increase, 50% ceiling)

Variables	Annual FED increase (5%)			Annual FED increase (10%)			Annual FED increase (15%)		
Tax pass through	80%	100%	120%	80%	100%	120%	80%	100%	120%
Cigarette consumption									
Cigarette (million packs)	2488.08	2360.47	2236.24	2270.37	2108.86	1964.04	2016.06	1832.25	1678.14
Change, %	-22.94	-26.89	-30.74	-29.69	-34.69	-39.17	-37.56	-43.25	-48.03
Annual excise revenues									
FED (million PKR)	77768.6	73780.02	69896.85	118378.5	109957.2	102406.3	171410	155782.8	142679.4
Change (%)	-17.63	-21.85	-25.97	25.38	16.46	8.47	81.55	65.00	51.12
Number of smokers									
Number of smokers (million)	14.01	13.57	13.13	13.27	12.53	11.79	12.10	10.90	9.69
Change in number of smokers (million)	0.79	1.23	1.68	1.53	2.27	3.01	2.70	3.91	5.12
% change in number of smokers	-5.33	-8.33	-11.33	-10.34	-15.35	-20.35	-18.24	-26.40	-34.55
Smoking prevalence									
Prevalence of smoking (%)	7.81	7.57	7.32	7.40	6.99	6.57	6.75	6.08	5.40
Change in smoking prevalence (%)	-25.62	-27.90	-30.29	-29.52	-33.43	-37.43	-35.71	-42.10	-48.57
Smoking attributable deaths									
Number of deaths among smokers alive in 2019 (in thousands)	4750	4646	4543	4577	4404	4231	4304	4022	3741
Number of deaths averted (in thousands)	184	288	391	357	530	703	630	912	1193
Change in number of deaths after tax increase simulations (%)	-3.73	-5.83	-7.93	-7.24	-10.74	-14.24	-12.77	-18.48	-24.19

If illicit market share do not expand, FED revenues are expected to increase by 100% in 2030 with a consistent FED increase of 10% in a cigarette pack and 80% tax pass through effect (Table 5.10). This is a marked difference than the revenue increase (31.6%) expected to occur if illicit market expands at 5% rate annually (Table 5.6).

Table 5-9. Model simulations results for year 2030 (if illicit activity is kept constant at 16%)

Variables	Annual FED increase (5%)			Annual FED increase (10%)			Annual FED increase (15%)		
Tax pass through	80%	100%	120%	80%	100%	120%	80%	100%	120%
Tax and Price									
Average FED per pack (PKR)	62.51	62.51	62.51	104.28	104.28	104.28	170.04	170.04	170.04
Change in FED per pack (%)	71.02	71.02	71.02	185.31	185.31	185.31	365.22	365.22	365.22
Average legal pack price (PKR)	130.82	145.45	160.08	169.92	194.32	218.72	231.47	271.26	311.05
Average pack price (PKR)	122.13	136.53	150.93	156.16	180.19	204.21	209.75	248.92	288.10
Change in average pack price (%)	59.33	78.12	96.91	103.73	135.07	166.41	173.64	224.75	275.85
FED as % of retail price	55.91	50.28	45.69	71.80	62.79	55.78	85.95	73.34	63.96
Annual cigarette Consumption									
Cigarette (million packs)	2427.87	2315.34	2201.44	2165.14	2030.78	1904.06	1876.65	1731.99	1602.66
Change, %	-24.81	-28.29	-31.82	-32.94	-37.11	-41.03	-41.88	-46.36	-50.36
Annual excise revenues									
FED (million PKR)	130839.18	124774.55	118636.63	189658.04	182562.81	171170.34	275099.17	253893.72	234934.13
Change (%)	38.58	32.16	25.66	100.88	93.37	81.30	191.38	168.92	148.84
Number of smokers									
Number of smokers (million)	13.31	12.84	12.36	12.19	11.40	10.62	10.43	9.15	7.86
Change in number of smokers (million)	1.49	1.97	2.44	2.61	3.40	4.19	4.37	5.66	6.94
% change in number of smokers	-10.09	-13.28	-16.47	-17.63	-22.96	-28.29	-29.52	-38.21	-46.89
Smoking prevalence									
Prevalence of smoking (%)	7.42	7.16	6.89	6.80	6.36	5.92	5.82	5.10	4.38
Change in smoking prevalence (%)	-29.32	-31.83	-34.34	-35.25	-39.44	-43.63	-44.59	-51.42	-58.25
Smoking attributable deaths									
Number of deaths among smokers alive in 2019 (in thousands)	4586	4475	4365	4325	4141	3957	3914	3614	3314
Number of deaths averted (in thousands)	348	459	569	609	793	977	1020	1320	1620
Change in the number of deaths after tax increase simulations (%)	-7.06	-9.30	-11.53	-12.34	-16.07	-19.80	-20.66	-26.74	-32.83

5.4. Discussion

The power of taxation as a demand control tool for cigarette consumption is well established and acknowledged (F. J. Chaloupka et al., 2012; International Agency for Research on Cancer, 2011; Jha & Chaloupka, 1999; WHO, 2010c; World Bank, 2017). The WHO has been working with the ministries of finance in various countries to help them in designing effective taxation policies using simulation models to estimate the outcomes of different taxation regimens. The two major concerns for governments in this regard are the impact on tax revenues and the threat of illicit market growth (Goodchild et al., 2016). This chapter presented simulation models for tax rises in Pakistan taking both of these factors into account. Currently, four different simulation studies are available in Pakistan which estimate the impact of a tax rise on government revenues and cigarette consumption. Mushtaq et al., (2011), Burki et al., (2013) and Nayab et al., (2020) predicted the health impact in addition to the impact on consumption

and revenues while Levy et al., (2016) used an abridged simsmoke model to simulate the impact of various tobacco control interventions on health outcomes of smoking-associated mortality and smoking prevalence in Pakistan. None of these studies have considered illicit market share in their modelling while empirical evidence shows that high tobacco taxation is associated with an increase in the illicit market which should be accounted for in policy analysis (Farrell & Fry, 2013). Recent data from Colombia shows that the illicit market share increased from 3.4% in 2016 to 6.4% in 2017 after a 100% increase in excise duty (Maldonado, Llorente, Escobar, & Iglesias, 2020). Similar findings are reported from Brazil where 2011 taxation reforms have increased the illicit market share from 28.6% to 32.3% from 2012 to 2013 and then a decrease to 28.8% in 2014 and a continued increase to 42.8% till 2016 (Szklo, Iglesias, Carvalho de Souza, Szklo, & Maria de Almeida, 2017).

The simulation models in this chapter establish that a consistent tax rise over the inflation rate causes a decrease in tobacco consumption, number of smokers, and number of smoking-attributable deaths despite the existence of an expanding illicit market. For example under the standard case assumptions, an annual increase in FED at the rate of 10% with 80% pass-through decreases the consumption by 20%, the number of smokers by 11%, with more than 30% change in smoking prevalence from 2019-2030 if the baseline illicit market is 16% and expanding by 5% every year. This will also avert 385000 smoking-attributable deaths among all smokers alive in 2019 and a marked increase in FED revenues is also predicted from PKR 94.4 billion to PKR 124.2 billion by the year 2030. These simulations are validated by empirical studies where the real-time data has shown a positive impact of raising tobacco taxes on both fiscal and health outcomes despite the existence of an illicit market (Iglesias, n.d.; Maldonado et al., 2020). The data from 2011 taxation reforms in Brazil shows that the tax revenues increased up to 20% in real terms despite the contraction of legal sales by 26% (Iglesias, n.d.). This is a very important finding which needs to be communicated to policy makers in Pakistan because their main fear in increasing the FED is the loss of revenues due to expansion of the illegal market.

The simulations in this study show greater health and fiscal gains if the illicit market can be controlled and not allowed to expand over the years. The number of deaths averted was 793000 for a constant illicit market share of 16% as compared to 563000 in an expanding illicit market (if FED is increased at 10% annual rate till 2030). This highlights the need for a more vigilant system for tobacco tax administration in the country to control illicit trade.

Another important aspect of an effective tobacco taxation policy is increasing the taxes at a rate exceeding inflation. This study found that a tax increase at an annual rate of 5% (i.e., below the inflation rate), although linked to positive public health outcomes, would decrease government revenues in any tax pass-through and illicit activity scenario modelled. The World Bank's recent publication on tobacco taxation strongly recommends that the tax rate is automatically updated to stay ahead of inflation and income growth (World Bank, 2017). The example of tax reforms in the Gambia is the best example where a significant decrease in consumption was achieved along with a significant expansion of revenues by keeping pace with inflation and using a uniform taxation system (Nargis et al., 2016). The simulations in this study illustrate the fiscal and health outcomes of using a regular FED increase for both above and below inflation rate scenarios to guide policymakers. This study is quite relevant in time with the recent publication of the global cigarette tax scorecard where Pakistan has the lowest scores in the region (Chaloupka et al., 2020). By contrast, New Zealand and Australia are the top two countries on this scorecard due to their high, uniform specific cigarette excise taxes that regularly increase and have significantly reduced the affordability of cigarettes.

This study simulated a regular increase in FED at different rates as compared to the one-off increase as done in other studies from Pakistan (Burki et al., 2013; Nayab et al., 2020). This is also in contrast to what the World Bank (2017) says '*Go big, go fast*' for tobacco taxation. A regular annual increase at 10% FED raise seems more practical and politically feasible in the country. The findings accentuate the need for a long-term policy on using tobacco excise as a tobacco control tool in Pakistan. The literature supports the idea of a strategic tobacco taxation policy where both consumers and producers are aware of the changes in tobacco products' prices (World Bank, 2017).

This study simulates cigarette taxation till 2030 considering the time relevance of targets set in the WHO Global NCD Action Plan 2013–2025 and Sustainable Development Goals (SDGs). The WHO has set out a specific tobacco-related target of a 30% relative reduction in the prevalence of current tobacco use by 2025 (WHO, n.d.-a, 2013b). This translates into a smoking prevalence of 7.35% in 2025 as compared to 10.5% in 2014. An annual FED raise at a 10% or 15% rate till 2030 would be expected to enable Pakistan to achieve this target even in an expanding illicit market scenario.

The simulation modelling used in this analysis has some limitations. Smoking prevalence data for Pakistan are from 2014. Being a lower-middle-income country, smoking rates may have increased with income rise, especially among women. The smoking-attributable mortality risk is based on data from the developed world which states that tobacco use ultimately kills a third to half of all users prematurely (Doll et al., 2004; Peto et al., 2015). These risks might be higher in Pakistan due to higher background health risks and poorer wider determinants of health. However, this study used a lower risk of 33% to get more conservative estimates which avoids overestimation of the impact of taxation on mortality and is likely to be more believable and palatable to decision-makers in Pakistan. This study simulates the health impact of taxation using a single cohort model which means that the dynamic aspects of demographics, smoking initiation, and quitting are not taken into account. This was primarily done due to a lack of country-specific data on these variables. Dynamic population models have the advantage of being very close to reality as they are based on real-time population data, smoking prevalence, mortality rates, mortality risks, changing age-specific smoking uptake and cessation rates; which the static model used in this study misses out (Cobiac, Ikeda, Nghiem, Blakely, & Wilson, 2015). However, a comparative analysis of nine countries' data shows that the results do not change significantly while using single cohort analysis or dynamic modelling techniques (Levy, Ellis, Mays, & Huang, 2013).

5.5. Conclusion

With a continued annual increase in FED for cigarette packs, at 5%, 10%, and 15% rate, smoking prevalence, cigarette consumption, and the number of smoking-attributable deaths are expected to decrease by 2030 in Pakistan despite an expanding illicit market. However, to get a positive impact on tax revenues, FED should be increased by more than the inflation rate. An annual increase of FED at the rate of 5% will have a negative effect on revenues while a substantial increase is expected for an annual 10% and 15% increase despite a growing illicit market. A consistent increase above 10%, in tobacco taxation would enable Pakistan to meet its targets for a one-third reduction in smoking prevalence by 2025.

6. Qualitative study to understand the challenges and facilitators of introducing a TTPP reform in Pakistan

6.1. Introduction

This study was aimed to identify tobacco taxation and pricing policy (TTPP) actors in Pakistan and to describe their understanding of current policies, gauge their position, interests, and influence on the issue, and their perceived challenges in the modification of TTPP to reduce the affordability of tobacco products. The specific research questions were:

1. What is the policy arena for tobacco taxation and pricing policy in Pakistan?
2. What are the stakeholders' perspectives on the challenges and facilitators of introducing a taxation reform for tobacco products in Pakistan?

6.2. Methods

A qualitative study was undertaken using 27 in-depth interviews with the key stakeholders in the TTPP arena in Pakistan. The theoretical perspectives of political economy analysis (PEA) explained in chapter 1 guided the data collection and analysis process.

6.2.1. Key informants_ selection and recruitment

Policy actors were identified through a range of techniques comprising of initial general understanding of the policy arena through chapter 3, along with the information from media and other literature. An initial list of organizations was compiled along with potential key informants from these organizations that could be approached for the study. The initial list consisted of representatives from the National Tobacco Control Cell (TCC), coalition for tobacco control, FBR, National Commission on NCDs, civil society organizations, international organizations playing roles in tobacco control like the WHO and the World Bank in Pakistan, the tobacco control board and if possible the tobacco industry. Later, retailers selling cigarettes, smokers, and tobacco growers were also added to the list based on emerging information. It was also realised that politicians and legislators play a crucial role in TTPP,

however, it was not possible to interview them at the time of data collection due to ongoing protests and political strikes.

I initially used purposive sampling to recruit three key informants in the study which was later followed by snowball sampling. The criteria for purposive sampling were any stakeholder related to tobacco taxation policy and who holds the position (in the concerned office/department) for at least two years. Although snowballing was considered a priori as a method that would be used in order to ensure that particularly important key informants were identified and the research had the opportunity to include their perspectives, approaching key informants was quite challenging which led to a shift to the snowball sampling as a more central recruitment strategy (Kvale, 1996). All informants were requested to identify further actors that in their opinion would be important to talk to in this research context. This snow-balling approach was helpful as being referred by colleagues or known individuals made potential participants more likely to agree to the interview. Data collection was stopped when no more new informants and themes were identified.

Informants were approached through a mix of techniques: an introductory email or a message on LinkedIn was sent to each of the interviewees. The contents of the message/email were non-specific consisting of a general introduction of the research topic and a request to participate as a key informant (Appendix 7). A detailed participant information sheet (Appendix 8) along with informed consent (Appendix 9) were shared with informants in subsequent communications. Participant information sheet and informed consent were translated in Urdu as well to be shared with tobacco growers and retailers (Appendix 10 and 11). The signed informed consent forms were collected on the day of data collection either personally or through a scanned copy through Whatsapp. Informants were also given the opportunity of splitting their interview into more than one session if they were facing time constraints. Two of the informants chose to respond to the interview in two sessions.

I made multiple contacts with the proposed participants through phone/emails/Whatsapp or other communication channels before the in-person interview. It was important to communicate beforehand in the cultural context of Pakistan to build rapport between informants and researcher. Green and Thorogood (2004) have stressed the need of building rapport with informants to facilitate opening up and sharing the information.

6.2.2. Data collection

This research included audio-recordings of in-depth interviews and their verbatim transcripts, contemporaneous notes (in cases where participants did not consent for audio-recording and/or talked before turning on the recorder or after stopping the recorder), a verbal questionnaire, field notes and a reflective journal.

6.2.2.1. In-depth interviews

In-depth interviews were the major source of data collection to understand the TTPP arena and the informants' perspectives on challenges and facilitators for introducing a policy reform.

Interview topic guide

An interview topic guide (Appendix 12) was used to conduct the interviews. Kvale (1996) suggested the use of a topic guide during interviews to help focus the discussion and to ensure similar data collection from all participants. The conceptual framework of PEA was the starting point for developing the interview guide. The findings of the critical analysis of TTPP (chapter 3), GATS data analysis to estimate price elasticity (chapter 4) and review of the literature (chapter 2) informed the design and contents of the topic guide. Informants were asked to comment on the two recent tobacco tax-related actions in Pakistan identified in chapter 3, the GLT stage tax reversal and introduction of the third tier in 2017/18. A summary of these actions is given in box 6.1. Interview questions were further refined after initial interviews, a typical emergent design feature of qualitative studies (Creswell, 2012; Green & Thorogood, 2014; Kvale, 1996).

Box 6.1. Two advancements in tobacco tax in Pakistan explored during the interviews

1. **Introduction of third tier in 2017/18**

Pakistan had been taxing cigarettes with Federal Excise Duty (FED) based on two tax slabs/tiers (economy brands and premium brands) since 2013/14 till 2016/17 with consistent increase in FED on both tiers. Which has resulted in increase in revenues for the years 2013/14 till 2015/16. In 2016.17 the tax revenues fell sharply and government introduced a third tier in the tax slabs with PKR 16.00 FED on the lowest price cigarettes which was almost 50% less than the previously implemented tax of PKR 32.98 on the economy brands.

This decreased the consumer price of the brand leader (economy) cigarette pack from PKR 70 to PKR 48 making it highly affordable.

2. GLT stage tax reversal on unmanufactured tobacco

The Green Leaf Threshing (GLT) Stage of tobacco manufacturing is critical in Pakistan. As it is the stage, where raw tobacco leaves are converted into unmanufactured tobacco ready to be filled in cigarettes. At this stage tobacco is transferred to cigarette manufacturing units. There are only 10 GLT machines in Pakistan and any monitoring at this stage is crucial to avoid illicit trade of tobacco and cigarettes. Government of Pakistan took a major step in 2018 to introduce a tax of PKR 300 per kg of tobacco to be paid by the buyers of tobacco. This tax was at zero-rating (meaning adjustable in the final payments of tax by cigarette manufacturers). A high tax at this stage was intended to discourage illicit tobacco trade and to facilitate documentation. However, in 2019 this tax was reversed to the previously set amount of PKR 10 per kg.

Piloting the interview

The interview guide was pretested before actual data collection. Two interviews were conducted with colleagues who had some background in tobacco control research in Pakistan. This helped the researcher to practice the interview using the interview guide, it also helped in choosing the styles in which question could be posed, identified questions which were repetitive and also identified probes for new questions that could arise during the interviews. It also helped in determining the time required for interview.

Actual data collection

Data were collected between Oct-Dec 2019 mainly collected through face-to-face in-depth interviews (22 interviews), however, five interviews were conducted on the telephone due to logistics reasons. I personally conducted all interviews singlehandedly except for two interviews with the tobacco growers. For interviewing tobacco growers another person, who was an MPhil student in a research degree in developmental economics and local to tobacco growing areas, was hired. I trained him for interview conduction and provided an overview of the research aims and context. Interview lengths ranged from 20 minutes to 102 minutes with an average of 51 minutes. All interviews were conducted primarily in Urdu and recorded using a digital mp3 recorder. However, in situations where informants did not agree to record or started

talking before the recording or continued talking after stopping the recorder, contemporaneous notes were taken (and verbal consent was sought from the informant to include them in the analysis).

The open-ended questions were posed differently to informants based on the informants' comfort and the way the discussion had developed during the interviews. A summary of discussed points was shared with informants either during or towards the end of the interview. At the end of the interviews, all informants were asked if they were interested, the researcher could share the transcript of the interview with them to check for corrections. One informant asked for sharing the transcript which was later shared.

6.2.2.2. Verbal questionnaire

I also used a verbal questionnaire to collect information about the informants (Informant name, code, contact details, job role, and experience), date and time of the interview, and stakeholder analysis-related questions (Appendix 13). All informants were provided a copy of this questionnaire before data collection along with the participant information sheet.

All informants were assigned a code based on the organization they belong to and the number, for example, the first informant from the ministry of health (MOH) was coded as MOH 01 and second as MOH 02 likewise informant from the federal board of revenue (FBR) were coded as FBR 01 and FBR 02. These codes are used with the verbatim quotes of informants to support the findings.

6.2.2.3. Field notes and reflective journal

Field notes were taken for all interviews both during and after the data collection. These notes included a summary of the discussed points, general impressions about the interview environment, nonverbal cues, disturbances, and any other significant reflections. Note-taking is regarded as one of the core parts of qualitative inquiry and notes are often considered as a data source in itself (Kvale, 2007). These notes assisted in guiding the discussion during the interview and were later used in the analysis step as a contextual reference, to map the positions of stakeholders and to augment data analysis.

A reflective journal was maintained throughout the data collection and analysis process. Lincoln and Guba (1985) explain a reflective journal as a type of diary where a researcher makes regular entries during the research process. In these entries, the researcher records her experiences, reactions to situations, methodological decisions and the reasons for them, the logistics of the study, and reflection upon what is happening in terms of one's own values and interests. I used the reflective journal to reflect on informants' interpretation of questions, emerging themes in each interview, and informants' thoughts about other key policy actors. I also recorded points from discussion with supervisors in the reflective journal during the data collection and analysis. These notes were utilised in the analysis step to map positions of stakeholders, to decide about their power ranking and to augment the general data analysis. I also used this journal to reflect on my potential influence on data interpretations considering my personal background and pre-understanding and supported the write-up of a reflexive summary (section 7.1, chapter 7).

6.2.3. Data preparation and storage

All audio-digital interview files were transferred and stored at the University of Warwick server, in password-protected files. Contemporaneous notes, verbal questionnaire, and signed informed consent were scanned and transferred to the same server in a different folder.

All recorded interviews were transcribed verbatim in Roman Urdu by the researcher (HM). Informants' names, job titles, or other attributes which could identify them, were removed from the transcripts to assure confidentiality. Two interviews were translated into English (HM) to facilitate discussion with the supervisory experts (OO). Afterward, all the transcripts, field notes were transferred to Nvivo version 11 for analysis.

6.2.4. Data analyses

Data analysis was carried out in two domains pertaining to the two research questions stated in the beginning. Methods for analyses are described separately for both questions (stakeholder analysis and qualitative framework analysis). All interviews were listened/read several times before data analysis to get familiar with the data, to get an overall picture of the data, and to identify initial themes.

6.2.4.1. Framework analysis technique

The overall policy arena and challenges in the modification of TTPP were analysed using the Framework Analysis Technique (FAT). Framework analysis is a qualitative method that is based on subjective interpretation of the text using the systematic process of coding and identifying themes or patterns (Hsieh & Shannon, 2005). It is aptly suited for applied policy research and is mainly used to describe and interpret what is happening in a policy area in a particular setting (Ritchie & Spencer, 2010).

I used the step-wise approach to framework analysis as described by Gale et al (2013). The whole analysis process is explained in Table 6.1. Research questions and the overall context of the research was the point of departure for analysis (Mayring, 2014).

Table 6-1. Framework analysis procedure (Gale et al, 2013)

Steps	Description
Familiarization with the data	Interview transcripts were read and audio recordings were re-listened. It served the dual purpose of getting familiar with the data and also checking of transcripts for accuracy. Analytical notes, impressions and initial categories were recorded.
Initial coding	Initially, four transcripts were read line by line and codes were assigned based on both open coding (inductive|) and deductive coding based on the PEA framework. This was done in Nvivo. Field notes and reflective journal were also considered at the time of coding as contextual reference.
Developing a working analytical framework	The codes developed in the coding stage were discussed with the supervisor OO and grouped into initial categories and subcategories to guide the remaining analysis. The analytical framework was first constructed on paper and then in the Nvivo. This analytical framework was not final rather kept on evolving throughout the analysis stage till the last transcript was coded.
Applying the analytical framework	The working analytical framework was applied to all remaining transcripts. However, open coding was also done at the same time when new codes were emerging and the 'working analytical framework' kept on evolving. The whole coding process was iterative and codes were revisited, refined and edited several times based on emerging findings to give the final analytical framework.
Charting data	Data for each category was charted into a case-code matrix in Excel where rows were the cases and columns were the codes. This overview was used to identify emerging themes, divergent ideas, and relationships between themes. Analytical memos were also written at this stage to guide the grouping of codes into themes.
Interpreting the data	All codes and categories were reviewed alongside analytical memos and reflective journal. Relationships between different categories were explored and data were refined in the form of main themes, sub-themes and categories to illustrate the holistic picture of the data.

6.2.4.2. Stakeholder analysis

Both the interview data and the data collected through the verbal questionnaire for stakeholder analysis were used for stakeholder analysis. I used the line-by-line analysis of the transcripts to code information about roles, interests, position and power of each actor in Nvivo and saved the information as a separate collection within the main Nvivo file. However, the position, power and interests were assessed at three different times after the data collection. First, the impressions about the informants' position and power were recorded immediately after their interviews. The second assessment was carried out about 3-4 weeks after their interviews when a number of other interviews had taken place to assist in comparative positioning. The third and final assessment was done during the final data analysis stage when the results were summarized. Assessments were based on discussion during the interviews, informants' official position and roles, comments of other informants during interviews, and discussion with the supervisors.

The position of actors was gauged on a seven-point position scale (High Support, Medium Support, Low Support, Non-mobilized, Low Opposition, Medium Opposition, and High Opposition) for introducing a TTPP reform with public health objective. Schmeer's (1999) guidelines for determining positions of stakeholders were used. According to her, if an actor clearly states his/her position as an opponent then it should be considered to be true. However, if an actor takes a supportive or neutral position during the interview, there is a need to reassess this stance using other sources. I reassessed the position of actors based on the opinions of other key informants interviewed about them.

Actors' power is considered as their ability to influence decisions regarding policy under discussion, in this case, the tobacco taxation and pricing policy. Power is derived from the resources in hand of the actors and their ability to use them (Schmeer, 1999). Sources of power can be direct as actors' organizational affiliation, rank or official position, finances, technology/knowledge and persuasive power, or indirect as personal connections with industry or politicians. Schmeer's (1999) technique of averaging the amount of resources in hands and ability to mobilize these resources was used to make a judgment about actors' power. Actors were given ranks on a three-point scale depending on the number of resources they have, where 1=few, 2=some, 3=many. The ability to mobilize these resources was also rated on a three-point scale, where 1=actor cannot decide on using the resources, 2=actor is part of a larger

group to make use of the resources, 3=actor alone is able to make use of resources in his/her organization or field. Both scores were then averaged to assess actors' power as low, medium and high.

The interest of actors is their stake in the concerned policy and the basis of this stake can be ownership, administrative position, livelihood, lifestyles, cultural values, or social obligations (Schmeer, 1999). Rainey (2003) argues that actors live by satisfying their interests to maintain the resources attached and their political legitimacy. Interest data were summarized as a list of categories dug from the discussions about how they see the TTPP and what would they gain or lose if a reform is brought to achieve public health objectives of reducing the affordability of tobacco products.

6.2.5. Ethical approval

Ethical approval was obtained from the University of Warwick BSREC (Application Reference: BSREC 04/19-20) and a local institution in Pakistan (Al-Shifa School of Public Health, Al-Shifa Trust Eye Hospital Rawalpindi). Written informed consents were obtained from all study participants.

6.2.6. Data quality and trustworthiness

Data quality was maintained by keeping whole data collection and analysis process transparent and maintaining the track of changes and steps taken throughout the process. Trustworthiness of the findings is ensured by constant peer debriefing, discussion with the supervisors, member checks and triangulation of data collection sources and respondents. The reflective journal and reflective summary also augment the trustworthiness. Initial findings were shared with three of the key informants if they find them relevant and complete. This aided in the validation of the findings.

6.3. Findings

In this section the sample is introduced, then their interests, positions and power dynamics in the tobacco taxation policy arena (the stakeholder analysis) are described. Next, the findings from thematic framework analysis about challenges and facilitators for introducing TTPP reforms in the country are summarised. Finally, the findings are discussed in the context of political economy.

6.3.1. Actors

A total of 27 policy actors participated in the study. Of the 30 requests for the interview; 27 agreed, one did not respond (FBR officer), one refused (retailer) and one of the agreed actors could not spare time for an interview (media representative). The actors are categorized into 11 different categories (table 6.2). A twelfth category (legislators/parliamentarians/ politicians) was also considered in the analysis, although no member of that category was interviewed.

Table 6-2. List of policy actors interviewed in the study

	Abbreviation	Actors	Number
1	TI	Tobacco industry (cigarette manufacturers)	3
		Multinational	2
		Local	1
2	MOH	Ministry of Health* (Tobacco control cell)	3
3	FBR	Federal Board of Revenue	4
		Policy wing	2
		Inland Revenue Enforcement	2
4	PTB	Pakistan Tobacco Board	2
5	TG	Tobacco growers	2
6	Med	Media	1
7	SM	Smokers/consumers	1
8	RE	Retailers	2
9	AC	Public health researchers/academicians	3
10	WHO	World Health Organization	1
11	CS	Civil Society	5

*original name is Ministry of National Health Services, Regulations and Coordination (NHSR&C)

6.3.2. Stakeholder analysis

6.3.2.1. Actors' roles and interests

This section describes the roles and interests of the key actors regarding tobacco taxation policy based on the interview data. Policy actors' interests (summarized in Table 6.3) are mainly defined by the profile of their affiliated organisations and their job titles.

Table 6-3. Stated interests of different actors in tobacco taxation policy

	Actors	Interests
1	Tobacco industry (cigarettes manufacturers)	Increase market share/volume Maintain and increase revenue Decrease tax
2	Ministry of Health (Tobacco control cell)	Prevent youth from starting smoking Control tobacco use (decrease prevalence) in the country

		Mainly working on TAPS, Smoke Free policies and PHW Building coalitions with civil society and academia to support the cause
3	Federal Board of Revenue	Increase tax revenue Decrease budget deficit Decrease illegal production Maintain good relations with tax paying industries Keep tobacco industry safe for being a big revenue source
4	Pakistan Tobacco Board	Increase production of high quality tobacco Increase exports Maintain tobacco crop land Protect interests of both farmers and industry
5	Tobacco growers	Increase production of high quality tobacco Decrease tax Good price for the crop and timely payments
6	Media	Publish interesting, up-to-date stories which attract the attention of the audience
7	Smokers/consumers	Keep cigarettes affordable
8	Retailers	Mainly concerned about their profit margins
9	Public health researchers/academicians	Control tobacco use (decrease prevalence) in the country Do research Have financial support
10	World Health Organization	Control tobacco use (decrease prevalence) in the country
11	Civil Society	Have financial support Help to solve tobacco-related problems Advocacy Meet donor requirements

The Ministry of NHSR&C has a dedicated department for tobacco control, the Pakistan Tobacco Control Cell (TCC). The TCC is mainly working on Bloomberg's funding with its key employees paid by the philanthropic organisation. The national TCC has a legislative and coordinating role concerning tobacco control laws in Pakistan. It coordinates with international bodies, other ministries, provinces, districts, and civil society. The provincial tobacco control cells are also there which are mainly responsible for implementation. TCC provides training and support to provincial and district governments. When asked about their role in tobacco taxation policy, actors highlighted a lack of a direct role.

Ministry of Health does not have a direct role in this (tobacco taxation policy). (MOH 01)

We think that tobacco taxation is FBR's mandate, the Federal Board of Revenue's. It is not the Ministry of Health's mandate. Ministry of Health can just give its recommendations with respect to public health perspective. (MOH 02)

As per my knowledge, they (the Ministry of Health) don't have any role in this (tobacco taxation). Maybe they (FBR) call a person from there as well during the decision process. But I think they don't have a decisive role as such. (PTB 01)

All matters related to finance like excise (duties), price they all come under the domain of the FBR, the excise department, health (department) has nothing to do with it. (MOH 03)

The Ministry of Finance (MoF) is the key actor in deciding tobacco taxation policy, however the final approval lies with the legislators during the fiscal budget approval process. MoF works through its department FBR which is primarily responsible for tax collection and works for maximizing tax revenues. According to study participants, MoF is interested in collecting tobacco tax revenues and not very concerned about the public health impact of tobacco use.

Let me give you an example…we were sitting there and I asked, do you know that around 160,000 or 165,000 people die of this (tobacco use)… and that person (from the FBR) said "we don't care about that, we have our own revenue targets that we have to meet." They have this thinking, so it is always the revenues… (CS 01)

For us, FBR is a revenue collection agency. Of course, their focus must be revenue. (FBR 03)

FBR is Pakistan's taxation body. When they consider tobacco or cigarettes, they primarily take it as a taxation base…that how much revenue we can generate from here. (FBR IREN 01)

CS also plays a crucial role in tobacco taxation policy through their advocacy campaigns, supporting tobacco control cell, identifying loopholes in tobacco control efforts, helping TCC in litigation, creating awareness among people and legislators, and giving technical input in tobacco control legislation. Many of the CS organizations are international donor-funded and working on specific projects, some are local Pakistani and with army background (in the sense that retired people from the army have established organisations which they run through their generated funds).

Public health researchers and academicians also play a role in tobacco control. However, institutes with an economics background and health economics researchers actively get involved in tobacco taxation policy by giving technical inputs to CS organizations and legislators.

…and they expect from us that we give some input into any new legislation or activity. For example when FBR makes a policy…what impact it can have on this sector or …if there is a change or something new in international standards, people expect us to be able to comment on that. (AC 01)

Those who are actively working in this field (tobacco taxation), as a stakeholder like advocates, or people from NGOs and civil society people…they all come to us to understand things and to get (technical) help. (AC 01)

According to study participants, **media** has a divisive role in tobacco control, they promote tobacco on one hand and then warn of the dangers as well because of legal requirements.

Media has a controversial role. On one side, they say it is injurious and play (this message warning of the dangers of tobacco) under the clips…but why do you show celebrities smoking. Even now they are showing celebrities, so called heroes, ones who people idealise-- smoking in the dramas, So what is the benefit of showing this message there, why are you confusing people? What do they really want to do? [AC02F]

Media plays a role in tobacco taxation policy only near the fiscal budget time. Where either CS or TI invites them to write articles on their behalf, putting forward the CS or TI perspective. They publish a few articles on the topic of tobacco taxation pre and post-budget, but these get published only when there is a political angle to it.

See, usually, the media's role is…as we discussed earlier that it starts when the fiscal budget is near to announce. And the role is like this…that civil society organizations come to us and tell us what to do…they do press conferences, there are stories… and once the budget is announced, then another role comes that this was proposed, this was not done. This happened wrong…after that it (role) finishes. I don't think that media has any other role than this. (Media 01)

PTB works under the Ministry of Commerce with a mandate to boost the Pakistani economy through tobacco growth and exports. They don't have a direct role in deciding tobacco taxation policy but play an indirect role through the facilitation of farmers and the tobacco industry.

(Pakistan Tobacco Board) does not have any special role in this (tobacco taxation) but we usually take data from them for our study and analysis. For example, I myself…when I joined this department and started interaction with WHO…then this Pakistan Tobacco Board was the only organization which could tell us how much tobacco is produced, the raw tobacco. And how many families depend on this, how much area is under cultivation. This is all we get from Pakistan Tobacco Board. (FBR 03)

No, we don't have any role in this (tobacco control) but our efforts are focused on increasing it… (PTB 01)

The mandate they (Pakistan Tobacco Board) have, they have to work under that mandate. When this organization was established, they were given a mandate at that time…their mandate is to streamline the tobacco crop…the tobacco crop is an important crop for that province and for the country. (FBR IREN 01)

Tobacco growers and **retailers** are more involved in their day-to-day business and concerned about their personal profits and want policies to be designed in a way that protects their interests. The interests of other actors are summarized in table 6.3.

6.3.2.2. Position and power

Position

The position of policy actors illustrates their stance in relation to the introduction of high tax rates as per the WHO's recommendations on tobacco products (cigarettes) to achieve public health objectives in the country. The most supportive actors are MoH, CS, WHO, and public health researchers. While the FBR, TI, PTB and smokers show strong opposition. Tobacco growers and retailers are also opposed to higher taxes, the media are moderately supportive. Legislators/parliamentarians/ Politicians were labelled as having medium opposition. Table 6.4 gives a summary of actors' positions.

FBR is more interested in controlling the illicit market as a tool to control tobacco use than increasing the tax rates and wants reforms in tax administration rather than tax rates and structure.

Why FBR is not increasing the price? Oh dear FBR can increase the prices but right now FBR is seeing if an increase in the price would result in increased revenue or an increase in the black market (saying with a bit anger). So, please balance out the things, this ragging (of FBR) won't work. (FBR IREN 01)

FBR has no choice but to oppose (high taxation) because their job as we said, is only revenue gathering and for revenue gathering, you need them (tobacco industry)…if you will shut down them then from where you will get the tax? The government won't be able to achieve its tax targets. (CS 02)

The thing is…oh fear God, if you impose PKR 10 per pack (of cigarettes), at most you will make cigarettes expensive, right. Oh people of God (saying with anger and sarcasm) if you are making cigarettes expensive then you are in fact encouraging the non-tax-paid cigarettes. By increasing the price of legal cigarettes, you are making illegal cigarettes more attractive. (FBR IREN 01)

I think FBR will not show high opposition but a medium opposition because if we manage to give them such models with which they understand that revenue can also increase… I hope so… but they will definitely oppose this change. (CS 01)

Academics, WHO, and civil society organizations showed full support for high taxation.

If I talk about a public health specialist, I would say that they will like (the step of) increasing the price. And tax should be quite high so that people's accessibility… (AC 02)

See, I think that academicians and public health specialists…I think they will definitely support a tax increase. They would say that tax should be increased, price should also be increased so that its accessibility decreases for people. (AC 01)

We say that the prices and the FED both should be increased. Only then you can see the impact, what is the aim of doing this….our aim is to reduce consumption and FBR's aim is to generate revenues. (WHO 01)

Civil society is fully supportive of us, there is no issue in that. (MOH02)

Many NGOs are doing many efforts (to increase taxation). (SM01)

Tobacco growers and retailers oppose the taxation reforms to decrease consumption as it directly influences their source of living. Retailers show low opposition because they are going to make profit out of illegal market any way.

They are the ones who sell, how they can help in controlling, they will oppose definitely, it is just contradictory. (Retailer shopkeeper)

Tax…the way I told you earlier that government should devise a policy. A policy through which they fix a rate. If the rate is fixed then the farmers will grow it. If they are increasing the tax

rate or imposing duties then companies don't buy from the farmers that is why farmers bear losses. They need to think about farmers before imposing taxes and deciding in tax rates. (TG 01)

It is a great thing that this tax has ended, and farmers' whole stock got sold. (TG 01)

If they will control tobacco use, more than half of the farmers in Swabi would get jobless. (TG01)

Smokers are also against tobacco taxation.

Obviously, they should be cheap, why would someone want to buy expensive cigarettes. (SM01)

The smokers will never say this (to increase taxes and prices) but the people who don't smoke can say. (TI 02)

Pakistan Tobacco Board is not active on this issue because of its own interests (Table 2) and does not support high taxation due to the economic contribution of tobacco at the national level in the form of tax revenues, exports, and employment.

If you increase taxation, illicit trade will increase. (PTB 02)

Pakistan tobacco board and industry they are together, I told you earlier as well that they are together and in this way influence tax policy when it is devised. They look at their own interests. (TG 02)

There is a Pakistan tobacco board as well, it will speak the same language as that of the FBR. (MOH 01)

(Do you want that)…the Pakistan Tobacco Board brings them (tobacco growers) on road? (Saying with anger and sarcasm)…and this tobacco board is in a province, and tobacco is the main cash crop of that province. Thousands of families depend on this cash crop in that province, and then there are government revenues…now should they discourage it? (FBR IREN 01)

Power and sources of power

TCC, CS, WHO, Public health researchers highly support the imposition of higher taxes. However, none of these actors enjoy high power within the Pakistani political context. In contrast, those who oppose the imposition of high taxes have high power and influence in decision-making like FBR, TI, and legislators.

TCC is part of the federal MoH and being part of the government, it enjoys the power to have direct access to the legislators and the ability to influence decisions. However, many study participants mentioned that the MoH and the TCC are not very powerful to influence taxation policy and are continuously facing underfunding issues.

(Ministry of Health) is weak, it's weak. It is weak like this because the government ownership has been quite patchy for tobacco control. (MOH 03)

It (Ministry of Health) is not strong, it is not on strong footing. The ministry of health is not that strong as it should be…this is the reason it is not even called the Ministry of Health (laughing sarcastically). (CS03)

They (Tobacco control cell) ask civil society to go to the court and bring orders from there…or do this way…they look here and there while taking initiatives themselves. (CS 03)

The main reasons identified for relatively low power are lack of financial and human resources as well as a compromised technical capacity.

There is no funding with the ministry, all this is Bloomberg sponsored. Not even a single penny… (MOH 01)

No, the ministry of health does not have resources for this. The Government of Pakistan does not allocate any budget to it (tobacco control cell). (MOH 02)

They (tobacco control cell) lack the capacity, or the enforcement capacity, or the knowledge base to take effective measures in tandem and in coordination with the federal board of revenue. (FBR 01)

The reason is….tobacco (control) cell is technically not strong, right. And FBR only buys that argument which has some technical substance in it. (WHO 01)

FBR is the technical body responsible for drafting the policy regarding taxation rates, proposing new structures, and enforcing tax administration. Many policy actors highlighted that the FBR enjoys high power to influence the taxation rates however it was also mentioned that the ultimate power lies with the legislators. Policy actors illustrated with the example of the GLT stage tax reversal where the FBR's policy proposal for GLT stage tax increase policy was reversed by the legislators. This highlights their power in the medium range. The main sources of power for the FBR are its organizational role, technical expertise, direct access to legislators and the prime minister, and also patronage network with the tobacco industry.

This (tobacco taxation) is under FBR's domain, this is our work. (FBR 04)

If they have moved to a two-tiered structure then they (FBR) have the power to make changes within the two-tier system as well, at the FBR level. (MOH 02)

If FBR's chairman goes to the PM and tells that if we do this, this much will be the loss…then things will happen there and then. (AC 01)

We have wither 10 or 11 GLTs, and it is very easy to capture them. But the thing is that there is political pressure, there is lobbying and there are people involved in this mafia…because cigarette is a very very powerful lobby in Pakistan…they are in the government, they are in the assemblies…so we have to withdraw our logic that this tax is adjustable and the manufacturer or whoever was supposed to pay an excise tax of rupees 300 per kg would adjust it against its final outcome, it was not a big deal. (FBR 03)

The real decision-maker is the government itself, it has to do budgeting and use revenues, FBR is just a tool. (FBR 03)

Table 6-4. Power position map for introducing TTPP reforms with public health objectives

	Actors	Position*	Power/influence	Sources of power
1	Tobacco industry (cigarettes manufacturers)	High opposition	High	Financial Formal network Informal links Control of strategic resources
2	Ministry of Health (Tobacco control cell)	High support	Low-Medium	Knowledge Government body
3	Federal Board of Revenue	Medium opposition	Medium	Main role player in taxation Decision maker Technical knowledge Government body
4	Pakistan Tobacco Board	Medium opposition	Medium	Control of strategic resources Government body
5	Tobacco growers	High opposition	Low-Medium	Vote bank
6	Media	Low support	Medium	Voice
7	Smokers/consumers	Medium opposition	Low	Number and vote bank
8	Retailers	Low opposition	Low	Vote as member of the public
9	Public health researchers/academicians	High support	Low	Knowledge
10	World Health Organization	High support	Medium-high	Knowledge Voice International guiding body on Health
11	Civil Society	High support	Low-Medium	Knowledge Voice
12	Legislators/parliamentarians/ Politicians	Medium opposition	High	Decision making Hierarchy (formal power)

* Position in relation to the promotion of high tax rates on tobacco products (cigarettes) to achieve public health objectives

TI was highlighted as a very powerful policy actor by almost all study participants. Their power comes from being a major tax contributor in the country and also because many of those who are involved in the tobacco business are part of the government as well, as sitting legislators. They influence decision-making using their informal and patronage networks with ministries and FBR.

Government is a decision-maker on its own, the final decision-maker. But I can say with evidence that they (tobacco industry) are influential, definitely they are…because they get so much revenues for them. They would say that if you take such steps, our and ultimately yours income will decrease. They have a great influence. (AC 02)

The company is basically stronger than the Finance and the Health department because this company pays all the tax. (TI 02)

The tobacco industry is very strong here, very influential. Most of our legislators are from tobacco industry background, they have their own manufacturing business. (MOH 02)

Because the industry has many resources, so they do strong lobbying with the government and influence greatly. (CS01)

Civil society is also an important actor in the TTPP arena. But it has low-medium level power. Its power comes from its voice, advocacy, knowledge, organizational and donor affiliation.

Obviously, civil society has its own strength, its voice, they have contacts, links, media, and their efforts. [MOH01]

Civil society is quite lucky in the context of tobacco control in Pakistan, it has quite good technical resources. Because the groups which are working here… there are some pockets of groups working on tobacco control advocacy, they have got support from international agencies working on tobacco control globally, they share their information, data and experiences. This gives you an advantage that civil society builds its capacity. (CS02a)

I think not alone, maybe (we cannot influence the decisions). But media is one pillar and pro (tobacco control) parliamentarians… those who are supportive, if these three unite together then we can do. (CS 01)

Study participants expressed their views that CS faces financial issues and because their projects are working on donor-based projects, they also face local trust issues and at times their work is criticized as part of a foreign agenda. Donor-based projects have already set agendas, so they lack the power to take initiative or prioritize efforts towards some specific interventions. Lack of funding has also compromised the knowledge and advocacy capacity of people working there. A CS representative referred to the negative repercussion of the term "sin tax" in Pakistan when it was translated and promoted through social, print, and electronic media. The public interpreted it quite negatively. It was mocked that you sin and then pay money to make it moral. He said that lack of coordination, a lack of contextual research leads to such issues.

And whenever we go to such forums (policy discussions), we are criticized mostly …they say it is foreign agenda. Here when we went to the parliament with a Bill, the first thing they said was that it is foreign agenda…Michael Bloomberg is behind this. (CS 03)

I remember when people from civil society come and talk against tobacco in the meeting of the standing committee (in Senate), their way of talking is quite different. But those people who have come from the tobacco industry… they have a high confidence level, education, you can see expertise in everything. (It shows that) they have done a lot of research, they give examples from all over the world that what is happening …they talk in this way. We have resource issues, a person from civil society who goes there to talk, he does not have that much resources so that he can research… (Media 01)

They have no argument at all, see if you just keep on saying (others) bad bad… you need to show in documents how that (party/FBR) is bad. (WHO 01)

Public health researchers have a low power to influence TTPP in Pakistan. Their power is derived from their knowledge, however the voice is often not very strong due to lack of funds and other existing issues.

The way they talk…they can change the minds of even middle-class people. Of course, they can change the mind of the government as well. (RS 01)

There is shortage of resources, there is no doubt in this…no resources for education or health. So, you can't see academicians here (in policy discussions on tobacco taxation). And these people, the doctors' associations…they have so many concerns of their own, they are facing issues related to their survival. (AC 02)

Media has a medium level of power summarized based on the inputs from several study participants. If media generates the voice, it can reach to the legislators easily and it can even move the general public opinion. However the media representative said that media cannot influence taxation policy because of lack of will and resources.

Media cannot (influence on tobacco taxation policy)…especially in this matter. There is no willingness and there is issue of resources as well. (Media 01)

Tobacco growers are not that powerful per se but once mobilized and supported by other parties/groups can acquire high power and reach to the legislators to influence decision making. Study participants gave examples of GLT stage tax reversal because of protest from tobacco growers although the tax was not imposed on them. Their main power source is being a major vote bank of the province where tobacco is grown.

The government in KPK gets established when tobacco growers support (a candidate/party) (CS03)

They have underestimated the internal dynamics of PTI government in Pakistan. Tobacco growers are quite strong there, they are in very strong position. (CS 03)

Basically again (the tobacco industry) worked with the farmer and then they got the tax reverted. (AC01F)

(The GLT stage tax reversion) yes, it was purely the tobacco industry behind what they (tobacco growers) did, if somebody says that it was done because of the economy, then he is right that it was about the economy of the tobacco industry, to maximize their profit. (CS02b)

(Tobacco industry) was firmly saying that they had nothing to do with this, in fact, we want this tax to be imposed. But in reality, they are the ones who have pushed tobacco growers. Otherwise, how can tobacco growers have this much power that they travel all the way from Sawabi to the parliament and then they get entered in the parliament as well? They came in many buses which were full. (Media 01)

6.3.3. Thematic framework analysis

The framework analysis yields several themes which are organized into three main groups: challenges, facilitators and recommendations for introducing TTPP reforms in Pakistan. Within each group, there are main themes, which are comprised of a number of subordinate themes based on the data. This section describes each theme in detail, using verbatim quotes from the study participants to illustrate findings.

6.3.3.1. Challenges in introducing tobacco taxation reforms

Figure 6.1 gives a snapshot of the challenges Pakistan currently faces in introducing TTPP reforms for public health purposes. The core challenge is *lack of political will* which is caused by two main factors *information asymmetries* and *political considerations* which hinder the government in introducing stringent tax measures for tobacco control. The main consequences of lack of political will are *issues in taxation laws* and *limited tobacco control efforts* in the country. There are two overarching challenges influencing all other challenges; broader *structural factors* and *tobacco industry tactics*, these two provide the field for other factors to exist and act more like a catalyst.

The relationship between these factors is not linear or one way rather they reinforce each other. This section focuses on details of these challenges one by one and their relationships are discussed in the discussion.

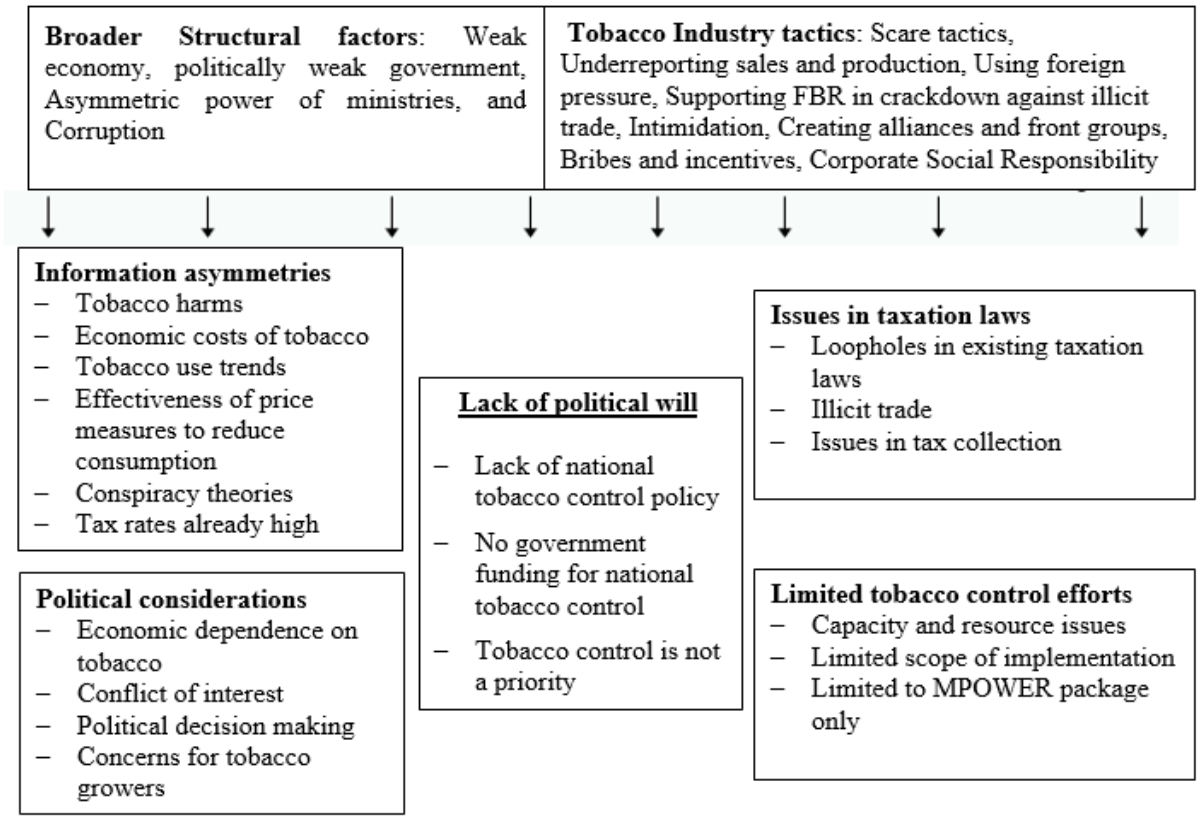

Figure 6-1. Challenges in introducing tobacco taxation and pricing reforms in Pakistan for public health objectives

A. Lack of political will

Study participants expressed the *lack of political will* as the main challenge in introducing a tobacco taxation reform in the country. Several study participants clearly showed their concern that the government is not willing to use tobacco taxation as a tobacco control tool.

I don't think so (that tobacco taxation can be used as a tobacco control tool in Pakistan)… and even the government does not want to decrease it (tobacco use). I don't think there is any government in the world that would like to decrease or end it. (PTB 01)

Political will…until and unless we have the political will, it can never be implemented. We are around 50%-54% (tax share in a pack of cigarettes), 70% is quite far. (MOH 01)

They (the government) won't like to do it (increasing taxes to reduce tobacco use). Doing something like this is not in their favour. (TI 02)

This main theme reflects participants' accounts which relating to three sub-themes of *no government funding for tobacco control, lack of tobacco control policy,* and *tobacco control is not a priority.* Table 6.5 below summarises the findings, illustrating the quotes, categories, subthemes and ultimately formulated the core theme of lack of political will.

a) No government funding for tobacco control

Policy actors believed the *lack of designated funds for the national tobacco control cell* is a clear manifestation of the lack of political will. Participants from the civil society, ministry of health and media highlighted that the national TCC is *donor-funded*, even the core team is being paid by the Bloomberg Philanthropies. Participants highlighted that the government of Pakistan has not earmarked any funds for tobacco control, leaving it on complete donor dependency. This not only shows the lack of government ownership but also raises concerns over the sustainability of the programme. Table 6.5 explains this category with supporting quotes from the study participants.

b) *Lack of national tobacco control policy*

Another theme that illustrates the lack of political will for tobacco control is the *lack of a national tobacco control policy.* Three categories of lack of policy on using taxation as a

tobacco control measure, contrasting goals of ministries and lack of coordination among different government departments make up this sub-theme. Table# illustrates these categories with supporting quotes from the study participants. A participant from the ministry of health highlighted that despite being a signatory to FCTC for more than a decade, a national-level tobacco control policy has never been tabled before legislators. There is no national policy statement on using tobacco taxation as a tobacco control measure. Tobacco control is multi-sectoral but currently, only a small TCC is working on it. There are ministries of commerce and finance which are working with opposing goals. The PTB operating under the ministry of commerce has a goal of promoting the growth and yield of tobacco in the country.

c) Tobacco control is not a priority

Participants expressed the view that given the plethora of issues Pakistan is facing, health has never been a priority. To add to this, tobacco control has a further *low national priority* given the high profile of other health problems which are seen as distinct from tobacco such as polio, malaria, TB, maternal and child health issues, and malnutrition.

Table 6-5. Coding details of the main theme: Lack of political will

Categories	Quotes
Sub-theme: No government funding for tobacco control	
Tobacco control is donor dependant	We just have a tobacco (control) cell and that is donor funded... and it is working on project employees. Now in July they have asked a government officer to oversee it. (MOH 03) God forbid if today we lose this generous international collaboration (for tobacco control), then maybe the momentum will not remain the same. It will continue but just in bits and pieces, but it won't have that effect. (AC 01)
Lack of designated funds for the national tobacco control cell	We have zero budget there (in the tobacco control cell). There is document from the government of Pakistan called PC1, Planning Commission Document 1….we have got it approved since 2017… (Stating a budget) of 1.28 million for tobacco control cell. But its funds have never been released. (MOH 02) There is a little example of this (lack of political will)…who is paying for our tobacco control cell? When our tobacco control cell was about to establish, the government said we don't have funds for it. How much funds they would have needed, five lac or ten lac per month. (media 01)
Lack of tobacco control policy	
Lack of policy on using taxation as tobacco control measure	Tax is a way to generate revenues but they (the government) limit it (its use) for revenue generation only. Tax is not considered as a way or tool which can reduce (tobacco) consumption. (CS 01) Unfortunately…I don't have an evidence…..um…but the concerned authorities that are involved in revenue collection and policy making, umm…I am not sure if I should mention their name or not, you know who is doing all this. Their discussion reveals that there is no such policy (of using tobacco taxation as tobacco control tool), there have never been a policy. Unfortunately, the taxation system is like this…that every year FBR and the industry sit together and decide a lump sum amount and after that they breakup that amount into different slabs and in different….they divide it then. So, I don't think any such policy exists. (MOH 01)
Contrasting goals of ministries	Government's two institutions are working in opposite directions. You know that the Pakistan Tobacco Board, it protects…it (promotes) an increase in tobacco growing and production. And we are sitting here to control its demand, its supply through tobacco public policy and other policies (MOH 02).

	FBR would oppose it (high tobacco taxation to reduce tobacco use) because it is a major revenue entity for them. I mean…including all, please don't just consider the FED, the sales tax you get from there, income tax etc that you get from there…this amount reaches up to around 100 billion, so why would they will like to loose 100 billions worth of revenue? (AC 01) Pakistan has two parallel approaches, one is working under the Ministry of Commerce whose mandate is …and it is lawful, working under the law, and its mandate is to grow tobacco and mostly export it. And the Ministry of Health wants to protect people. These both strings don't meet at any point, right. I mean the Ministry of Health will keep on shouting that work should be done on tobacco regualtions. (CS 03)
Lack of coordination in different government departments	(We need a) coordinated effort...coordinated effort among all stakeholders who have any role in tobacco movement (supply chain) or cigarette movement, or its storage. When multiple agencies are involved then (there is need for) their coordination and a coordinated effort... Sharing of intelligence, assisting each other, helping each other supporting each other… (FBR IREN 01) But we could not see any such coordination at government level in which ministry of health has a laision with other ministries, so that they can see this concern (tobacco use) in an overall context. (AC 01) The reason is that they don't have formal meetings often with each other. The reason for this is that tobacco cell is not technically strong, and FBR only buys that argument which has some technical substance in it. (WHO 01)
Tobacco control is not a priority	
Plethora of other issues	There are so many issues here, and health is not at the high priority for the political government (AC 03) Whenever we have a chat with Mr. XXX (a person who had worked in tobacco control), he says…whenever you used to go to the Finance Ministry or Federal Ombustment, people used to laugh that ….o' dear there are so many other issues, what kind of issue you have brought there, what kind of issue is this. (CS 04)
High burden of infectious diseases	You can compare the media campaigns launched in the context of dengue and polio. Dengue is not a communicable disease, I can't give you dengue, but you can give me polio, polio is communicable, and if you look at the statistics of the provincial or the federal government, the amount of media advertisement done, publicity energy, people involved in these campaign. Even if half of that is diverted towards the media campaign for smoking, I don't think anyone would have….. (FBR 01)
Health low priority	…because if you look at…if we talk about our internal matters, all this (tobacco taxation) comes under health…and health has never been, unfortunately…the important things like health, education …I really don't know why they have never been given due importance. (AC 02) Health has never been a priority because health cannot be seen. (AC 01)

B. Information asymmetries

Another major theme that came out from the interviews is marked information gaps among different key actors on tobacco use and harm-related issues. Participants expressed a variety of views which in many cases were contradictorily highlighting the existence of huge information asymmetries. Table 6.6 gives a list of these asymmetries and table 6.7 illustrates all categories with some examples of supporting quotes making up those categories, sub-themes and themes.

Table 6-6. Information asymmetries

Sub-themes	Categories
Tobacco harms	Tobacco is harmful
	Tobacco is not harmful
	Other things are more harmful than tobacco
The economic cost of tobacco	No data available
	Costs are high
	No costs to the government
Tobacco use trend/prevalence	It is increasing
	It is decreasing
Effectiveness of price measures to reduce tobacco use	Increasing price will decrease consumption and vice versa
	Increasing price will not decrease consumption
Conspiracy theories	Tobacco control is foreign agenda
	Tobacco use is a result of colonialism
Tax rates are already high	

It is mainly the tobacco industry, FBR, PTB, and tobacco growers who perceive tobacco as being less harmful, are not convinced of the effectiveness of price measures to reduce tobacco consumption and believe that the tax rates are already high. On the other hand, it is people from the MOH, AC and CS members who consider tobacco as harmful and believe in the effectiveness of taxes with some exceptions. Table 6.7 gives a detailed account of these information gaps.

Table 6-7. Examples of quotes on the theme of information asymmetries

Subthemes/ categories	Examples from Quotes	Participant
Tobacco harms		
Tobacco not that harmful	I don't know how far it is correct that more than one hundred thousand people die of this (tobacco use) every year.	FBR 03
	I told you earlier as well, it (tobacco use) is not a big issue. I have seen many people here who are chain smokers and do their work while smoking all the time, and they are doing like this since many years.	TG 01
	One reason is that for example I have never seen anyone with my naked eyes that someone has got lungs cancer because of smoking. Secondly, over here in Pakistan, people believe that one day they have to die anyway and that day is fixed and that will come. It will come whether you smoke or not smoke.	TI 02
	I am telling you that Pakistani tobacco is relatively less harmful. Its main reason is that use of pesticides is quite low in Pakistan as compared to the developed countries.	PTB 01
	This cancer…and other health issues…they are not mainly because of tobacco use…I mean …you can see there is not even a single research paper till now which states that this thing (disease) is mainly happening because of tobacco. There are always many risk factors involved, nobody can say that this is happening because of tobacco or its smoke….and this person has died only because of tobacco). There are multiple factors involved.	PTB 02
Other things are more harmful	Other things are more harmful (than tobacco), like I told you that the chicken feed has arsenic in it…the chicken we eat.	PTB 02
	The auto sector policy that we have right now…not having filters in our cars. May be it is killing more people…rather they are dying because of cigarettes. So we have to look at all these things.	AC01
	They use aluminium in fast food, you know that foil…the aluminium foil. I mean (they) use it to wrap food for keeping in oven. That is the most dangerous thing.	PTB 02
Tobacco is harmful	See, everyone knows about its harms. They know about the harms but they can't resist	TI 01
	I think one of the reasons that my father died he was a chronic smoker	AC03
	Tobacco at the moment is a major contributor to all non-communicable diseases	CS 02a
	Everyone gets sick when he smokes. If you smoke once or three cigarettes or smoke 20 you are equally at the chances of getting sick, even if you don't get cancer, your lungs will be damaged. Whether you die early or you die late, you will become ill and your productivity will be compromised.	FBR 01
	Tobacco definitely has health issues no arguments there.	TI 03
Magnitude/ trend of tobacco use		
Decreasing/ low	Yes, you see that the total population of smokers is not much here in Pakistan considering the overall population. Cigarette smokers are around 20 or 21 point something …	MOH01F
	If you see in terms of numbers, there has been improvement in it. If you see our GATS surveys, you will find out that we don't have that trend now…in terms of the number of users. Moreover, we have the documented values of the sticks sold, cigarettes etc…we don't have that momentum in them as we used to have.	AC 01
	Our population has increased by almost 10% over last ten years. But the (tobacco) sale and the demand has decreased till 60%.	PTB 01
Increasing	I would say that tobacco use is increasing day by day here.	AC 02

	Well… if I talk about tobacco in Pakistan, Pakistan is one of the mass scale market where tobacco consumption is a lot.	TI 01
	70 percent of the male population in Pakistan is smoking…from students till elder people of up to 70 years. 70% of the male population…I am talking about only males who smoke.	SM01
	They are many… you can say almost 90%...yes they smoke. There are only 10% people who don't smoke.	RM 01
	If you see, Pakistan is second or first in Asia. Um… or Pakistan is First, second or third in Asia that consumes most tobacco.	TI 02
Cost of tobacco use		
High	But there is a bad side to it as well, cigarettes… tobacco are also affecting health of this country by contributing towards health bills	CS 02B
	If a person gets ill, it is automatically going to be a burden on the state via the government provided hospitals and as well as for losing the productive workers and often the productivity of the individuals as well. So this is something which I believe is a big health concern, should be.	AC 01
Low	In addition to its harmfulness, people are also not aware of the economic burden of it on consumers… and how much it can be beneficial if they start diverting, spending this money on other things like food.	MOH01
	If you talk about it in the context of seminars, then it can be said that it makes a difference…and that there is much loss in it. But in reality there is nothing. I mean, there are some people covered in district headquarters hospitals…(but you know) they are privatizing many things and hospitals, so I would say it (tobacco) is not a burden of any kind here….i would say it is not a burden, as far as my opinion is concerned.	TI 03
Effect of price on consumption		
Increasing price will not decrease consumption	This is over simplification…that if you increase taxation, people will get far from tobacco use. It is addiction, it is addiction…people are addict…	CS 03
	You increased the price of a cigarette by almost 100, increased the tax by 48% and the number of sticks consumed increased. Second year, you increased it further, and the same result was achieved. That tells you that this approach might work for those developed countries, it is not working here.	CS 02b
	I don't agree that smoking has stopped by increasing prices, even now cigarettes are bought in the same way from every shop (like it used to be). And people do buy, I don't think so that anyone is facing any problem in it. Those who are unable to follow their brand, they move a bit low towards cheaper cigarettes, but they don't quit smoking.	SM 01
	They are addict, they have to smoke. What wll happen by increasing the price, a pack of 70 rupees will go to 75 rupees, people will not stop…you can (increase the tax till) 70%, 80% or even full 100%. The WHO even says this…you can do even 100% but it won't make any difference.	FBR 04
	Tobacco can never be controlled by taxation.	PTB 02
	No, no…price does not make any difference. That I already told you that there are cheaper brands, people chose brands according to their (economic) status.	Retailer 02
	Consumption will not decrease rather people will switch to the cheap cigarettes that are locally produced or start smoking the cheap smuggled cigarettes.	TI 02
Increasing price will decrease consumption	I think it is quite effective tool, because it hits the affordability.	CS 01
	The FCTC says that it is the most effective tool that by increasing taxation consumption will also decrease.	CS04
	Yes, I totally agree with this, the Article 6 of the FCTC…of course it is kind of Bible for us. The effectiveness of the Article 6 has been proven in other countries of the world. The most successful examples are from Australia, Canada, UK…where cigarette prices	MOH 01

	were raised for the reason to get them out of reach of youth's purchase power…and the ones who want to smoke, they should pay high price for it.	
	It is of course important for countries like us, you know that if we increase price by 10% then consumption will decrease by 5-8%.	MOH 02
	I don't think that it will stop people from smoking but it will reduce the consumption as those who smoke two packets of cigarette every day would reduce it to one packet. It is a solution in Pakistan and 15 to 20 percent reduction will be seen.	TI 02
Taxes already high		
	See, it is very simple thing that cigarette sector is already heavily taxed. The most heavily taxed commodity in your country is cigarette, around 85%.	FBR IREN 01
	WHO has set a benchmark of up to 70% tax raise to achieve that result (of high revenues and decreased consumption). The MPOWER tool by the WHO is saying this for Pakistan. We are beyond that. We have achieved that 70% benchmark with respect to tax but our cigarettes are still cheaper, and our tobacco consumption is going on higher side.	CS 02b
	Pakistan tobacco industry is heavily taxed. And around 80%-85% of the revenues of many companies is being taken by the government of Pakistan.	TI 03

Political considerations

Political considerations which prevent the government from introducing reforms comprised four categories that related to the challenges the government faces in introducing tobacco taxation reforms aimed at reducing tobacco use. The major challenge in this regard is *economic dependence on tobacco*, both in the form of employment and contribution to government revenues.

Table 6-8. Political considerations which prevent governments from introducing reforms

Economic dependence on tobacco	Dependence on tobacco-related revenues
	Fear of depleting revenue if taxation is increased
	Employment in the tobacco industry
Concerns for tobacco growers	Main cash crop
	Main vote bank
	Need to give alternative
Conflict of interest	Politicians have stakes in the tobacco industry
	Patronage networks (FBR people and legislators' relatives get attractive positions in tobacco industry)
Political decision-making dilemma	Government focuses on things with immediate and cosmetic value
	Government avoids such policies which create mass hindrance/ opposition

a) Economic dependence on tobacco

Study participants showed concern that the Pakistani economy is heavily dependent on tobacco both for the tax revenues and employment of people in tobacco-related business. Participants highlighted that it is not just the federal excise duty (FED) that we consider for tobacco control, the government looks at the overall gains from the industry and acts accordingly.

FBR would oppose it (high tobacco taxation to reduce tobacco use) because it is a major revenue entity for them. I mean…including all, please don't just consider the FED, the sales tax you get from there, income tax etc that you get from there…this amount reaches up to around 100 billion, so why would they like to lose 100 billion worth of revenue? (AC 01)

Ok, now the next thing is…the cigarette sector gives around 100 or 110 billion revenue despite all the illicit trade. Now please tell me, if you tax it even more then this can turn out to be negative, you may lose a bigger chunk. If you will lose a bigger chunk then ultimately you will get a lower health tax. Ultimately the volume will decrease from 100 billion to 80 billion, then how much health tax you will get. The overall (revenue) will decrease, overall revenue pool will decrease. (FBR IREN 01)

Study participants also highlighted that it is kind of compulsion for the government, even an addiction, to the tobacco related revenues. Government has a fear of losing the revenues if they tax the industry further.

The country is getting benefit in terms of tax (from tobacco), no other benefit can be seen. They get quite heavy amount of tax from there and then run the government. They say that it cauuses cancer, even print pictures on it but still don't ban it, they must be compromising… otherwise from where will they get the revenues. (Retailer 01)

The only money they are getting…even that (source) will close, what will they do then? (AC 03)

Another concern for economic dependence that poses a challenge in introducing a taxation reform is the concern for employment of people involved in tobacco related business.

The thing is… it is providing 1.2 million jobs directly and almost two times this number indirectly. (CS 02b)

A major factor is the government revenues and then there are farmers, the growers, processors, and after that those who manufacture cigarettes and then other people involved after that (in the supply chain). It is a quite big community. (FBR 04)

b) Concerns for tobacco growers

Another challenge that decision-makers face in imposing high taxation on tobacco to control its use is the concern for tobacco growers. Tobacco is the main cash crop in many districts of the Pakistani Province Khyber Pakhtunkhwa (KPK).

They earn some money by growing it (tobacco) as a cash crop. (PTB 01)

Yes, our main source of income is tobacco. Most of the people over here rely on Tobacco to live their lives. The main source of income is tobacco. (TG 02)

Participants highlighted that without a viable alternative, tobacco growers would suffer and the government cannot let them suffer because they are the main vote bank of the ruling government. Participants related this challenge with the recent reversal of high tax imposed at the GLT stage as a result of the protest by the tobacco growers. This happened despite the tax

not being levied on the growers rather on the purchasers of the un-manufactured tobacco.

So, what happened was that…you know that the most tobacco growing area is Sawabi and our Speaker (of the National Assembly) is from Sawabi. People pressurized him politically there, then he personally asked to look into the matter, what is this issue about. You know that the political workers do take care of their voters. (MOH 02)

The government in KPK gets established when tobacco growers support (a candidate/party) (CS03)

If somebody is getting a job only from cigarette (industry), if you are not giving him an alternative then how will he earn? (CS 02b)

See, the people there, the growers…if till the time you give them an alternative…then there are retailers, till the time you give them an alternative…they will show resistance. (MOH 02)

c) Political decision-making dilemma

Study participants stated another challenge that the government faces while taking action on tobacco control or health issues is the delayed results of the interventions. Nobody can see the immediate benefits but it invites immediate protests and resistance due to the stakes of many people involved. This makes it a politically not favourable intervention.

Your government comes for five years, and they will not open such a matter that they won't be able to close…or start such an activity that invites so much resistance….they would not like to do such things. (AC 01)

So, when these people come (in power), they have financial issues, there are so many other natural calamities happening in the country, they have to make their government strong, they have to spend less, they have to establish industries, construct roads, …so their priority is always such that there must be a little cosmetic change at least so that people can see it and they feel that there has been a change by the change of the government. And this is the underlying problem that they focus on infrastructure, cosmetic changes. (AC 03)

d) Conflict of interest

Almost all study participants, even from the tobacco industry itself highlighted the conflict of interest as a major challenge in introducing TTPP reforms in Pakistan. This theme is based on two categories; the first is the stakes of politicians in the tobacco industry where the sitting legislators are themselves involved in the tobacco business and they ensure that they are part of the special committees formed in the Senate to make decisions on tobacco-related matters. Participants referred to the GLT stage tax reversal issue to illustrate their stance.

Unfortunately, many of our legislators grow tobacco themselves. Unfortunately, the people sitting in the health committees of the parliament, are themselves involved in running the tobacco industry/business. So, it is a 100% conflict of interest, they would never want taxes to be raised, they will never want that cigarette use to be minimized. This is very important to understand and highlight. (MOH 01)

Because the local industry does not pay tax at all so this (GLT stage advance tax) tax cannot be adjusted. Many representatives of the local tobacco industry are sitting in the Senate, they are there in the Parliament. They forced that this (tax) should be abolished. (CS 01)

There were many players who played a dirty role in it, our local industry is also involved in it. Here you don't know that so many owners (of the tobacco businesses) are sitting in the parliament. (WHO 01)

But the political pressure, the lobbying, and the mafias who are involved in it…because cigarette is a very very powerful lobby in Pakistan…they are in the government, they are in the assemblies…so they have to withdraw our logic that this tax (at the GLT stage) is adjustable. (FBR 03)

The second category, making up the theme of conflict of interest is the patronage linkages between industry, politicians and bureaucrats. Study participants particularly referred to the multi-national tobacco companies in Pakistan that they influence the decisions by employing either the retired bureaucrats or children of the serving bureaucrats or politicians to influence decisions. They referred to this by giving examples of the introduction of the third tier in cigarettes tax structure in 2017-18. An FBR official has also given such data without allowing for recording.

It is the personal interests that create problems…for example if our minister's son is getting 2.5 million rupees salary there …of course he will protect them. He will take care of them. If our bureaucrats' or FBR's chairman's son or daughter are getting a salary of 25 lac there, then will surely protect them (tobacco industry). (CS04)

Right now there are many factories who have employed their children on 8, 8 lac salaries. And they are doing any work there. Their job is to go to the office in mornings, keep sitting there and then come back in evenings. But because they are secretaries, so they are quite useful for them…so they (tobacco industry) does not feel any problem in employing their children like this, it is like an investment for them. And it is not worrisome for the secretaries as well that they are not taking bribes and their children have got job as well. (Media 01)

Issues in taxation and pricing laws

The main consequence of the lack of political will can be seen in the form of poor enforcement of existing taxation laws resulting in illicit trade. Study participants highlighted that the taxation legislation has many loopholes in it which need to be addressed (table 6.9).

Table 6-9. Problems in taxation laws and enforcement

Sub-themes	Categories
Loopholes in taxation laws	AJK free trade
	Old laws need revisions
	Duty-free cigarettes for elites
Illicit trade	High taxation promotes illicit market and has counter effects
	Use of illicit market issues to undermine tax regulations
	Lack of data on illicit trade
Issues in tax collection	Lack of production and sales data
	Capacity issues
	Tobacco tax collection is a risky job
	Corruption

a) Loopholes in taxation laws

FBR officials raised concerns about Pakistani tax laws and their limitations with respect to cigarette manufacturing in non-tariff areas of Pakistan like Azad Jammu and Kashmir (AJK) and FATA. According to the officials, the tobacco industry is moving from the KPK and other areas of Pakistan to AJK to avoid taxation. If cigarettes are manufactured in AJK then the tax needs to be paid in AJK, not in Pakistan. Although AJK has the same taxation laws as Pakistan,

the implementation is not that strong. Border controls are also weak between AJK and Pakistan to check if the cigarettes coming from AJK are already duty paid.

After all why AJK is attractive for them? That they take the un-manufactured tobacco from here and then they produce cigarettes in AJK and bring them back to Pakistan. You must know the legal status of the AJK, AJK is not a separate state. So all the cigarette coming from AJK is supposedly brought here after paying tax there. The situation right now is that …A cigarette pack in our lower bracket has an excise duty of 33 rupees in it. If somebody is getting a cigarette pack for 30 rupees from the market, it means that pack is illicit, its duty has not been paid. Now the problem is this…of course you will seize such cigarettes and start legal procedures…either you can impose a tax on it or destroy it. But then some legal issues come in it that the tax should be paid in AJK because they are manufactured there. Now a product came from there in which tax was not paid, they have the same taxes in AJK as we have in Pakistan but if a thing is coming here without being taxed there, and here they are selling it at a price even lower than the minimum bracket then it means that the illicit trade is on rise. So, we are trying in FBR at the policy level. (FBR 03)

Now what happened was that all the local manufacturers established their factories in AJK. AJK is a very small place. Raw tobacco goes from here, skilled labour goes from here, all the capital has gone from here. So, we have to look what incentive is available there that all these are moving to AJK. You have to take leaf from here, there is no GLT in AHK. You will do the GLT here, then load the trucks with it and go to AJK, you will take skilled labour from Mardan there, Capital is also from here…then what is the incentive in AJK after all? It is something to think about…that there is a mushroom growth of 8, 9, 10, 11 cigarette factories there within no time. The issue is…that you manufacture cigarettes in AJK and then sell them in Pakistan, illegal supply. If someone catches you then you can say that we have to pay tax in AJK how can you catch us. (FBR IREN 01)

Secondly, about the laws related to AJK…if the AJK government is not cooperating, I mean if they are not implementing it strictly then we need to change our laws accordingly. Another thing is that there are still gaps and a lot of potential in documenting this sector, for example, to bring such changes in the Rules that we pack it properly, and like electronic tracking of the invoice… (FBR 03)

Participants also stated that the taxation laws are outdated and need revisions in accordance with new requirements. They specifically mentioned the low rate of tax at the GLT stage and also a clause in the Federal Excise Duty Act that allows tobacco companies to give duty-free cigarettes to elites like Prime Minister, President and Pakistan navy staff creating a softer image in decision-makers eyes.

Now this 10 rupees per Kg (of tobacco) was a tax decided around 100 years ago, which is not that much effective as it is, even if you simply adjust it for inflation, the amount will be much higher…so they increased it and it was not a bad (decision). (AC 01)

When you become a senior, one of the perks you get is free of cost good quality cigarettes, or without taxes on much-discounted prices from the President House or Prime Minister House (AC 03)

b) Issues in tax collection

Study participants stressed that there are many issues in tax collection in Pakistan, which pose a challenge in using TTPP reforms to control tobacco use. A failure to collect proper tax also compromises the revenue potential of the industry. This theme of issues in tax collection reflects the accounts of study participants on four categories of the lack of production and sales data, capacity issues in the FBR, corruption in FBR, and tobacco tax collection being a risky job.

A major challenge in tax collection is the lack of production and sales data of cigarettes in Pakistan. FBR completely relies on the production figures provided by the tobacco industry itself. No monitoring mechanisms are currently used to validate the authenticity if the data. People from the civil society and TCC raised concerns that the industry provided data is not true and that they always underreport their production and sales. Thus limiting the revenues of the FBR.

FBR takes the (production and sales) data from one party, it is completely tobacco industry-provided data. They do not try to generate independent data by themselves. (CS 02b)

Earlier companies used to influence FBR, they were able to do so because they were showing low production. That used to put FBR under pressure and then FBR had to listen and agree to

them. But when this track and trace system will come, they will get to know the exact production. (MOH 02)

I think, and surely mention this on my behalf…that FBR needs to bring some reforms in itself, the (tobacco production) figures that they take from the industry…those figures are quite strange. They do not take brand-wise data, they should get that data brand-wise. (WHO 01)

Factories sell cigarettes according to their own will and tell us later that we have sold these many packs of that cigarette. There is no check and balance on them. (FBR 04)

Because we in the FBR don't have brand-wise data that how many packs of Goldleaf are being sold…so that we can do some analysis that how much it is being consumed, and the consumption of the brands other than the Goldleaf, Capstan or other different brands. Or the third largest concern we have in KPK, it is the local (industry) concern, there is a brand Kisan, maybe you won't be able to see Kisan in Islamabad but its sale is massive in smaller districts of KPK and Punjab…it is manufactured by Khyber Tobacco or some company like that. So, we don't have anything like licencing a brand. (FBR 03)

Another challenge in addition to the lack of production and sales data is the capacity issues of FBR. Study participants highlighted that FBR faces capacity issues in terms of human resources, technical resources and finances which limit its capability to regulate the tobacco industry.

About the uniform taxation matter…there is a capacity issue in FBR for this. Once they have the capacity in the form of a track and trace system then they can regulate each and every body. There won't be any issue, they can do this in tax structure then. But till the time they have this track and trace, they would keep on using that. We can't blame FBR much for this. Once their system gets improved, for which they need to improve their capacity…they need IT based equipment and so many other things also come in it…they would definitely do. There is no other issue in it. (AC 01)

But the issue comes…Mr. xxx (from the FBR) has openly said this while sitting with us that don't say this to us, just give us human resource, 500 or 600 individuals, workforce…(then) we can go to the market. He said that you get our induction increased by the government…he said that you give us (the workforce) and we can control the illicit trade then. Only after that you

ask us to increase the tax rates, we will do it without any worry. He said that we are afraid to increase taxes now that our revenue might fall further due to illicit trade. (CS 02b).

I don't have enough resources, I am sitting in an office in Rawalpindi…I have to control (an area) from Attock till Jhelum. How is it possible that I can control this (illicit trade) with just four or five individuals? (FBR 04)

FBR has many limitations with respect to enforcement, I am talking about the resources. (FBR 03)

FBR has limitations… FBR is not looking after tobacco alone, FBR has so many other sectors to look after. It has to look after sugar, it has to oversee cement, beverages and so many other things. The main limitation we face in enforcement is…our weaker intelligence network. Even if our intelligence network gets strong, you would need operational help. Then we will be able to control the illicit trade but only with much better resources in hand. (FBR 03)

Generally speaking, FBR is… it has… it needs to expand its manpower, skilled manpower, particularly at the adjudication and assessing level, accompanied with an enforcement workforce, digital technology, logistics, vehicles, terrain, all sorts of terrain from borders to urban areas, and research. (FBR 01)

I mean you have vehicles, monitoring squads who are properly empowered. You need to have a close interaction with the police, you need to have check posts, and then your intelligence network needs to be very strong. And of course, you have to give rewards to your informer as well so that he can inform you. Otherwise, there is nobody in the spot when you reach there and you face issues. (FBR 03)

People from the Ministry of Health, WHO and CS expressed their views that they don't accept the capacity issue as an excuse for not implementing the WHO FCTC recommended taxation standards.

The FBR claims that there is a lack of human resource, but human resources can be increased, and it should be increased. This is not an excuse that we don't have human resource. (MOH 01)

We won't buy this argument. Basically FBR (is the body which) actually generates resources and sources for enforcement. (They can take) bail security, impose penalties, can do some other thing…I mean there are 100 ways if you want to do it. In this way even the police can say we are in enough number, how can we stop crimes? So this is a lame excuse. (WHO 01)

FBR officials highlighted that tobacco tax collection in Pakistan involves risks, those who are involved in illicit trade sometimes even have weapons with them, and that FBR's field officers are at risk all the time. This is a challenge that limits proper law enforcement.

I told them that when we catch some non-tax paid cigarette (consignment) on the road, (do you have an idea about the hazards our people face there. They are exposed to anything. Pakistan is such a country where people can even kill someone for just 100 rupees. And if you are seizing something worth 50 lac, they can retaliate. I told them that we are working against all hazards. (FBR IREN 01)

Corruption is another big challenge that limits the use of taxation as a tobacco control tool in Pakistan. Many of the study participants including people from the FBR and tobacco industry emphasized this as a limitation of the Pakistani taxation system and an issue in overall governance as well.

Our tobacco taxation bodies do have some kind of link with smuggling. If somebody who is earning 20,000 or 30,000 by working in the tobacco taxation department, if he gets one lac per month through smuggling then why he would stop that. See, corruption is everywhere. (Smoker)

If he is saving 50 lac (by not paying taxes), he can easily use that money to bribe people. He will give 10 lac to the raiding party and will still have 4 million in his pocket. (FBR IREN 01)

I will quote what the chairman FBR has said on record in a senate committee meeting in 2018…that there is a tax of 50 lac on a truck, this is a huge amount, that causes a slip of integrity among our responsible persons present there. He has said this on record and can be verified. (MOH 01)

The authorities are bribed. Police, custom and excise department take money and let them smuggle. (TI 02)

c) Illicit trade

Illicit trade is the theme mentioned in all interviews. Three categories of lack of data on illicit trade, people's views that 'high taxation promotes illicit market', and the use of illicit market issue by the tobacco industry to undermine tax regulations; make up this theme.

High taxation promotes the illicit market and has counter effects: Study participants especially from the FBR, PTB, Retailers and even the CS members raised the concern of increased illicit trade as a result of high taxation. They further said that taxation policies will be effective to control tobacco only when the illicit supply is controlled. Following quotes illustrate their views on how a raise in tax can promote illicit trade.

(As a result of high taxation) another thing will happen that happens even now, when your cigarettes get expensive then the market growth of smuggles and low (number 2) quality cigarettes increases. (CS 02b)

Your taxation policy is not bad, compare it with any country, the rate is very sensible. But the problem here again is that what difference this tax is going to make. It is definitely going to make difference if illicit cigarettes are not available in the market. (CS 2a)

They (smokers) will not decrease the consumption (as a result of high price), But if you put a ban on the illicit cigarettes those which are non-duty paid, if these are completely banned then increasing price will have a benefit. (Retailer smoker)

We are facing this problem…there is one type of cigarette that comes from the documented area, when government increases the tax then the market share of non-documented area, Mardan or AJK increases. The sales from the documented sector get decreased, and as a result government revenues also decrease. (FBR 04)

The position we are in right now….without having even a reasonable control, the whole nation is crying that do this, do that…we can do that but it will be counterproductive. You need to think that what will you get out of this, legal cigarettes will get expensive and illegal cigarettes even cheaper, that's all. And those illegal cigarettes which will be sold more, will get even cheaper. (FBR IREN 01)

I am telling you what will happen if you make the legal cigarettes expensive. Your market will be flooded with low price non-tax-paid cigarettes. The result will be that your health expenses will further increase. These people who manufacture legal cigarettes, they are following some precautions at least but those who manufacture illegal cigarettes, maybe those cigarettes are unfit because of third rate tobacco use. (FBR IREN)

Use of illicit market issue to undermine tax regulations: Illicit trade issue is frequently used by the tobacco industry to influence and challenge tax regulations in Pakistan. Tobacco industry representatives and FBR officials shared their experiences of how this has been used in Pakistan. Participants supported their stance by giving examples from the surge in illicit trade as a result of high taxation in 2016-17 and then later introduction of the low-price third tier in the cigarette tax structure.

They decreased their production drastically in December. In fact, they gave notice to the FBR that we are going to decrease our production even further because we are unable to compete in the market. When the market is flooded with other (illegal) cigarettes and you are unable to control then how can we sell? Now this was the thing… when we had a shortfall in revenues and FBR got alarmed. There was a dip in the revenues by December 2016. There was a dip of at least 25%-30% in revenues between July-December 2016. (FBR IREN 01)

The industry creates a fear factor in FBR's corridor…when you increase tax rate markedly, what they do is that (they say that) we will sit quiet. But people will shift towards illicit and it is a cheap cigarette. Our sales will decrease and you will get lesser tax. (FBR 03)

There is nothing (wrong) in increasing the price, but the main concern is… Your legitimate industry, the registered tobacco industry is going towards a downfall for only this reason. As the prices go up, the registered brands get expensive but the other local (non-tax paid) brands stand at the same place. (TI 01)

I think the imported (non-tax paid) brands came at that time and were sold in high numbers…in 50 rupees, in 30 rupees, in 40 rupees. They are there even now. This is the reason they had decreased the prices. They get worried when sales decreases. (Retailer)

Then they quoted an abrupt figure of 50% illicit trade, which is completely fake, and has no reference, authentic reference…they influenced and introduced the third tier, decreased the taxes. (MOH 01)

Illicit market share: Study participants quoted many times that there is a lack of authentic data on illicit market share for the tobacco sector. This is the main reason the tobacco industry can influence policy. Several study participants shared their views on the share of the illicit market where the tobacco industry quotes a higher share as compared to the MOH and CS. Even CS is not on one page about the figures. The WHO representative raised concern about the quality of research on illicit market share conducted by both the CS and tobacco industry.

Their (non-tax paid industry's) share was around 30% but now the share has almost grown to…you can say nearly 50%. And in the other 50%, there are two major players who are struggling on how we could drive through it. (TI 01)

Then industry makes a false claim that when tax is markedly increased then the market gets flooded with illicit cigarettes. They are being sold at low prices. Well, they quote a very inflated figure. Even the Nelson report is quoting a figure that is almost three times the actual illicit market volume. But our indigenous studies tell us the exact share in the market and it is one-third of what the industry claims. The volume is not much but it is still there. (MOH 03)

Because we don't have any documentation here, so those who are growing tobacco, the official figures are almost 40-50% and the other is unaccounted part…that goes to the illicit market then. (CS 03)

We conducted a research on the illegal market, it is our own study which is supervised by Hanna Ross. We got the survey conducted by a third party and the fourth party validated it. Basically it was a very detailed study conducted throughout Pakistan. In that we got a percentage of 9% for the illicit market. And when we shared this figure with FBR confidentially, they agreed that this is the original figure. And the figure of 40% that the tobacco industry claims is a bluff to gain some benefits. (CS 01)

We don't know the quantum or burden of the illicit market here. One report is saying something and the other report is saying something else. (WHO 01)

In the cigarette market, 60%-65% of the volume is shared by two companies who are legal tax-paying companies. The rest of 35%-40% volume is captured by Mardan brands, they enjoy all the benefits but they don't pay any tax. (TI 03)

Limited tobacco control efforts

This theme 'limited tobacco control efforts' is also a consequence of the lack of political will. Participants highlighted three main categories showing limited efforts. Firstly, although the tobacco control efforts are there in the country, they have a 'limited scope' both in terms of coverage of geographical areas and intensity of implementation; secondly, tobacco control is chronically suffering from resource and capacity issues, and thirdly the participants expressed their views and concerns that the efforts are limited to MPOWER package of intervention only due to international pressure. Table 6.10 illustrates these three categories with examples of supporting quotes.

Table 6-10. Limited tobacco control efforts (Categories and quotes)

Categories	Supporting quotes from the interviews
Capacity and resource issues	Right, there is zero budget there. There is a document of the Government of Pakistan, PC1- the Planning Commission Document 1. We have got approval of 1.28 million rupees in 2017. But the funds have never been released. I mean to say, the ministry of finance and ministry of planning do not release funds due to the economic situation. They always put this (matter) at the back. All the progress till now and all the support till now is because of the Bloomberg and through other partners. Bloomberg is the major source of finances, WHO and others have provided technical support. Even now (tobacco control cell) does not have enough resources, they are suffering from under resourcing. (MOH 02) I think Ministry of Health needs to improve its capacity a little. (AC 01) Tobacco control cell is very weak according to us. They may be good in some areas but in taxation, economics they are not good, they are very weak. (WHO 01) The concerned ministry is the National Health Services and Regulations and Coordination ministry. They lack the capacity, or the enforcement capacity, or the knowledge base to take effective measures in tandem and in coordination with the Federal Board of Revenue, which is the prime premier revenue collecting agency in the country. (FBR 01)
Limited scope of implementation	Problem is that the scope is very narrow. Because of the very narrow scope, this might affect me, or people around me, but in rural areas… when we visit rural areas, we see they don't even have this level of awareness. (CS 02) See, laws are already there but there is the issue of implementation. Nobody is implementing them. Laws already exist, it is not the issue. (Media) Laws are there, everything is there, but there is need for implementation. (TG 02)

	I asked shopkeeper why you gave this (cigarettes) to the kid, he said if I would not give somebody else would do so. (AC 03) If you give 5 empty packs, you will get a free 6th pack. Or if you give 5 empty packs, you will get a rupees 10 cash back. Now a person who has bought a packet for Rs. 20, he says that the cost of these 5 packs was Rs. 90 to him. (TI 01)
Limited to MPOWER package only	The ministry of health will keep on stressing to work on its (MPOWER) regulations, but it will never talk about supply side. When we don't focus on supply side, problem will come from there. (CS 03) So if you switch growers to some other crop that gives them the same amount of money, then I think it becomes easy. And of course you would need technical assistance for that. WHO as well….it is there in the article 18-19 of the WHO FCTC, it talks about it. I think we need to give some attention to that side, we should move out of the MPOWER. (WHO 01) WHO has conducted trainings, there were people from FA there, and they were sent by the Ministry of Agriculture. We do have regular meetings in which we tell them and encourage them…we share the best practices. Next government has to take this up. I am saying that because of the MPOWER, all this has been shadowed to some extent. (WHO 01) I will be very candid about this…. Even our international efforts of tobacco control are half hearted. We don't get the scope to work on things which we are actually required. WHO itself gives all guidelines and then they have turned the whole world towards Article 5.3. Why they have not put any effort on 5.1. They don't let happen the formulation of strong bodies… (MOH 03)

Broader structural factors

Interview data shows that these five challenges explained above exist in a context shaped by the broader structural factors (Figure 6-1). These factors influence all other challenges and provide an environment for them to exist. Study participants highlighted that the Pakistani government is quite weak both economically and politically and they cannot make tough decisions of increasing taxes right now. Such decisions will have negative economic impacts and will invite massive resistance in the short run. Study participants referred to the demand of tobacco growers for GLT stage tax reversal which the government accepted after their strikes, protests, and political pressure. It was further reflected that it will be hard for Pakistan to take a stricter stance on tobacco being a struggling economy and dependence on tobacco taxation for revenues. Table 6.11 illustrates these sub-themes with examples of quotes.

Two more structural factors pose a challenge for introducing TTPP reforms in Pakistan; asymmetric power of ministries and corruption culture. Participants highlighted that the Ministry of Health is not a strong ministry after devolution in Pakistan. Further that the minister of health is also not that strong and the official title is not even the minister, just an advisor. In

contrast, the Ministry of Finance and Ministry of Commerce are strong bodies with more money, resources and influence (see table 6.11).

Pakistan is a country where corruption is not something unusual. It exists everywhere and at every level from top to bottom thus posing a big challenge for using tobacco taxation as a tobacco control tool.

Table 6-11. Theme-Broader structural factors

Sub-themes	Supporting quotes
Weak Economy	Because Pakistan is a struggling economy, you need to try to keep a balance between both things (tax revenues and public health goals) at the moment. (CS 02) Our government will not understand this (use of taxation for tobacco control) because they are facing huge economic pressure. (CS 03) So without tobacco industry or tobacco money, the Pakistani economy will have hard time to survive, may be if our economy….if our exports get increased and the tax revenue gets increased, maybe in the long run we won't be making the taxes from this particular industry. But at the moment, Pakistan is in crisis. You must have a better idea, it will be very hard to survive without it (tobacco), 90 billion rupees is a huge amount. (TI 03)
Politically weak government	It is very easy to manipulate a weak government, which we have right now. Both economically and politically, politically it is truly weak. Anybody can gather 100 people and go on strike, most likely they are going to look at the status of people and say if this group gets against us then we will be in trouble, then they have to listen to them. (CS 02b)
Asymmetric power of ministries	About the Ministry of Health… I think that the critical role of the Ministry of Health is very limited now. It is not like it used to be pre-devolution. Now, they don't have that powerful role. They themselves are afraid that government might abolish this role as well. (CS 03) They invite me in the meetings of the Standing Committee (in Senate) but they don't want me to talk. It happened many times. (MOH 03) Of course FBR in fact the ministry of finance and commerce are quite powerful, they are the ones who give money. (AC 02)
Corruption	Those who are enforcing, they themselves tell that do this way and not that way, this way will save you and nobody will be able to catch you. (TI 01) I will quote what the chairman FBR has said on record in a senate committee meeting in 2018…that there is a tax of 50 lac on a truck, this is a huge amount, that causes a slip of integrity among our responsible persons present there. He has said this on record and can be verified. (MOH 01) The authorities are bribed. Police, Custom and Excise department take money and let them smuggle. (TI 02, local)

	There is no place in world where there is no tax evasion or corruption. Particularly when we see all the cigarette industry in the world wherever it is, no one is honest. Everyone who is making cigarettes is evading tax and everyone is paying bribe to get its business flourished. (TI 02, local)

Tobacco industry tactics

Another major challenge in introducing TTPP reforms in Pakistan is tobacco industry tactics. This challenge influences all other challenges and ensures that all other challenges exist and manifest all the time. Data analysis identified nine different types of tactics used by the tobacco industry in Pakistan to influence policy making and implementation. These challenges are: scare tactics, underreporting sales and production, using foreign pressure, supporting FBR in a crackdown against illicit trade, intimidation, creating alliances and front groups, bribes and incentives, philanthropy, and supporting the government in hard times.

Study participants highlighted that TI uses all the avenues at all levels to influence TTPP. They target people at every level from the prime minister, legislators to senior FBR people as well as the operational tax collection staff. They also make use of front groups and use tobacco growers to influence decisions. Table 6.12 illustrates all nine types of tactics with quotes from the interview data.

Table 6-12. Tobacco industry tactics

Sub-themes	Supporting quotes
Scare tactics	They (tobacco industry) use scare tactics extensively, tactics like illicit trade will increase, revenue will decrease and will destroy everything. (WHO) Once they did it in Minister XYZ's tenure that we are giving this much budget, we are giving 114 billion at this time, we will take this industry away from the country, we can stop our business, end this…then they get scared because they are getting this much revenue from them. I think this is the way may be they blackmail FBR as well. (CS04) The registered organizations, even in registered ones those who are market leaders, they have an influence… because they will say that whatever rate you will decide, whatever tax rate you decide…think about it that you will not get even a single penny from the illicit market share and as far as the registered industry is concerned you already know that 70 rupees is yours and 30 theirs. So if you are not going to listen to me, I am not going to pay taxes, I can't collect full tax if this is the case. I can pay tax only if I can collect, so you need to sit with me and have a discussion to sort this out. So that I can generate this much revenue for you. (TI 01)
Underreporting sales and production	Do you know what the industry did… they just showed a decreased volume in their sales, so showed less revenue, and claimed that they are losing. If we (industry) are losing then government is also losing. (WHO) I told you earlier as well that the system is basically corrupt and it's all on paper. Even when they fixed it to 48 rupees, they were collecting enough tax but when they enhanced the minimum price to 70 rupees, tax collection decreased a lot because now even the multinationals were evading tax by showing 80% production instead of 100 % of their production. Even in the grey listed factories where government has stationed two Inspectors, the factory owners bribed the inspectors and showed that they have produced only 20 packages whereas they were producing 200 packages. (TI 02)
Using foreign pressure	You can well imagine, how much pressure we had faced when we (raided) a multinational company's stocks. A person from the US Congress intervened at that time, on behalf of the US government. He wrote a letter to our finance minister that you are doing this to our multinationals….just imagine… (FBR IREN 01) If this does not work out, then they try to use their international partners. I can give you an example of this…in 2015/16, the British American companies….where they have the accreditation, they have used their CEOs and other officers even the British Ambassador to influence the pictorial health warning law. (MOH 01)
Supports FBR in the crackdown against illicit trade	They (tobacco industry) are even supporting the FBR, saying that we can join you in crack down (against illicit trade) (CS02) These two companies even gave 1800 luxury vans to the Customs Department to stop cigarette smuggling but even then those who are smuggling are able to smuggle the cigarettes in Pakistan. (TI 02, local)

Intimidation	I asked them if (they had an idea about) the hazards our men face when we raid some non-tax paid (consignment) on the road? They are exposed to anything…Pakistan is a country where people can even kill for 100 rupees. If you are raiding on something worth 50 lac, they can retaliate. I told them that we are working against all hazards. (FBR IREN 01)
Creating alliances and front groups	In venue shopping they involve third parties, not the front ones…the third parties join them. Here, there are two levels of the venue…there is one vertical level and one horizontal. In vertical level they start from influencing ministry or influencing FBR and from there they go to the parliament. Now their people are sitting in the parliament…tobacco growers are there, industry owners are there. They look after their interests in everything. (MOH 03) There are growers' associations, and of course they have their own front groups…retailer associations come forward, sometimes other (groups) come forward … every day they have one or the other front groups. When we go to court, even sheesha associations stand against us. (MOH 03) In the same way their front groups contact different government agents and departments…and then they also try to influence legislators, and respective government officers at every level…they approach them and pressurize them. (MOH 01) Their fake associations and unions, all get on board…we verified that …we verified their addresses as well….there are no such addresses. So these are the people from industry who publicize on media or criticize. (MOH 01)
Bribes and incentives	There are several officers in the FBR who are near to retiring from their jobs, tobacco industry properly offers them job incentives…that we will hire you as a director or at some other lucrative post. (CS 01) It is the personal interests that create problems…for example if our minister's son is getting 2.5 million rupees salary there …of course he will protect them. He will take care of them. If our bureaucrats' or FBR's chairman's son or daughter are getting a salary of 25 lac there, then will surely protect them (tobacco industry). (CS04) Right now there are many factories who have employed their children on 8, 8 lac salaries. And they are doing any work there. Their job is to go to the office in the mornings, keep sitting there and then come back in the evenings. But because they are secretaries, so they are quite useful for them…so they (tobacco industry) does not feel any problem in employing their children like this, it is like an investment for them. And it is not worrisome for the secretaries as well that they are not taking bribes and their children have got job as well. (Media 01) …now they are saving 50 lac rupees (from non-tax paid cigarettes), which they can easily use to bribe people. They can give 10 lac rupees to the party, to the raiding party even then they will have 4 million rupees in their pockets. But if you…I am just giving an example, if you change the tax revenue to 25 then they won't be able to pay 10 lac to the (raiding) party. The risk has increased…(FBR IREN 01)
Philanthropy	Their vertical level (of venue shopping) reaches to the Prime Minister…by giving some money in the Dam Fund to the PM, (they) get some soft corner by the PM. (MOH 03)

	I was reading something…it was a newspaper form yesterday or day before yesterday…they said that tobacco industry has given around 10 million or so for Diamir Bhasha Dam to Imran Khan (Prime Minister) and he has accepted this …as a result there are many repercussions and he is facing them…that a person who has built a cancer hospital…he is accepting funds from those who are the tobacco industry owners. (AC 02) They have their stakes in government as well…such as recently an XYZ company has presented a cheque to the government. According to the company it was in good faith, according to the company it was in good faith but…third parties, third vendors and other parties, they proclaimed that this is…you can say a sophisticated bribe to the government. That we are paying only to bring reforms in Pakistan. We are showing this globally that look…we are giving money to bring reforms in Pakistan…we are willing to develop Pakistan. We want to develop the country but in reality you are giving them a bribe to control the tobacco taxation system. (TI 01)
Supporting government	Industry offers them an advance tax payment for one or two years, as a result their tax rates get lowered. (PTB 01)

6.3.3.2. Facilitators in introducing tobacco taxation reforms

Study participants indicated four facilitators for introducing TTPP reforms in Pakistan and shared their views on how to utilise them. These facilitators are (i) the Prime Minister himself and other politicians who have a stake in tobacco control, (ii) international agencies like WHO and the World Bank, (iii) track and trace system, and (iv) dynamic civil society.

A. Prime minister and the politicians who have no personal stake in the tobacco industry

Study participants highlighted that the current Prime Minister is a former sportsman and also the person who established one of the largest cancer hospitals in Pakistan. He has been against tobacco use, so if he was personally approached and convinced about the effectiveness of tobacco taxation as a tobacco control measure he could support this. A ministry of health representative shared that the current situation is quite supportive of such advocacy.

The finance minister has been changed now, the Chairman in FBR is also changed. Mr. Prime Minister is himself supportive of such things right now… (MOH 02)

A CS representative elaborated the political dynamics of the current government which has two kinds of people in it one who are themselves involved in the tobacco business and others who are strong health advocates without any stake in the tobacco industry. There is a need to target them to bring or support reforms but it is not an easy task.

There are two groups in the PTI, one is the cancer treatment group, the Shaukat Khanum group and the second is the tobacco growers group. In KPK the government gets established when the support of growers is available, so don't expect that we can do this by getting the support. You can go to a certain limit by getting support from the Shaukat Khanum group but won't be able to move more. (CS 03)

Another CS member pointed towards using the opposition party and the opposition leader to influence decision making and to overcome the pro-tobacco legislators. He specifically shared the

example of approaching the former Opposition Leader to record the protest against the introduction of the third tier in cigarettes and resulting low prices and high use of tobacco.

Anyways…then we kept on working and approached Mr. Khursheed Shah. We approached him finally after passing through many people, I and General XXX went to him, we shared complete facts and figures with him. We told him that you are the opposition leader, it is your right that you raise voice against this issue….we are bearing a loss of these many billions, cigarette production has increased this much, your health burden has increased this much, so you need to look what is happening here. Then I thanked him many times. Mr. Khursheed Shah has raised this issue even in the media as well, he said that their audit should be done. So it was the first time that an audit was done of the tobacco industry. And after the audit, the Auditor General himself came and said that yes loss has happened, their production has increased this much, their profits have reached here and government revenue has fallen. (CS 04)

B. International agencies

Study participants appreciated the role of the WHO and other international organizations supporting tobacco control in Pakistan. They reflected that these organizations have both technical expertise, resources and influence to facilitate TTPP reforms in Pakistan.

An FBR official shared their positive interaction with the WHO and their technical role.

When we formulated those Rules about the Sales Tax, at that time WHO's legal expert came to Pakistan and when we presented those developments, they appreciated a lot that you are going at a good speed in comparison to other countries of the region. (FBR 03)

See, firstly we have very frequent interaction with the people from WHO. They invite us to different seminars and workshops to build our capacity. They, too, come here to Pakistan. And their economists who work on tobacco taxation, they do their simulations and studies here. (FBR 03)

People from the MOH shared their collaboration with international agencies for research and advocacy and appreciated their technical assistance and leadership role.

We included the WHO because they have the technical expertise, we included the World Bank, right. We included the Bloomberg partners because Bloomberg is working in Pakistan. (MOH 02)

Actually we….there was a study from the Union, Bloomberg, their consultants, the World Bank, Jhon Hopkins and consultants from Pakistan as well. They made a whole report, and also developed taxation simulation models, the WHO has also developed such models, the tobacco control cell has facilitated, even today we have a model in hand in which we are proposing what steps should be taken in the next few years….for short term, midterm and long term, what range should be targeted so that there is no loss to revenues on one hand and control prevalence on the other hand…and industry must not challenge this that the price has abruptly been increased. (MOH 01)

Some study participants reflected that the WHO is just a technical body but matters related to tobacco taxation can translate in better policies if the World Bank plays an active role through grant support as well.

But the issue is this that WHO is recommending this. If the World Bank has recommended it and given some grant as well for it then it could be implemented. Now the WHO is a technical body that only tells what works best. (AC 03)

C. Dynamic civil society

Pakistan has a very dynamic and active CS working in tobacco control. MOH persons identified their strengths and emphasized making use of their full potential.

Obviously, civil society has its own strength, its voice, they have contacts, links, media, and their efforts…through these they raise their point and communicate. (MOH 01)

Civil society is very strong at this time, right. It is just that we have the right data available, civil society will portray it and can do advocacy on the basis of that data. (MOH 02)

A CS representative shared the success story of how the CS used media and other channels to overcome the tobacco industry interference in changing the Pictorial Health Warning law in Pakistan. The tobacco industry has used its higher-level officials and ambassador to influence the law by meeting Pakistani legislators.

We got to know in time that such meetings are being held, that are supposed to not happen. We highlighted these issues, we highlighted in the media. We involved our international partners and asked them to write letters to the government, we wrote such letters ourselves as well. As a result, they formed a proper committee so that government decides after listening to everyone and everything. Then government can decide on how to do it, to do it or not. Even in that when we felt that industry has influenced, and things are being compromised then we went to the court. We hired a lawyer and from that time, the matter is pending in court. (CS 02a)

D. Track and trace system

Study participants perceive it quite positively that the tobacco track and trace system is about to be introduced. Most of the study participants are of the view that this will help in controlling illicit trade and will facilitate the use of tobacco taxation as a tobacco control tool.

Once they have the capacity in the form of track and trace system then they can regulate each and every body. There won't be any issue. (AC 01)

I would like to share one thing for your record that the FBR has launched the Track and Trace system for tobacco…there are a few other sectors as well like fertilizers, cement and sugar. But they have issued the licence for stamps for track and trace. The matter is under litigation due to some other parties, but at least FBR has come to the point that they have awarded the license. Our Rules are also ready for track and trace… which is a very important development. (FBR 03)

They have done a great thing (by introducing) Track and Trace, because of this track and trace, they will get to know exact production and it will become very easy for them to take any policy measure. (MOH 02)

Besides these optimistic hopes from the track and trace system, study participants also shared their concerns that might limit use of the system as a facilitator in tax implementation and illicit market control.

Let me tell you one thing about the track and trace system, we went to meet the director (concerned with the track and trace) and appreciated that this is a very great thing, that it is a very good thinking by the government that this should be done. We asked him to keep the process a bit transparent, he agreed that they will do the same. But again the industry is involved in it like before. And they are doing the same mistakes like they did in introducing the third tier. (CS 02b)

Now a track and trace system is coming, personally I don't think that it would be of any benefit. (FBR 04)

When you will bring the track and trace system, how will you implement it in the field. Track and trace is just a software, how will you implement that software in the field? This was the main question. Because if you are doing this thing without proper enforcement then what will be the results? The result will be…if your enforcement is weak, then no matter what policy you bring, whatever software you bring…what will happen? (FBR IREN 01)

You can get everything of the track and trace system, if stamps are there in your home…you can use as many as you want. (TI 01)

6.3.3.3. Recommendations for introducing tobacco taxation reforms

The stakeholder and framework analysis yielded four main recommendations for Pakistan to introduce and use TTPP reforms for tobacco control purposes. Most of the study participants strongly expressed their views that 'raising taxes is not effective unless tax administration is

improved in the country' and a 'step wise approach' is politically more feasible for raising taxes. Study participants also suggested to 'enforce existing tobacco control laws for tobacco control' and use these laws to control tobacco products pricing in the country. They also emphasized the 'need for indigenous research' on illicit trade and tobacco economics.

A. Raising taxes is not effective unless the tax administration is improved

The most consistent message conveyed in the interviews was the account that in the current political and economic context of the country, raising tobacco taxes is not effective unless the tax administration is improved. The theme 'issues in taxation laws and enforcement' in the challenges part described above reinforces this recommendation.

First, you need to regulate and then increase the price. First, you need to control the market, prices can be increased later. Where we have shown patience for so long, and they kill many people every year…they are dying. So if you make your taxation system strong to control this, you need to get rid of the unregulated market. Then your death toll will decrease a bit. After that you can take further measures, increase the tax and price to decrease it further. (CS 02b)

So, the bottom line is that it is your enforcement policy and the enforcement which determines the effectiveness. (FBR IREN)

There is a 100% tax administration issue, only a rise in the tax rate can never work, tax administration which involves tax enforcement is really needed. (MOH 01)

Taxation will not make much of a difference on higher-value-added brands or the brands which are the most expensive. As they are consumed or those cigarettes are smoked by the affluent class. Coming to the low-end products, it can make a difference there but only in certain areas in the main urban centres, where an alternative in the form of illicit or smuggled cigarettes is not already available. (FBR 01)

First, you need to regulate so that they come under the tax net. Because there are such brands that are not in the tax net at all. So, you need to first regulate them before increasing the tax rates. (PTB 01)

B. Stepwise approach

Policy actors perceived the implementation of tax reforms in a stepwise or incremental way as more feasible than immediate drastic measures to meet the international benchmarks.

I think we need to take some short-term measures, some medium-term and some long-run measures. In the short run, it was this that we eliminated the third tier, it was a short run goal and we got an increase a little increase in the FED. In the medium-term, you keep focus on the FED and take it near to 50 rupees or even higher than this. 50 is not a benchmark but FED should be enhanced, enhanced taxation in the medium term. This should happen by 2021, and after 21-22 you start planning now for the long run…it should focus on a single tier, uniform taxation. This is the ultimate solution. (WHO 01)

I think FBR will do things gradually, it will not do abruptly. If a new law, or new tax rate, or if FBR is going to introduce a new tax on some product then it will start it with a lower rate in the beginning. It will take it to the standard rates gradually. (FBR 03)

One thing is…. No need to go for uniform taxation right now. Just stick to the two tier but increase taxation significantly on the lower tier so that the gap between the two is decreased. (MOH 02)

Participants referred to the introduction of GLT stage tax that it was a bold and drastic change where they had increased the tax from 10 rupees to 300 rupees with negative repercussions and ultimately reversion to the original level. A ministry of health representative shared his views that this could have worked if the tax was increased in an incremental way without the bold step of marked increase.

You could have increased it by 10% from the 5 rupees, or you could have done 50 rupees that would have worked at least without taking back the decision (MOH 03)

C. Improve enforcement of existing laws

Study participants stressed the importance of enforcing existing laws to control tobacco through taxation and price measures. Participants identified three avenues where enforcement is needed and the current situation is compromising effective control. These are the implementation of a ban on the sale of loose cigarettes, a comprehensive ban on TAPS and the implementation of the minimum price law.

If you only properly enforce the existing legislation here, you can get much better results. (CS 02b)

The sale of loose cigarettes is identified as a major threat for youth smoking initiation and also as a nullifying factor for the overall tax increase. Study participants expressed their views that even if a cigarette pack gets expensive, people especially the young ones but loose cigarettes which are not expensive per se.

In my opinion, there is an even better tool…XXX (name of the organization) was also involved in this campaign that the sale of loose cigarettes should be banned. If they are really trying to stop new smokers, the sale of lose cigarettes should be banned. (CS 02a)

I think by increasing the price and catering the easy availability as far as single cigarette stick is concerned….you really need to cater this sale of single (loose) cigarettes. (AC 02)

Another loophole is identified in the implementation of TAPS which overcomes the effect of taxation measures by giving price-related promotions on cigarette packs and even free-of-cost cigarettes. This needs to be seriously addressed.

There is a ban on ads so what do the cigarette companies do now…whenever a new brand is launched, they hire (marketing) boys to promote it. They even give free cigarettes in the start so that people try and smoke… of course once a person gets addicted then he has to buy. (Retailer 01)

If you give 5 empty packs, you will get a free 6th pack. Or if you give 5 empty packs, you will get a rupees 10 cashback. Now a person who has bought a packet for Rs. 20, he says that the cost of these 5 packs was Rs. 90 to him. (TI 01)

Participants frequently stressed the need of improving the implementation of the minimum price law. The law exists but many cigarette packs are being sold at lower prices thus nullifying the positive impact of tobacco taxation.

They erase the regulatory concepts of taxation by selling (cigarettes) at a lower than the written price on it. (AC 01)

If you bring a check on the retailer then the price stability can come. This is the thing…once the price is uniform and stable only then you can get the benefits of increasing the tax. But this loophole…people move out of this and drop down to the illicit industry. (TI 01)

There is one way to control it that if the shopkeepers sell a packet for 40 rupees on which rate is written as 80 rupees and get caught they must be sent to jail for 10 to 20 years. If the government is able to somehow control these shopkeepers from doing this corruption maybe they could take it under control otherwise the system is like this you as I told you earlier. (TI 02)

Interview data also revealed the modality to implement these laws by using the existing Tobacco Vendors Act.

This Smoke-Free Project of Islamabad, we are quoting this best example time and again … that how they used an existing law, the Vendors Act of the 1950s and started generating funds to meet the expenses of their task force. When retailers get it (the tobacco sale license) at the first place

and then they have to extend (renew) it, further the money you get by imposing fines as a result of violations…they get a certain proportion from it (to run the project). Why don't you get things done through this? (CTC 2a)

We have designed a legal too for this (to enforce existing laws), we designed an affidavit and gave it to the excise department after drafting and asked them to get this signed by anyone who comes to get a license from them. We have written only this thing in the affidavit that I will abide by all the tobacco control laws in the country. It means that I will not sell it to under 18, I will not sell it near an educational institute, I will not sell low priced cigarettes, I will not advertise, I will not sell illegal tobacco. So we got a good check in this way. (MOH 03)

D. Need for indigenous research

Participants from the civil society and MOH highlighted the need for indigenous research to inform evidence based policies in the country. They shared their experiences of losing arguments in meetings with the FBR and legislators only because of the lack of high quality research based on local data. They often face the comment of talking based on foreign and imported data which is not suitable in Pakistani context.

The first thing we say is that the data from Pakistan, from the local environment is really important. You are saying everything based on imported data, imported knowledge, and on imposed strategies, which may or may not be suitable for this society or culture. (CS 02b)

Whenever we go to the MNAs or them, they ask about what had happened previously (as a result of tax increase), was this (consumption) reduced. We don't have exact data. There are no studies, there is no evidence, research is very limited. (CS 03)

Whenever you devise a policy, or propose legislation, it has to be backed by research, and research has to be of good quality. You can't just pick up research from websites, paid or unpaid, because that research can be sponsored or floated by you don't know who, with certain angles. So, you will have to come up with your own indigenous research. (FBR 01)

Study participants identified the need for research on tobacco economics and on illicit trade.

See, the basic thing you need to bring taxation reforms is the research, the evidence. You need to have evidence-based things… you need to have modelling, you need to have results that (this will happen) if you are going to do these reforms. You need to have a comparative analysis that what will happen if you don't do this. You need to have health cost studies, right… when all these things come, only then you can go to the media and the parliamentarians and to the people to sensitize them. (CS 01)

The next thing I am going to talk about is very important. You don't have any good study in Pakistan regarding two issues; one you can say tobacco health economics or you can say health costs, there is no good study about it. People do claim that they are health economists, but we don't have any health economist in whole tobacco control here in Pakistan. (WHO 01)

We don't have any study on the impact of illicit trade on taxation. It is very important that…the impact of illicit trade, whatever that burden is even if 15% or 50%-60% whatever the tobacco industry says…how much impact it has on elasticity. There is a dire need for such a study. (MOH 01)

6.4. Discussion

This research was conducted with an aim to understand the challenges and facilitators for introducing TTPP reforms in Pakistan to achieve public health objectives. The study shows that tobacco taxation is a highly political matter in Pakistan owing to its tobacco-dependent economy and competing interests of ministries and legislators. This makes the introduction of policy reforms quite challenging. Findings revealed the major challenge in this regard is the lack of political will for this purpose. This lack of political will exists because of multiple other challenges like information asymmetries/gaps, political considerations, stakeholder power-position-interest dynamics, tobacco industry tactics, and broader structural factors. All these translate into limited

implementation of tobacco control interventions and issues in taxation laws thus limiting the use of TTPP to achieve tobacco control.

Stakeholder analysis revealed that the TTPP arena is quite fragmented in Pakistan with a lack of a multi-sectoral approach and inter-sectoral coordination. Pakistan lacks an explicit policy and shared goals by the policy actors on using tobacco taxation as a tobacco control tool. Existing policies are based on the vertical approach where all sectors have their own policies, often competing goals and are working in silos. There has been no attempt to have a shared vision and to develop strategic alliances between different government departments. Similar findings were reported from Nigeria recently highlighting the need for a multi-sectoral approach to tobacco control (Egbe, Bialous, & Glantz, 2019). South Arica and Togo have used an inter-sectoral approach for their successful tobacco control policies formulation and implementation which was based on information transfer between different stakeholders (Sanni et al., 2018).

The position-power dynamics of key policy actors pose serious challenge in introducing TTPP reforms in Pakistan. The actors who have a strong influence on the taxation policy, strongly oppose the TTPP reforms in Pakistan like the FBR, Legislators, and the Tobacco industry. Similar opposition is reported in Indonesia, Lao PDR, Nigeria and India (Astuti, Assunta, & Freeman, 2020; Egbe et al., 2019; Mondal, Van Belle, Bhojani, Law, & Maioni, 2021; Tomson, Akkhavong, & Gilljam, 2009). In contrast, those stakeholders who are supportive of such interventions like MOH, CS, public health researchers, lack a high influence on taxation policy. This power and position dynamic poses a major challenge in introducing reforms of TTPP in Pakistan. Lack of bargaining power of the ministry of health is reported in other developing countries like Nigeria, Indonesia and India (Astuti et al., 2020; Egbe et al., 2019; Mondal et al., 2021). However, in Colombia the broader contextual factor of the shrinking economy gave the ministry of health an advantage power to propose reforms which were accepted by the government with a significant tax increase on cigarettes (Garcia, Villar Uribe, & Iunes, 2017). The compromised economic situation of Pakistan can offer an opportunity for tobacco control advocates to put forward solid proposals for tobacco taxation reforms.

Tobacco taxation is often highlighted as the most difficult to implement intervention among the MPOWER package (Sanni et al., 2018). According to Abedian (1998) difficulty of tobacco control increases with the production level in the country, because of the increasing levels of entanglement with the national economic systems. Pakistan is among the top 10 tobacco-producing countries in the world suggesting a maximum level of challenge to implementing tobacco taxation as a tobacco control tool ("Top 10 Tobacco Producing Countries," 2017).

Pakistan currently faces a major challenge in the form of a lack of political will for using taxation as a tobacco control tool. This manifest in the form of lack of funding for tobacco control and a lack of explicit policy in this regard. Even the employees of the tobacco control cell are being paid by the Bloomberg Philanthropies. Lack of funding is also identified by others as a major concern limiting tobacco control efforts in LMICs (Tomson et al., 2009). Lack of the political ownership of the tobacco control in Pakistan can also be observed if one looks at the website of the Ministry of the NHSR&C, where there is no mention or link of TCC. They have mentioned several other programmes and institutes as their departments (Government of Pakistan, 2021a). This may be because tobacco control is not high on the government agenda given many other health issues. CS actors highlighted that people used to laugh at them, asking why they are focusing on tobacco control and whether it is really a priority. Given the nature of the communicable disease burden in Pakistan and the on-going pandemic of COVID 19, NCDs and tobacco control is pushed to corner. Health policy researchers have highlighted that tobacco control is taken as politics-as-usual scenario beyond the health ministry which takes it as crises (Higashi, Khuong, Ngo, & Hill, 2011). They argued that the government takes action on only those issues which are perceived as crises. There is need to sensitize government about the seriousness of the issue and there is need to mobilize ministry of NHSR&C people to take the ownership of this initiative and work for health gains in Pakistan. People from both the civil society and FBR have highlighted that the TCC works like an NGO in Pakistan because it is donor dependant. This is compromising its leadership role and influence as a government body.

This lack of political will and ownership is because of multiple factors, one being the information gaps and asymmetries. Key actors in Pakistan are still not convinced about the harmful effects of tobacco. Actors who are directly involved in the tobacco business like tobacco growers and PTB don't believe tobacco is a very harmful product and openly say that there are many other things which are more harmful and need urgent attention as compared to tobacco. Even smokers, although they know that tobacco can cause cancer and is harmful, take this casually by saying one has to die anyway one day. In a truly rational market consumers are well aware of all the harms of a product and then rationally decide to choose it or not. But it is common that both people and policymakers lack accurate information and/or rational analysis with regard to tobacco harms (Jha, Chaloupka, Corrao, & Jacob, 2006). These information gaps might be the reason that policymakers do not take tobacco use as a real issue in Pakistan. It is important to explore further the reasons behind these information gaps and who feeds into it, if there is any role of the tobacco industry in this regard. Another reason is varied opinions on the burden of tobacco use and its costs in Pakistan. Some actors believed that the use is high and is increasing while others say it is decreasing and not so many people use tobacco in Pakistan. Another knowledge gap exists about the effectiveness of taxation as a tobacco control tool. Despite the evidence-based effectiveness of tobacco taxation as a tobacco control tool, policy actors have varied opinions on its effectiveness. People in the FBR, PTB, retail, smokers themselves, and even some of the CS people raised concerns about the effectiveness of TTPP measures in the Pakistani context. They strongly believe that raising prices will not decrease consumption because people can shift to cheaper brands that are easily available, as people have done it previously. Retailers and smokers shared their first-hand experiences to support this stance while FBR, TI, and PTB supported their stance with illicit trade arguments. Bump and Reich (2013) argue that information failures form the base of the growing tobacco epidemic in LMICs and it is important to analyse such asymmetries if they are passive or created by tobacco industry efforts. It is important to understand how these opinions are formed and why certain actors adopt certain discourse. A worrisome thing in this regard is those whose opinions matter most in Pakistan in terms of influencing policy do not perceive tobacco as a real health issue and do not agree with the effectiveness of taxation as a tobacco control tool.

Considering the fact that tobacco taxation is a politically and economically charged matter, it is not fair to discuss it in the medical or public health context alone. Bump and Reich (2013) argue that tobacco taxation policies are highly effective for tobacco control but not used appropriately in low and middle-income countries (LMICs) due to the poorly understood and addressed political economy of the matter. They further stressed that the highest achievement in tobacco control i.e., the FCTC is the result of the political economy analysis (PEA). This study also used the PEA framework to better understand the challenges and facilitators of using TTPP reforms in Pakistan.

Pakistan is a struggling economy with a low tax to GDP ratio of 9.5% indicating that the taxation machinery is not effective and those who are paying taxes are quite precious to the government of Pakistan (Business Recorder, 2021). The tobacco industry is one of the major contributors to tax revenues in Pakistan (FBR, 2019). In contrast to the public health lens which only focuses on the excise duties of tobacco, the revenue collecting bodies see an industry in terms of collective tax contribution. Participants from the FBR highlighted that tobacco industry contributes in terms of income tax, corporate tax, sales tax, and FED which is over 100 billion rupees and is already a heavily taxed industry in the country. They further stressed that it gives employment to thousands of people directly and to many more indirectly. They argued that an increase in tax rates would result in a surge in illicit trade and will negatively affect the tax-paying industry. Almost all study participants have shared that the TI in Pakistan uses this argument to influence taxation policies and the Ministry of Finance and FBR listen to them because they are one of the top revenue contributors. People in CS and MOH do not believe in this argument in agreement with the WHO (2010) and the WB (2008) guidelines on tobacco taxation. Political economy analyses earlier have shown that such intra-governmental conflicts are often fed on the misinformation by the tobacco industry (Bump and Reich, 2013). This study stresses that there is a need for evidence about this issue coupled with wide dissemination and strong advocacy. This study also argues that health advocates need not to oppose the finance ministry stance all the time, rather look for ways they can collaborate and achieve mutually compatible goals. The goal of the FBR is not to promote tobacco use rather to collect revenues, meanwhile, the MOH wants to control tobacco and these both can work together without any conflict (Abedian, Merwe, Wilkins, & Jha, 1998; Armendares

& Shigematsu, 2006; Chaloupka & Corbett, 1998; Chaloupka & Warner, 2000; Jha & Chaloupka, 1999). Interview data revealed a tension between these two departments. Study participants also expressed the views that the blame game will never be productive instead both parties should join hands to cater to the issue. A practical suggestion in this regard is that the Health authorities use the Tobacco Vendors Act to implement minimum price law and use their machinery along with the other available district administration staff to identify and capture low price cigarettes in the market. They can make use of modern technology as well. Study participants highlighted that the minimum price law comes under the FED Act but implementation of the law remains neglected. Instead of leaving the matter only to the FBR, a collaboration seems more promising. MOH, WHO and CS use an argument that they can support on policy matters and this is an enforcement issue which FBR needs to cater for itself. They stress that increasing the tax rates is the best policy and must be implemented in Pakistan, i.e. FED share being 70% in the retail price of a pack of cigarettes. However, the current political economy situation demands a consistent and stepwise approach which first caters to implementation issues then a radical policy change.

The Pakistani government faces the typical political dilemma, where they want to take those measures which can be seen to have benefits and are popular with the population without inviting mass hindrance and opposition and distortion of the economy. The problem in using tobacco taxation as a tobacco control policy tool is that the health effects/gains will be observed many years later and which may not be directly attributable to this particular policy by the general public. In contrast, grievance from the industry, tobacco growers, retailer, and smokers will be immediate, inviting resistance and disapproval. Moreover, the economic benefits of the tobacco business are immediate for all three major stakeholders, tobacco growers, tobacco industry and the government (in terms of tax revenues). This stops the government from taking drastic measures. The government of Pakistan made a decision recently where they increased the GLT stage tax from 10 rupees to 300 rupees per Kg. Although this tax was reversible and was supposed to be collected from those who purchase tobacco, the protest came from the tobacco growers. Tobacco industry stopped purchasing the stocks resulting in a fear among the growers. Growers had invested money in harvesting tobacco and stocks could spoil if not purchased on time. Tobacco growers exerted

pressure through protests and strikes and being a strong voter of the ruling government. This influenced the decision-making and got the tax levels back to 10 rupees. This is a clear example that will deter governments from making a similar decision. Governments cannot afford massive protests, do not like to lose their voters and want to make such decisions that are popular with the public.

Another challenge that was consistently mentioned by all study participants is the conflicts of interest that decision-makers have. For example, members of the National Assembly are themselves involved in the tobacco business. Some of them own cigarette factories while others are the landlords growing tobacco. They oppose any strict taxation measures for the tobacco industry. Another kind of conflict of interest is also mentioned where the tobacco industry strategically hires adult children or other relatives of the ministers and bureaucrats in lucrative positions to influence decision-making. CS members shared that the introduction of a third tax tier in 2017-18 was the result of such influence in addition to the illicit trade argument. These conflicts of interest are a clear violation of Article 5.3 of the FCTC which says that tobacco control policies need to be protected from the vested interests of the tobacco industry and in Pakistan, the policymakers themselves are the owners of the tobacco business. Study participants also related the reversal of the GLT stage tax rates from 300 rupees per Kg to 10 rupees per Kg as a result of the political influence. Data analysis also showed that the limited implementation of tobacco control laws and illicit trade is also because of these conflicts. As the decision-makers themselves are involved in violations, they don't want strict actions to be taken. Unless these challenges are catered for, it will be very difficult to introduce effective taxation reforms. There is a need to tap all those legislators who are not involved in the tobacco business to raise their voices.

This study captured the views of only two smokers on tobacco taxation, who wanted it to be less because they reported that affordable cigarettes are the only entertainment available to them. However, a recent survey that included data from 6014 smokers in Pakistan, revealed strong support by smokers for such reforms (Siddiqi et al., 2020). Evidence shows that tobacco control is effective in those countries where the public is well aware of the issue and has the ability to

hold their health authorities accountable (Charoenca et al., 2012). However, this case does not exist for Pakistan; the public needs to be sensitized about the issue to build pressure.

The case of GLT stage tax reversal was discussed in almost all interviews and highlighted some issues in the system which need to be thought about in future decision making. The tax increase was very drastic from 10 rupees to 300, if it had been done in an incremental way, some informants believed it could have succeeded. In addition, tobacco growers were not informed beforehand that it is not a tax on them rather a process level tax which is adjustable- with better communication, there may have been less resistance expressed to the policy. This case also highlighted that the PTB could not play the role for which it was formed, to protect the interests of farmers. Instead, as highlighted by several study participants, PTB is a very close ally of the TI. Finally, this case also revealed that the FBR is interested in controlling illicit trade and is willing to take measures, but the legislators are the ultimate decision-makers and to them, their votes and personal interests may matter more than any other logic.

The asymmetric power of ministries is another factor that makes the introduction of TTPP reforms challenging. It is not unusual among national civil service that the Ministry of Finance is very powerful as compared to the Ministry of Health. Social sector ministries are often observed to be less privileged and are in low bargaining position (Bump & Reich, 2013). The MOH in Pakistan is quite weak because it has a quite limited role and funds after the devolution in 2011 where 'health' was devolved to provinces. The central level ministry of health is not even named the ministry of health rather the ministry of NHSR&C and lacks a powerful minister, it just has an 'advisor'. The provincial tobacco control cells are underfunded and are in an evolving stage even 10 years after the devolution. They lack a leadership role as well as the ability to take initiative.

MOH itself, TCC and other stakeholders raised concerns that TCC lacks the required technical capacity. Participants gave the example of the proposal put forward by the TCC about the introduction of 10 rupees sin tax on each cigarette pack that is to be earmarked for health. The public showed a strong disapproval of the name 'sin tax' through social media and often mocked the term once it is translated into the national language. The name was later changed to health

levy. The FBR highlighted many legal issues in the imposition of such ear-marked tax for health as health is already a devolved matter. Moreover, all stakeholders were not consulted before putting forward this suggestion which resulted in disapproval of this proposal in the fiscal budget. If it had been done with a feasibility assessment and by a collaboration with all relevant stakeholders, it could have been successfully implemented. This highlights the need to build the capacity of the TCC and a collaboration between the MOH and the FBR.

Given that many of the challenges to tobacco control in Pakistan are political rather than scientific or medical, this study fills an important gap in the literature by using a political economy perspective. It also identifies many gaps in the available literature in this context and opportunities to assist effective decision making by economic analysis of tobacco harms, the impact of taxation strategies on illicit trade, the exact share of the illicit market in the country, and how the political discourse is shaped and the possible role of TI.

6.5. Strengths and Limitations

This research is based on the data and views collected from a limited number of key actors. But it recognizes that there are other important actors involved in the TTPP arena in Pakistan and not included in the study, the most important being legislators. It was not easy to approach them at the time of data collection because of political strikes and protests by opposition parties in the region. Politicians have different dynamics and their views change with their position in parliament, as part of the government or opposition party. A separate study involving just the politicians could give a better and complete picture of how things happen there. Those MOH and CS members who attend the Senate Standing Committees meetings can share their lived experiences in such studies as a point of departure.

A purposive and snowball sampling technique is used in this study rather than random sampling which is appropriate to the research question to cover all key actors and to collect a full range of experiences and views.

Although data collection was anonymous, study participants might have felt reluctant in sharing some experiences with the feeling that their answers would not remain anonymous due to a very small circle of people involved in tobacco control in Pakistan. Their opinions may not reflect the views of the organizations where work or they might have answered in a certain way because of the general anti-smoking norms. This limitation was minimized by interviewing more than one person from one organization and collecting data about other actors from each study participant.

Study participants made several recommendations for introducing TTPP reforms in the country. Generally, participants were offering these recommendations based on their own opinions and it was not possible to assess what these were based on other than what was declared- for example, participants may have given anecdotes or suggested sources that gave rise to their opinions, but opinions might have been self-serving ultimately. Schmeer's (1999) guidelines on assessing stakeholders' position on relevant policies helped in analysing such data. According to her, if an actor clearly states his/her position as an opponent then it should be considered to be true. However, if an actor takes a supportive or neutral position during the interview, there is a need to reassess this stance using other sources. I reassessed the position of actors based on the opinions of other key informants interviewed about them.

Data coding and analysis by a single researcher can introduce a bias in the study reflecting the researcher's views more rather than the actual data. However, regular sharing of data analysis and emerging themes with the supervisors and colleagues has minimized such errors.

6.6. Conclusions

Tobacco taxation is a highly political matter in Pakistan owing to its tobacco-dependent economy and competing interests of ministries and legislators. Pakistan faces multiple political economy challenges in using TTPP reforms for tobacco control in the country. This study finds that it is the belief of most stakeholders in Pakistan that despite being the most effective tobacco control intervention, raising taxes will not be effective right now, unless the tax administration is improved in the country. The analysis provides evidence that there is a strong need for a multisectoral policy

for tobacco control with intra-governmental collaborations and a shared vision and goals. Additionally, the analysis suggests that there is a lot of potential in existing laws to achieve effective price control through proper enforcement. The findings from this study support recommendation of a step-wise approach to implementing Article 6 of the FCTC considering the current political economy scenario. This is unlikely to be achieved until Pakistan focuses on Articles 5.1, 5.3 and 15 of the FCTC as well.

7. Discussion

This thesis has attempted to expand our knowledge of the political economy of tobacco taxation in Pakistan. As a part of this broader aim, the research also contributed to the much-needed evidence on the Political Economy Analysis (PEA) of tobacco control in low and middle-income countries (LMICs). This thesis started with delineating the tobacco taxation system in Pakistan and systematically reviewing the policy documents to assess if they meet the international legal requirements of the Framework Convention on Tobacco Control (FCTC) and what has their impact been on tobacco affordability (chapter 3). Following this, a secondary data analysis was used to estimate the price responsiveness of cigarette users towards cigarettes (chapter 4). These estimates were then used to build simulation models to inform the impact of changing taxation policies on government revenues and public health outcomes (chapter 5). Finally, the thesis assessed the political feasibility of introducing a Tobacco Taxation and Pricing Policy (TTPP) reform in Pakistan to achieve public health goals (chapter 6). In the current chapter, I will first give a reflective summary of my experience, learning, and influence on this thesis. Following this, key findings of the thesis are summarized and discussed bringing together the knowledge generated in all study components. Then the strengths and limitations of this thesis are discussed. This chapter also discusses the implications of findings for policy, practice, and future research. Finally, broad conclusions are drawn.

7.1. Reflective summary

I started this Ph.D. with enthusiasm, passion and a ‘make a difference’ attitude. I was keen to explore why Pakistan had not increased the tobacco tax rates as recommended by the FCTC guidelines for implementation of Article 6. It was a dilemma (to me) that the adverse impact of tobacco are clear and evidence of this exists from all over the world; the solution to the tobacco use problem also exists in the form of evidence-based interventions, many examples from all over the world are also available on how to implement the interventions and above all the intervention of tobacco taxation is highly cost-effective; then why are Pakistan and other LMICs far behind in meeting the benchmarks set by the WHO and FCTC guidelines. I started with a mindset to solve this problem and give a very practical model to design taxation policy and meet the benchmark. But over time I realised that the solution does not rely on economic modelling alone, and my work

could only contribute to understand this problem and unveil 'some' political economy realities to inform future strategies.

As soon as I started working on the topic, informal talks with people working in the FBR, peers, supervisors, and literature review guided me to question of how the benchmark of 70% excise duty share in the retail price of a tobacco product is reached and if it is 'right' and 'suitable' for all countries. This made me review the relevant literature and see how the WHO and the WB have made this decision. The main research on which these benchmarks were set was based on a few studies from high-income countries and their price elasticity (PE) estimates. This led me to include price elasticity (PE) estimation in my study, which was not initially planned. Another output from this question and the resulting review of the literature was the wide variations in the PE in different studies from the same country using different methods, e.g. the two Pakistani studies suggested the optimal excise duty share in the retail price of cigarettes for decreasing its consumption as 58.5% (Mushtaq et al., 2011) and 74% (Burki et al., 2013) beyond which revenues would start falling. This was based on their quite distinct PE estimates -0.495 (Burki et al, 2013) and -1.17 (Mushtaq et al, 2011). I strongly felt there is a need for a systematic review of PE studies especially in LMICs' context and with a focus on using different methodologies. This was beyond the scope of my thesis given the time limits, so we decided to leave it for later. All this exercise and experience made me learn that a Ph.D. researcher needs to think critically about everything related to the research and should not hesitate in questioning the solutions. A thorough review of literature, in the beginning, is critical to narrow down the topic which is practically doable and it is not possible to do everything in one Ph.D. which in the beginning an enthusiastic researcher wishes.

I was quite confident about my quantitative data analysis skills and thought that the secondary data analysis will not be an issue to estimate the PE. However, it turned out to be one of the most challenging parts of my Ph.D. I had to learn new data transformation techniques to deal with the assumptions issues during econometric analysis. My meetings with the senior researchers in the Economics departments and attendance in the econometric course helped a lot in getting comfortable with the analysis.

The qualitative data collection process was far easier than I had expected. I was almost eight months pregnant at the time of interviews and travelling from England to Pakistan itself was a challenge. But this challenge became a facilitator for me later where study participants had been very polite and considerate for giving appointments, helping in snowball sampling, and facilitation

during the interviews. I feel this could have been a bit different if I was not pregnant. The fact that most of my study participants, except two, were male; has also facilitated me in data collection during interviews. In Pakistani society where gender values are different, special respect and care is given to women, especially pregnant women. My gender had been an advantage for myself in this respect, however I do feel that men use different (polite) language and tone while talking to women as compared to when they talk with fellow men. This may have affected the data collection, however the nature of my research topic was neither gender sensitive nor a socially sensitive issue.

Most of my data collection was in the big cities in Pakistan- Islamabad, Rawalpindi and Lahore and study participants were educated which has made my data collection comfortable. I was reluctant to go to a remote area to interview tobacco growers both because of my condition, unfamiliarity with the area and a different cultural setup in that part of Pakistan. I felt uncomfortable because of my gender to interview male tobacco growers there as generally people are not very liberal there. I shared the concern with my supervisors and the local advisor in Pakistan, who then suggested and facilitated me to hire a male data collector from that area.

I feel my position as a public health researcher might have influenced data collection. All study participants knew the fact that I am a public health researcher working on decreasing the affordability of tobacco products in order to reduce its consumption and harms. This might have resulted in the participants providing the 'expected', 'right' or 'academic' answers. I felt this during my interview with a participant from the FBR (FBR 01). But the longer duration of the interview helped in opening up to share personal views towards the end. One of the study participants AC02, was my former colleague, she too was fully aware of my personal interest, passion and standing on the taxation potential for tobacco products. I felt that it was a bit fake, I was acting as an interviewer and she was giving somewhat 'expected' answers, the talk could have been a bit different and more real if it was not like a formal interview. It is widely debated that the participants share selective information during qualitative data collection and if the researcher can truly access their perspectives and experiences (Hammersley, 2007). Most of the study participants had asked me to share the interview guide or tentative questions before the interview. On one hand, this helped in in-depth discussion during the interviews but on the other hand I felt that few of the informants (FBR01, AC02, MOH02) had prepared answers from the recent facts and figures and news articles. I wonder if it is right.

I had to acknowledge that the interviews with the participants from the FBR, PTB, and TI were quite influencing and I was strongly convinced during the data collection process, that increasing the taxation is not the right option to control tobacco use in the Pakistani context, and that the illicit market activity will reverse whatever the effects of taxation are expected. Two participants from the CS have also given this subtle message in their interviews. This happened because these people were talking about the ground realities with examples and passion while on the other hand people from academia, MOH, and most of the CS participants were talking about things which I had read several times, reciting from the FCTC, and they were not that persuasive. But later listening to the recordings several times, reading transcripts, line-by-line analysis and continuous debriefing with the supervisor (OO) helped me to see and reflect on data again without this assumption in mind.

7.2. Summary of key findings

7.2.1. Policy documents analysis

This thesis started with an empirical study on delineating the TTPP system in Pakistan and then critically assessed the existing TTPP against the FCTC guidelines for the implementation of Article 6 of the FCTC. This involved an assessment of the tax structure, tax administration mechanisms, and pricing policies. I used the document analysis approach for this purpose. Pakistan regulates tobacco taxation and pricing mainly through three Ministries: Commerce, Finance, and Health. The ministry of commerce exercises its control through the Pakistan Tobacco Board (PTB). The board was established for promoting financial and economic stability in Pakistan using tobacco growth. The ministry of finance through the Federal Board of Revenue (FBR) and Customs department is responsible for taxation and pricing of tobacco products to generate revenues. In contrast to the ministries of commerce and finance, the ministry of health operates with a clear aim to reduce tobacco consumption in the country.

Although Pakistan taxes raw tobacco, cigarettes, and other tobacco products (cigarillos, cigars, cheroots), the existing TTPP falls below the WHO FCTC requirements of uniform tax level, simple tax structure, and 70% share of excise tax in the price of a product's pack; among others. There are also multiple issues in tobacco tax administration such as relying on tobacco industry data to measure tax burden and lack of monitoring. This is leading to the availability of highly affordable tobacco products in the country. One can purchase 8 packs of cigarettes or 87 packs of 20 grams snus for the price of one BigMac in Pakistan.

7.2.2. Price elasticity

I used the Global Adult Tobacco Survey (GATS) data to estimate the price elasticity of cigarette smokers towards cigarettes. The overall PE was found to be -0.43 comprising of a statistically non-significant PE of smoking participation, 0.17, and statistically significant PE of smoking intensity, -0.26. The magnitude of PE is slightly increased to -0.71 if the highest income quintile is excluded from the analysis. If individuals exposed to high price cigarettes (PKR > 150) are excluded from the study, an increase in the price of (low-priced) cigarettes would significantly decrease both smoking participation (PE=-1.01) and intensity (PE=-0.46). This indicates that a 10% increase in the price of low-priced cigarettes would significantly reduce smoking prevalence by the same magnitude (10.1%) among people exposed to low cigarette prices. These findings are highly important for taxation policies and public health. Pakistan needs to work on the cigarette pricing policies in a way to increase the minimum price.

7.2.3. Tax simulation modelling

Chapter 5 presented the findings of the tax simulation study to estimate the fiscal and public health impact of a change in tobacco taxation policy in Pakistan. Fiscal impact was measured in terms of the government revenues and the public health impact in the form of level of cigarette consumption, number of smokers, smoking prevalence and number of deaths averted as a result of excise increase. With a continued annual increase in FED for cigarette packs, at 5%, 10%, and 15% rate, smoking prevalence, cigarette consumption and number of smoking-attributable deaths are expected to decrease by 2030 in Pakistan despite an expanding illicit market. However, to get a positive impact on tax revenues, FED should be increased by more than the inflation rate. A consistent increase in the FED at the annual rate of 10% will ultimately avert 563 thousand deaths among cigarette smokers, and decrease smoking prevalence by almost 16% by 2030. These models account for an expanding illicit market with 5% annual growth starting from 16% and a ceiling point of 50%. Simulations revealed a positive public health and fiscal impact of taxation even when the illicit market share is considered as 25% with annual growth rate of 5%. However, the positive fiscal effect cannot be achieved if the increase in taxation is below the inflation rates.

7.2.4. Qualitative study to assess political feasibility of introducing a TTPP reform

This research was conducted to understand the challenges and facilitators for introducing TTPP reforms in Pakistan to achieve public health objectives. A total of 27 stakeholders were interviewed for the purpose. The study showed that tobacco taxation is a highly political matter in Pakistan owing to its tobacco-dependent economy and competing interests of ministries and legislators. This makes the introduction of policy reforms quite challenging. Findings revealed the major challenge in this regard is the lack of political will for this purpose. This lack of political will exists because of multiple other challenges like information gaps, political considerations (conflict of interest and dependence on tobacco revenues), stakeholder power-position-interest dynamics, tobacco industry tactics, and broader structural factors like the struggling economy of the country. All these translate into a compromised implementation of tobacco control interventions and issues in taxation laws thus limiting the use of TTPP to achieve tobacco control.

7.3. Discussion of main findings

The field of the political economy of tobacco taxation is relatively young, with very few research studies (Bump and Reich, 2013). This thesis has attempted to expand our knowledge of the political economy of tobacco taxation in the context of a tobacco-growing LMIC.

Tobacco taxation is one of the most effective tools to control tobacco use, yet it has not been used effectively in many countries including Pakistan. This thesis shows that tobacco products are highly affordable in Pakistan due to flawed taxation structure poor tax administration mechanisms. The recently announced global cigarette tax scorecard (Chaloupka et al., 2020) validates our findings. Pakistan is among the bottom 46 countries that scored less than 1 in implementing effective taxation measures with a score of 0.88 on a scale of 5. Other countries in the region like China, Bangladesh, and India are much ahead with scores of 1.25, 2.38, and 1.88 respectively. Pakistan gets 0 for absolute price and also for affordability. This makes it important to not only assess the overall TTPP to locate pitfalls in the system and supply chain to inform better policies but also on how these flaws have developed over time and who has the power to reform these. Bump and Reich (2013) argue that a poorly understood political economy of tobacco control hinders the implementation of effective strategies in LMICs. This thesis has attempted to solve the puzzle through political economy analysis of TTPP in Pakistan.

This thesis identifies that the TTPP arena in Pakistan is characterised by a lack of political will to use tobacco taxation as a tobacco control tool, possibly due to tobacco dependent economy, competing ministries and conflicts of interests. Research has found that the tax and health policies need not be in conflict, and evidence exists on how to balance them (Abedian et al., 1998; Armendares & Shigematsu, 2006; F. Chaloupka & Corbett, 1998; F. J. Chaloupka & Warner, 2000). Successful examples include inter-ministerial cooperation in Bhutan (Ugen, 2003), South Africa, Togo (Sanni et al., 2018), Thailand (Vateesatoki, 2003) and Nepal (Karki 2002; Sussman et al. 2007), rapid progress in Sri Lanka following the establishment of the National Authority on Smoking and Alcohol in 2006 (Rashid & Kassim Nishtar, n.d.), and strong legislation in India (Reddy & Gupta, 2004). Pakistan, too, needs to develop coordination among different government departments through a multi-sectoral policy.

Promotion of multi-sectoral approach is critical not only at policy level but also at ground level where policy is being implemented. This will expand the ownership, responsibility and accountability of tobacco control beyond the ministry of health. India gives a successful example of using multi-sectoral approach at ground level by engaging five different government agencies in Karnataka state thus achieving a decline of 5.4% in tobacco consumption over a period of seven years (Hebbar, Bhojani, Kennedy, & Rao, 2017). Tobacco control policy in Pakistan can learn from the National nutrition policy in the country which is slowly evolving with long term objectives and a multi-sectoral approach. They have built collaborations not only between different government departments but also with private sector to achieve targets.

Tobacco control in Pakistan is currently supported by civil society and donor funding. Even the national TCC is funded by the Bloomberg Philanthropy. Tobacco control efforts in Pakistan cannot be sustainable unless the government takes ownership and invest on it. Constant dependence on donors for such public health interventions creates mistrust among public and other stakeholders as highlighted in this thesis that tobacco control is a foreign agenda to harm Pakistani economy.

Another important argument highlighted by this thesis is that the tobacco control advocates in Pakistan strictly go by the book (the FCTC) and stress the need for implementation of uniform taxation system and increase FED rate up to 70% of the retail price. They are often criticised by the people from FBR and PTB for being ignorant of ground realities. Civil society base their arguments that the tobacco contribution to economy in terms of tax revenues is quite small, only 4% of the indirect tax revenues (Iqbal, Sabir, Saleem, Ali, & Aamir, 2019). However, one cannot

ignore that tobacco has been among the top 5 contributors for both FED and sales tax. This study also found that the tobacco industry sometimes pays taxes in advance in hard times for the government. Considering the small tax to GDP ratio of Pakistan and its struggling economy, the constant/guaranteed revenues from the tobacco industry are much appreciated and wanted by the FBR. One cannot easily convince the government to increase taxes to target affordability to decrease tobacco use without producing strong arguments based on empirical data that tobacco harms to the economy are much more and that increasing the taxes will not increase illicit trade. Moreover, FBR needs support through resources rather than simply advice in containing the illicit market and deciding on the appropriate taxation policy.

Tobacco control advocates need to think of innovative ways to influence tobacco taxation policies. This study identified a difference in tobacco industry tactics used by the domestic and the multi-national companies (MNCs). The domestic industry has strong political backing due to stakes in the industry of the legislators themselves, while the MNCs use their wealth and contribution to tax revenues to influence decision-making. There is a need to understand more on how they cooperate to influence tax structure and how they compete Perhaps this is something to learn from the Thailand case, where the domestic tobacco industry supported the government in introducing stringent tobacco control laws in the country in order to protect the market from the transnational tobacco companies (Chantornvong et al., 2000; Chantornvong & McCargo, 2001; Sussman et al., 2007). There is a need to explore how the competition between these two can be used as a support for enforcing existing taxation and pricing laws effectively.

The domestic tobacco industry is often blamed for tax evasion in the country but the analysis of GATS data identified that the cigarette brands from multinational companies in Pakistan were being sold in the market for a range of prices reaching almost the legal price as well. There is a need for the right data to understand the dynamics of the illicit market in Pakistan. Pakistan is a signatory to the Protocol to eliminate illicit trade of tobacco products, there is a need for effective enforcement of the protocol. Globally, tobacco control advocates need to explore the possibility of using international action to contain the illicit trade and hold big transnational tobacco companies accountable for their products through improved tracking and tax enforcement.

7.4. Thesis strengths and limitations

The overall theoretical framework of PEA is a key strength of this thesis. This thesis has contributed to the field of PEA of tobacco control, in particular for tobacco taxation in LMICs. It used multi-methods to fully capture the interactions between politics and the economy with regard to tobacco taxation in Pakistan. The policy document analysis identified the issues in the system and legal gaps. The GATS data analysis to estimate PE captured consumers' response to price change and simulation modelling offered a quick assessment for policy makers on the fiscal and public health impact of changing TTPP. A noteworthy strength of the thesis is the stakeholder analysis which offered an insight into the power dynamics of all actors involved in TTPP in Pakistan, illustrating how power is built and exercised. This will not only help to develop a comprehensive understanding of the current state of the TTPP arena in Pakistan and similar countries but also guide on future strategies to maneuver the stakeholder dynamics in order to influence policy. This thesis recruited multiple stakeholders from almost all relevant departments including the tobacco industry representatives as well. However, we could not recruit politicians and legislators who may have given some additional insights into the decision-making process.

A major strength of the research was estimating the two sets of PE; smoking participation and smoking intensity. This is the first study from Pakistan to give both estimates. Using the GATS data for PE estimates has the advantage of a large and nationally representative sample size increasing the reliability of the findings. However, using the GATS data comes with the limitation of being old. Moreover, cross-sectional data sets are not considered ideal for PE estimates. PE estimates based on panel data are considered the best, however, there is no such data available for Pakistan.

Another novel contribution by this thesis is the inclusion of illicit market activity in the simulation modelling. No study from Pakistan has considered illicit activity as a key variable in their simulation modelling so far. However, the simulation modelling used a static model instead of a living cohort or dynamic model based on the availability of data. Once such data is available, more informative models can be built.

This thesis also advances the use of PEA in the health sector. Reich (2019) has indicated that the lack of robust methods of analysis is a core challenge for political economy proponents. This thesis adds to the scholarship on using PEA in health sector interventions. There is a lot of potential to

gain deeper insights by using PEA, for example, to inform policies on controlling the consumption of sugar and sweetened beverages in LMICs.

7.5. Implications for policy

The findings from this thesis have a number of implications for tobacco control policy in Pakistan:

First, chapter 3 clearly shows that Pakistan lacks a national-level tobacco control policy and also a policy to use tobacco taxation as a tobacco control tool. Chapter 6, the qualitative study, reemphasized the need for such policy. Chapter 6 further stated that the national-level tobacco control policy needs to be multi-sectoral in nature and must be discussed with all stakeholders before tabling it for legislative approval. Such policy needs an explicit and long-term commitment to increasing tobacco taxation, targeting the affordability. With a draft nation tobacco control policy in hand, this thesis stresses the need for aligning it with Article 5.1 of the FCTC which asks parties to develop, implement, periodically update and review comprehensive multi-sectoral national tobacco control policies.

Chapters 3 and 6 identified that the TTPP in Pakistan is mainly concerned with cigarettes, thus ignoring the smokeless tobacco products. FBR argues that it is financially infeasible to tax such products at this stage as the cost of the collection will exceed the revenues collected. There is a need to think of step-wise regulation of these products and meanwhile innovative ways to influence their affordability. Implementation of the Tobacco Vend Act, 1958 is a potential opportunity in this regard.

Chapter 6 highlighted that the national TCC is often perceived as working as an NGO with foreign funding. The main reason is the foreign funding. This perception has compromised its influence to collaborate with other government departments like FBR and PTB. The government of Pakistan needs to take ownership of the TCC and work on strong collaborations with the other government departments.

Second, chapter 6 highlighted that the conflicts of interest and tobacco industry interference are two of the main challenges which hamper Pakistan's progress to use taxation as a tobacco control tool. This thesis stresses that Pakistan needs to take steps at the policy level to prohibit the involvement of legislators, who have interests in the tobacco business, in tobacco control related

decisions. Pakistan needs to seriously consider Article 5.3 of the FCTC which asks parties to protect their policies from commercial and other vested interests of the tobacco industry.

Third, chapters 3 and 4 highlight that tobacco products are very cheap in the country. Chapter 3 argued that tobacco products are quite cheap and affordable in the country as compared to other countries in the region. Chapter 4 makes the case that the price of lower slabs needs to be increased significantly so that the affordability for the poor decreases. The analysis found that smoking prevalence will decrease only if the cheaper cigarettes are made expensive. This translates into a need for a policy decision on the minimum price of any cigarette pack. The law needs to be explicit about the minimum consumer price for a pack of cigarettes and this price needs annual adjustments for inflation rate and income increase (if any). Chapter 5 highlights the need to increase the taxes beyond the inflation rate, otherwise, the government revenues would be badly affected.

Moreover, Pakistan needs a policy reform where the enforcement and monitoring of the minimum price law moves from the domain of the FBR to district-level tobacco control departments and where the Tobacco Vendors Act, 1958 can play a crucial role. The enforcement policy should come with clearly assigned duties and resources.

Chapters 3, 4, 5 and 6 all recognize that illicit trade in the tobacco market is a significant issue in Pakistan. This has three major adversities, availability of cheap cigarettes in the market, loss of government revenues, and giving leverage to tobacco industry to use it to influence taxation regimen. A possible solution can be the use of a tobacco business licensing system as prescribed by the Protocol to eliminate illicit trade on tobacco products. This requires licences for distributers and wholesalers as well and a designated body to monitor it. Pakistan is currently using a similar system for pharmaceutical products where the manufacturer, importer, distributer, wholesaler, and retailer-everybody in the supply chain needs to have licence to pursue the business and there are drug inspectors in place to ensure implementation.

Another possible solution to deal with the illicit trade is to implement an electronic track and trace system. Chapters 3 and 6 state that Pakistan has already announced a policy to implement a track and trace system for cigarettes but the process is frozen due to litigation for its bidding and contract awarding process. However, chapter 6 highlights that stakeholders have reservations and fewer hopes with the track and trace system and believe that corruption will ruin the purpose in absence of market control mechanisms to detect illicit trade. Pakistan needs an effective and modern track and trace

system along with a detailed plan for market monitoring. There is a need to listen to the concerns of all stakeholders before launching such a system.

Chapters 3 and 6 both highlighted that Pakistan Tobacco Board (PTB) can play a substantial role in tracking and tracing tobacco products. There is a need for a policy to develop coordination among different departments involved in tobacco. PTB is the only body that can measure and share the exact amount of tobacco produced and purchased and also the buyers. This information if shared and then used by the FBR can help in tracking and tracing the product. Moreover, PTB could have played a positive role when the tax at the GLT stage was increased, and the tobacco companies stopped purchasing the stocks or blocked the payments to tobacco growers. There is a need for policy reform in PTB where it makes information public and also coordinates with the FBR for tracking and tracing and also for resolving any disputes like the GLT stage tax between growers and tobacco purchasers.

This thesis identifies a few implications for global-level policy as well. Chapters 3 and 6 illustrate that the tobacco control regimen in Pakistan is mainly based around the MPOWER package of interventions where law has given more importance to secondhand smoke and TAPS controls. Chapter 6 argues that the MPOWER focus by the WHO has narrowed the attention of countries like Pakistan to a few specific interventions while compromising the long-term and sustainable solutions like alternatives to tobacco. Pakistan needs a tobacco alternative for three levels, an alternative cash crop for tobacco growers which gives them the same revenue and sale security, an alternative entertainment for tobacco products consumers and support to quit, and an alternative source of revenues for the government. International level policy guidance needs to support countries with a beyond MPOWER focus and to think about long-term solutions and alternates for people, growers, and governments.

The WHO and other international organizations working on tobacco control need to support countries in devising multi-sectoral policies, training the local staff for developing coordination, and working together for a common goal.

The FCTC is a legally binding tool but its mechanisms for holding states accountable are not yet strengthened. There is a need for developing accountability mechanisms for states not meeting the requirements of the FCTC and the Protocol under it. Stakeholders in chapter 6 referred to the FCTC as a guiding tool but not as a legal tool to be used to hold the government accountable.

7.6. Implications for practice

The findings from the four empirical chapters of this thesis have a number of implications for practice. Chapters 3, 5 and 6 clearly showed that tobacco taxation cannot be effectively used as a tool to control tobacco use if tobacco tax administration and pricing controls are compromised. Pakistan needs to strengthen its tax collection system from tobacco products manufacturers. Pakistan currently relies on industry-declared figures/production for tax estimation. A recent study estimated that cigarette manufacturers have underreported their production by almost 20%-27% in the year 2016-17 in response to higher taxation (Iqbal et al., 2019). There is a need for physically or electronically monitoring the actual production.

Chapter 3-policy documents analysis, chapter 4-the GATS data analysis and, chapter 6-qualitative study all highlighted that the price measures are failing as the minimum price law is not enforced. Moreover, price promotions on cigarettes and the sale of loose sticks are also common. Pakistan needs to strictly enforce existing tobacco control laws to control the sale price of cigarettes. Chapter 6 revealed that the lack of sufficient human and financial resources and ambiguities in duties is causing this lack of enforcement. Pakistan needs to allocate resources and invest in assigning responsibilities to specific departments and individuals for the implementation of such laws. The government of Pakistan may consider the use of modern technology for monitoring the implementation of this law, like mobile phone apps for price controls.

Lack of knowledge and information asymmetries regarding tobacco harms are quite worrisome for Pakistan. Evidence shows that these intra-governmental conflicts in information are often created by the misinformation provided by the tobacco industry. Tobacco control advocates need to target their resources to explore the forces that have shaped these opinions. Further, there is a need for awareness-building among the key stakeholders. There is a need to regularly invite key stakeholders from the FBR and PTB to tobacco control advocacy workshops and other campaigns. Further, the tobacco control cell needs to collaborate with the education and media departments to design and disseminate effective health promotional materials regarding tobacco harms and their economic impacts.

The case of GLT stage tax reversal gives an excellent example that any policy change should come with awareness-raising among those who are going to be affected, in this case, the growers, GLT operators, and the tobacco industry. This should be accompanied by envisaging possible reactions

by the stakeholders and thinking about mitigating strategies in advance. The response of media and community on 'sin-tax terminology' is another example of lack of groundwork and awareness-raising before giving the proposal as highlighted in chapter 6.

Pakistan TCC too needs to learn the need for strong preparation before advocating for any policy. As above, the case of introduction of 'sin tax' as illustrated in chapter 6, gives an example that a good policy initiative was rejected due to a lack of consideration about the cultural appropriateness of the Urdu translation of the phrase and reactions from the general public. Moreover, lack of stakeholder involvement resulted in legal issues and ineffective advocacy attempts.

Health professionals are playing a limited role in tobacco taxation reforms in the country. Chapter 6 highlighted that there are very few health professionals who feel comfortable while talking about tobacco taxation considering themselves as non-experts in the field. A comprehensive training on FCTC and tobacco control as part of public health training can help in this regard. More health professionals need to be mobilized to put pressure on the government for introducing strict taxation measures for tobacco.

Chapter 6 highlighted that the general public can play a role in tobacco control generally and also for tax and price control measures by supporting the legislation and using social media as a platform to advocate for this position. The pressure from the general public is one of the major factors which can influence decision-makers. CS needs to focus its efforts on awareness building among the general public as well.

Chapter 6 identified the limitations of the CS in Pakistan regarding tobacco control. CS needs to invest in its people with appropriate training and must invest time in more careful research, identification and context of evidence when communicating with legislators and people from the tobacco industry. They need to use local, context, and culturally specific examples and support their stance with Pakistan-based findings. CS further needs to work on being labelled as 'foreign' and working on 'foreign agenda'. Chapter 6 identified that a local NGO in Pakistan with local funding and backing of the Army has got more opportunities to approach legislators and other key decision-makers as compared to the NGOs working on foreign funding.

7.7. Implications for future research

Taken together the thesis shows that research is needed to inform policy on designing and implementing multi-sectoral tobacco control policy. Such research needs to focus on how to achieve coordination among different departments like PTB, FBR policy wing, FBR field wing, national TCC, provincial health departments or TCC, district health departments, and other stakeholders like civil society, WHO, WB, media, and researchers to design and implement a long term tobacco taxation policy in order to decrease tobacco consumption.

More research is required to fully elucidate the supply chain of tobacco products, including all the stakeholders involved at each stage, their power dynamics, and industry tactics with an aim to track and trace the tobacco movement. Considerably more work will need to be done to determine the stakeholders' dynamics at the GLT stage and how modern technology can be used to monitor the quantity of tobacco processed there to facilitate tax administration.

The econometric analysis in chapter 5 identified the need for local estimates on price elasticity for smoking initiation and quitting. Currently, no such estimates are available for Pakistan. Chapters 5 and 6 both highlighted the need for studies related to the economic burden of tobacco. There is just one such study available to date by Saqib et al. (2020) which estimated the annual cost of smoking-attributable diseases as PKR 192 billion which is a lot more than the revenues generated from the tobacco industry (PKR 110 billion) in the country. Additional studies will strengthen the argument of tobacco control advocates. Maintaining a record of the national mortality and morbidity impact of tobacco would facilitate future studies and modelling exercises to inform policies. Such data is needed to build strong advocacy campaigns to inform policies on tobacco control and to cater to the tobacco industry tactics and false claims.

Chapter 4 estimated the price elasticity of cigarettes using GATS data which is based on a cross-sectional dataset. Longitudinal studies need to be carried out to estimate the real change in price and its impact on consumers. The next wave of GATS data is also an opportunity to re-estimate PE.

The elasticity estimates from this thesis (-0.43) are slightly lower but comparable to the previous estimates of short-run PE based on aggregate time-series data from Pakistan, -0.48 by Mushtaq and colleagues (2011), and -0.58 by Burki et al. (2013). However, my estimates are quite lower than the Nayab et al. (2020) who estimates the elasticity to be -1.06 using a cross sectional data.

Further, the PE estimates from this thesis are lower than what is usually claimed for LMICs -0.8, that people in LMICs are more price responsive. The literature review for chapter 4 revealed there are many methodological considerations in econometric analysis which may affect the estimates and their reliability. This identifies a clear need for a systematic review of PE estimates from LMICs with a focus on methodological considerations and summarizing the new average estimates.

There are several modelling techniques available to simulate the impact of tobacco taxation on fiscal and health outcomes. However, their validity, strengths and limitations are not clear. This thesis chose the static model based on the availability of data. A systematic review of literature on different modelling techniques can help in making an easier choice while selecting the simulation modelling techniques. No such review is currently available. However, a protocol is submitted for peer review in JMIR preprints by Huang et al., (2021) now.

In addition, further studies need to be conducted at the global level regarding the best type of decision aid for those who make tobacco taxation policies. The simulation modelling, stakeholder analysis and broader political economy analysis combined with a software like PolicyMaker could inform such decision aid. This decision aid should be able to adapt to different countries' contexts.

An important variable in simulation modelling is illicit activity. The current estimates of the tobacco illicit market range from 9% to 40%. The two most recent studies, one by the SPDC (Iqbal et al., 2019) gives estimates of underreporting by the three big cigarette companies (including the two multinational companies) in Pakistan in the range of 22.0% to 26.5%, and the other study- the STOP survey (Khan et al., 2021) estimates illicit market share as 16%. However, there are concerns about these estimates as it is the local tobacco industry that is mainly blamed for being non-tax payer thus limiting the findings to only three large companies that may underestimate the market. The STOP survey is based on data from urban areas of Pakistan, however, chapter 6 highlighted that the illicit tobacco market is mainly in the rural areas where people prefer to buy cheap illicit cigarettes. An additional nationwide study covering both rural and urban areas with standard methodology can fill the gap of this data. The next wave of GATS and GYTS may offer an opportunity to achieve this by the inclusion of a few more variables.

Chapter 5 identifies a lack of data on how a change in tax rate affects illicit activity in LMICS. Further research should be undertaken to estimate the real impact of price change on the illicit market both globally and in Pakistan.

Chapter 6 identified that the local and multinational TI in Pakistan uses different tactics to influence decision-making. Further work needs to be carried out built on this argument. It is important to fully understand the network dynamics of both types of tobacco companies to pro-actively deal with their interference in decision making.

The qualitative research conducted within this study was not able to recruit the policy makers-the legislators themselves, so there remains a gap in understanding the nature of dynamics in political decision making. The incorporation of politicians from both the ruling government and the opposition in such qualitative studies may be valuable.

Chapter 6 reveals that there are knowledge gaps among different stakeholders regarding tobacco harms on health, the economic impact of tobacco, tobacco use, tobacco pricing, and taxation rates. It is important to understand how these discourses of 'tobacco not that harmful', 'it does not have many costs to government or people' and that 'the taxes are already very high' are developed in the country. There is a need to explore how these information symmetries are born and developed over time and which actors are involved in it and what is the role of the tobacco industry in it. An in-depth qualitative research is warranted for this purpose.

7.8. Conclusion

This thesis highlights that TTPP is a highly political matter in Pakistan owing to its tobacco-dependent economy and competing interests of the ministries and legislators. Policy documents and stakeholder analysis revealed that the TTPP arena is quite fragmented in Pakistan with a lack of a multi-sectoral approach and inter-sectoral coordination. There is a lack of an explicit policy on using tobacco taxation as a tobacco control tool. Existing policies are based on the vertical approach where all sectors have their own policies, often competing goals, and are working in silos. For example, the promotion of tobacco growing policy under the ministry of commerce, taxation policy under the ministry of finance, and pricing promotion ban alongside other tobacco control mechanisms under the ministry of health. There has been no attempt to have a shared vision and to develop strategic alliances between different government departments. Existing TTPP do not meet the WHO FCTC requirements. The TTPP faces dual issues of flawed structure and poor administration translating into highly affordable tobacco products and low revenues in the country. Based on the empirical analysis it is found that Pakistani smokers are sensitive to cigarette prices and are likely to decrease consumption as a result of increasing the price. However, increasing the

prices of low-priced cigarettes is required if a real impact is needed. Pakistan needs to strengthen its minimum price law for tobacco products with clear implementation modalities. Simulation exercises predict that an annual commitment to increase FED on cigarette packs by 5%, 10% or 15% will all significantly reduce smoking prevalence and avert smoking-attributable deaths even in a scenario with a growing illicit market. However, if FED increases the tax rate below the inflation rate, the government will lose revenue.

Pakistan faces multiple political economy challenges in using TTPP reforms for tobacco control in the country. Huge information asymmetries among stakeholders regarding tobacco harms, its economic impact, and the effectiveness of taxation as a tobacco control tool highlight that not all relevant stakeholders understand the harms of tobacco and are willing to support policy initiatives for its control. There is a need to understand how these information asymmetries have developed and maintained over time and if there is a role of the tobacco industry in it. Rigorous interventions are needed to correct these knowledge gaps. Another challenge is the power-position-interest dynamics of the stakeholders. Ministry of finance, tobacco industry and legislators are very powerful stakeholders in the TTPP arena in the country however using taxation as a tobacco control tool is not their interest. Civil society, the ministry of health, and researchers are highly supportive of using tobacco taxation as a tobacco control tool but these actors do not enjoy high power and lack resources to effectively influence decisions. To add to all these the broader economic context of the country, poor tax administration and very small tax to GDP ratio make the economy dependent on tobacco-related revenues. This gives the two big tobacco manufacturers leverage to influence decision-making. However, the rest of the local manufacturers use different tactics by involving and influencing legislators to influence decisions. Understanding tobacco industry tactics and pro-actively dealing with them is also crucial for Pakistan. Pakistan needs alternatives for tobacco at three levels; growers need an alternative cash crop, the government needs an alternative source of revenue, and people need support to quit or some alternative for tobacco products.

This thesis argues that Pakistan needs to consistently increase tobacco taxation to meet its targets for a one-third reduction in smoking prevalence by 2025. Without deliberate policy action to decrease the affordability of tobacco products, their use is likely to remain highly prevalent affecting the lives of millions of people in the country.

There is a lot of potential in existing laws to achieve effective price control through proper enforcement. This study recommends an incremental approach to implement Article 6 of the FCTC considering the current political economy scenario. Tobacco control advocates need to recognize the political economy of tobacco taxation in the Pakistani context and need to work for '*incremental wins*' instead of the '*go big, go fast*' slogan of the WB for tobacco taxation. These wins can be in terms of a consistent small increase in FED rates and more stringent enforcement of existing laws. This cannot be achieved until Pakistan focuses on Article 5.1 (a multi-sectoral national tobacco control policy), Article 5.3 (protecting policies from tobacco industry interference), Article 15 (eliminate illicit trade of tobacco products) along with the Protocol to eliminate illicit trade, and Article 17 (provision of economically viable alternatives for tobacco) as well.

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Appendices

Appendix 1. Multivariate analysis (price per pack=<150 Pakistani rupees)

Variables	Smoking Participation		Smoking intensity	
	Overall	**Male**	**Overall**	**Male**
	Coefficient (95% C.I)	**Coefficient (95% C.I)**	**Beta (95% C.I)**	**Beta (95% C.I)**
Cigarette price per pack	-0.0207 (-0.03, -0.01)***	-0.0203 (-0.03, -0.01) ***	-0.0097 (-0.014, -0.005)***	-0.0098 (-0.014, -0.005)***
Age (relative to 15-24 years old)				
25-44 years	0.97 (0.47, 1.47)***	0.94 (0.42, 1.46)***	0.42 (-0.06, 0.89)	0.43 (-0.04, 0.90)
45-64 years	1.64 (1.10, 2.19)***	1.57 (1.00, 2.13)***	0.60 (0.12, 1.08)*	0.58 (0.10, 1.07)*
65 years or older	1.33 (0.66, 2.01)***	1.20 (0.50, 1.90)**	0.20 (-0.49, 0.90)	0.30 (-0.37, 0.98)
Male (relative to female)	2.84 (2.34, 3.35) ***	-	0.57 (-0.01, 1.16)	-
Urban (relative to rural residence)	0.35 (0.05, 0.64)*	0.30 (-0.01, 0.60)	0..20 (-0.01, 0.41)	0.20 (-0.01, 0.41)
Education (relative to no formal education/less than primary)				
Primary or less than secondary	-0.17 (-0.46, 0.13)	-0.15 (-0.45, 0.15)	-0.18 (-0.38, 0.02)	-0.16 (-0.37, 0.04)
Secondary or high school	-0.34 (-0.68, 0.00)	-0.36 (-0.71, -0.004)*	-0.07 (-0.31, 0.16)	-0.8 (-0.31, 0.16)
Graduate	-0.79 (-1.48, -0.10)*	-0.82 (-1.52, -0.12)*	0.02 (-0.68, 0.73)	0.02 (-0.68, 0.72)
Postgraduate or higher	-0.62 (-1.38, 0.15)	-0.66 (-1.44, 0.12)	-1.56 (-2.75, -0.36)*	-1.57 (-2.76, -0.38)*
Marital status (relative to single)				
Currently married	1.00 (0.52, 1.47)***	1.05 (0.55, 1.54)***	-0.10 (-0.47, 0.26)	-0.10 (-0.47, 0.27)
Divorced/separated/widowed	1.04 (0.34, 1.74)**	0.78 (0.04, 1.53)*	-0.39 (-0.99, 0.21)	-0.58 (-1.16, 0.01)
Occupation (relative to unemployed)				
Currently employed	-0.28 (-0.82, 0.26)	-0.40 (-0.95, 0.15)	0.12 (-0.45, 0.70)	0.13 (-0.45, 0.71)
Not in labour market	-1.16 (-1.74, -0.57)***	-1.22 (-1.86, -0.58)***	0.14 (-0.54, 0.83)	0.09 (-0.59, 0.78)
Wealth index (relative to lowest wealth index)				
Low	-0.22 (-0.55, 0.11)	-0.15 (-0.49, 0.19)	-0.26 (-0.48, -0.03)*	-0.24 (-0.46, -0.02)*
Middle	-0.10 (-0.52, 0.32)	-0.09 (-0.52, 0.34)	-0.03 (-0.28, 0.21)	-0.02 (-0.27, 0.23)
High	-0.03 (-0.41, 0.34)	0.07 (-0.32, 0.46)	-0.19 (-0.45, 0.08)	-0.18 (-0.45, 0.09)
Highest	0.22 (-0.28, 0.72)	0.42 (-0.10, 0.94)	-0.54 (-0.90, -0.18)**	-0.52 (-0.89, -0.16)**
Knowledge about smoking hazards	-0.05 (-0.10, 0.00)	-0.06 ()*	-0.04 (-0.07, 0.00)	-0.03 (-0.07, 0.00)
Smoking restrictions inside home (as compared to no restrictions)	-1.92 (-2.7, -1.57)***	-1.92 (-2.27, -1.57)***	-0.20 (-0.60, 0.15)	-0.22 (-0.61, 0.17)
Local exposure to smoking advertisement	0.20 (-0.01, 0.42)	0.24 (0.01, 0.46)*	0.04 (-0.14, 0.23)	0.07 (-0.13, 0.26)
Local exposure to antismoking messages	0.25 (-0.05, 0.56)	0.24 (-0.08, 0.55)	0.01 (-0.23, 0.25)	-0.04 (-0.28, 0.21)
R square (p-value for model)	**0.32 (0.000)**	**0.20 (0.000)**	**0.17 (0.000)**	**0.17 (0.000)**
Price elasticity	**-1.01**	**-0.89**	**-0.47**	**-0.47**
Average price per pack	**54.39**	**54.42**	**47.89**	**48.01**
% smokers	**10.3%**	**19.1%**		

Appendix 2. Multivariate analysis (Excluding highest income quintile)

Variables	Smoking Participation		Smoking intensity	
	Overall	**Male**	**Overall**	**Male**
	Coefficient (95% C.I)	**Coefficient (95% C.I)**	**Beta (95% C.I)**	**Beta (95% C.I)**
Cigarette price per pack	-0.0087 (-0.02, 0.00)	-0.0074 (-0.02, 0.00)	-0.0054 (-0.007, 0.003)***	-0.0054 (-0.007, -0.003)***
Age (relative to 15-24 years old)				
25-44 years	0.98 (0.44, 1.52)***	0.95 (0.39, 1.50)**	0.47 (-0.03, 0.97)	0.49 (-0.01, 0.98)
45-64 years	1.73 (1.16, 2.31)***	1.65 (1.06, 2.25)***	0.63 (0.12, 1.14) *	0.61 (0.10, 1.12)*
65 years or older	1.35 (0.64, 2.06)***	1.19 (0.45, 1.94)**	0.15 (-0.58, 0.88)	0.26 (-0.45, 0.97)
Male (relative to female)	2.75 (2.23, 3.28)***	-	0.61 (0.01, 1.21)*	-
Urban (relative to rural residence)	0.25 (-0.08, 0.58)	0.18 (-0.16, 0.52)	0.19 (-0.01, 0.39)	0.18 (-0.02, 0.39)
Education (relative to no formal education/less than primary)				
Primary or less than secondary	-0.12 (-0.43, 0.18)	-0.11 (-0.42, 0.20)	-0.19 (-0.40, 0.01)	-0.18 (-0.39, 0.03)
Secondary or high school	-0.26 (-0.62, 0.09)	-0.28 (-0.65, 0.09)	-0.09 (-0.33, 0.16)	-0.09 (-0.33, 0.15)
Graduate	-1.36 (-2.22, -0.50)**	-1.40 (-2.26, -0.53)**	-0.44 (-1.71, 0.84)	-0.45 (-1.72, 0.82)
Postgraduate or higher	-0.95 (-2.05, 0.14)	-0.92 (-2.04, 0.19)	-1.00 (-1.50, -0.49)***	-1.00 (-1.50, -0.49)***
Marital status (relative to single)				
Currently married	1.00 (0.49, 1.51)***	1.05 (0.52, 1.58)***	-0.11 (-0.51, 0.28)	-0.11 (-0.50, 0.27)
Divorced/separated/widowed	1.16 (0.42, 1.89)**	0.93 (0.14, 1.72)*	-0.35 (-0.96, 0.25)	-0.56 (-1.16, 0.04)
Occupation (relative to unemployed)				
Currently employed	-0.15 (-0.74, 0.43)	-0.27 (-0.86, 0.32)	0.13 (-0.52, 0.78)	0.14 (-0.52, 0.79)
Not in labour market	-0.98 (-1.62, -0.35)**	-1.02 (-1.70, -0.33)**	0.20 (-0.01, 0.39)	0.14 (-0.62, 0.91)
Wealth index (relative to lowest wealth index)				
Low	-0.19 (-0.52, 0.14)	-0.13 (-0.47, 0.22)	-0.22 (-0.44, 0.00)	-0.20 (-0.42, 0.01)
Middle	-0.11 (-0.53, 0.31)	-0.10 (-0.53, 0.33)	-0.02 (-0.26, 0.21)	-0.01 (-0.25, 0.23)
High	-0.05 (-0.43, 0.33)	0.05 (-0.34, 0.44)	-0.17 (-0.44, 0.09)	-0.16 (-0.42, 0.10)
Highest	-	-	-	-
Knowledge about smoking hazards	-0.04 (-0.09, 0.01)	-0.04 (-0.10, 0.01)	-0.3 (-0.07, 0.01)	-0.03 (-0.06, 0.01)
Smoking restrictions inside home (as compared to no restrictions)	-1.94 (-2.32, -1.55)***	-1.93 (-2.32, 0.32)***	-0.28 (-64, 0.08)	-0.26 (-0.64, 0.11)
Local exposure to smoking advertisement	0.14 (-0.09, 0.38)	0.18 (-0.06, 0.43)	0.12 (-0.04, 0.29)	0.15 (-0.02, 0.32)
Local exposure to antismoking messages	0.12 (-0.21, 0.46)	0.11 (-0.24, 0.45)	-0.11 (-0.35, 0.12)	-0.18 (-0.42, 0.06)
R square (p-value for model)	**0.31 (0.000)**	**0.19 (0.000))**	**0.13 (0.000)**	**0.13 (0.000)**
Price elasticity	**-0.44**	**-0.34**	**-0.27**	**-0.27**
Average price per pack	**57.23**	**56.93**	**50.30**	**50.57**
% smokers	**10.5%**	**19.3%**		

Appendix 3. Multivariate analysis (Price averaged at each PSU level)

	Variables	Smoking Participation		Smoking intensity	
		Overall	Male	Overall	Male
		Odd ratios (95% CI)	Odd ratios (95% CI)	Beta (p-value)	Beta (p-value)
1.	Cigarette price per pack	1.00 (0.996, 1.005)	1.00 (0.997, 1.006)	-0.003 (0.087)	-0.003 (0.094)
2.	Age (relative to 15-24 years old)				
	25-44 years	2.53* (1.53, 4.17)	2.46* (1.47, 4.02)	0.41 (0.100)	0.42 (0.092)
	45-64 years	5.16* (3.01, 8.84)	4.83* (2.77, 8.43)	0.59* (0.022)	0.57* (0.025)
	65 years or older	3.56* (1.83, 6.91)	3.09* (1.55, 6.15)	0.15 (0.670)	0.25 (0.477)
3.	Male (relative to female)	18.32* (11.04, 30.41)	-	0.63* (0.038)	-
4.	Urban (relative to rural residence)	1.04 (0.80, 1.37)	0.99 (0.75, 1.31)	0.08 (0.452)	0.07 (0.500)
5.	Education (relative to no formal education/less than primary)				
	Primary or less than secondary	0.82 (0.61, 1.11)	0.84 (0.62, 1.14)	-0.18 (0.082)	-0.17 (0.100)
	Secondary or high school	0.66* (0.46, 0.94)	0.65* (0.45, 0.93)	-0.15 (0.214)	-0.15 (0.221)
	Graduate	0.35* (0.17, 0.72)	0.34* (0.16, 0.71)	0.08 (0.843)	0.08 (0.839)
	Postgraduate or higher	0.42* (0.19, 0.92)	0.40* (0.13, 0.89)	-1.49* (0.02)	-1.50* (0.022)
6.	Marital status (relative to single)				
	Currently married	2.77* (1.72, 4.46)	2.90* (1.78, 4.72)	-.012 (0.517)	-0.12 (0.521)
	Divorced/separated/widowed	3.24* (1.62, 6.45)	2.63* (1.25, 5.51)	-0.35 (0.239)	-0.53 (0.066)
7.	Occupation (relative to unemployed)				
	Currently employed	0.84 (0.49, 1.44)	0.74 (0.43, 1.29)	0.14 (0.653)	0.14 (0.637)
	Not in labour market	3.24* (0.19, 0.64)	0.33* (0.17, 0.62)	0.23 (0.522)	0.17 (0.632)
8.	Wealth index (relative to lowest wealth index)				
	Low	0.85 (0.61, 1.19)	0.91 (0.64, 1.29)	-0.24* (0.034)	-0.22 (0.048)
	Middle	0.95 (0.62, 1.44)	0.96 (0.63, 1.48)	-0.03 (0.772)	-0.03 (0.790)
	High	1.00 (0.19, 0.64)	1.11 (0.75, 1.64)	-0.18 (0.174)	-0.18 (0.189)
	Highest	1.45 (0.84, 2.49)	1.76 (1.00, 3.08)	-0.59* (0.003)	-0.58* (0.004)
9.	Knowledge about smoking hazards	0.96 (0.91, 1.01)	0.95 (0.90, 1.00)	-0.03 (0.178)	-0.02 (0.213)
10.	Smoking restrictions inside home (as compared to no restrictions)	0.16* (0.11, 0.22)	0.15* (0.11, 0.22)	-0.31 (0.087)	-0.30 (0.104)
11.	Local exposure to smoking advertisement	1.32* (1.07, 1.63)	1.36* (1.10, 1.69)	0.06 (0.499)	0.09 (0.385)
12.	Local exposure to antismoking messages	1.12 (0.996, 1.005)	1.11 (0.81, 1.55)	-0.02 (0.86)	-0.07 (0.586)
	R square	**0.31 (0.000)**	**0.19 (0.000)**	**0.15 (0.000)**	**0.16 (0.000)**
	Price elasticity	**0.04 (0.736)**	**0.07 (0.472)**	**-0.15 (0.087)**	**-0.15 (0.094)**

Appendix 4. Multivariate analysis (Price averaged at each PSU level, excluding the high price cigarettes >=150 rupees)

	Variables	Smoking Participation		Smoking intensity	
		Overall	Male	Overall	Male
		Odd ratios (95% CI)	Odd ratios (95% CI)	Beta (p-value)	Beta (p-value)
1.	Cigarette price per pack	0.99 (0.98, 1.00)	0.995 (0.987, 1.004)	-0.003 (0.452)	-0.002 (0.403)
2.	Age (relative to 15-24 years old)				
	25-44 years	2.45 (1.47, 4.09)	2.37 (1.40, 4.02)	0.44 (0.081)	0.45 (0.074)
	45-64 years	4.97 (2.87, 8.61)	4.61 (2.62, 8.14)	0.61* (0.016)	0.60* (0.019)
	65 years or older	3.42 (1.74, 6.72)	2.97 (1.47, 5.95)	0.12 (0.741)	0.21 (0.547)
3.	Male (relative to female)	18.29 (10.98, 30.46)	-	0.62* (0.04)	-
4.	Urban (relative to rural residence)	1.07 (0.81, 1.41)	1.01 (0.76, 1.34)	0.10 (0.351)	0.09 (0.403)
5.	Education (relative to no formal education/less than primary)				
	Primary or less than secondary	0.85 (0.63, 1.15)	0.87 (0.64, 1.18)	-0.21 (0.048)	-.020 (0.059)
	Secondary or high school	0.72 (0.51, 1.01)	0.71 (0.50, 1.00)	-0.16 (0.188)	-0.16 (0.188)
	Graduate	0.41 (0.20, 0.83)	0.40 (0.19, 0.81)	-0.05 (0.905)	-0.05 (0.893)
	Postgraduate or higher	0.43 (0.19, 0.95)	0.41 (0.18, 0.91)	-1.31 (0.077)	-1.32 (0.076)
6.	Marital status (relative to single)				
	Currently married	2.85 (1.74, 4.67)	3.00 (1.81, 4.97)	-0.17 (0.380)	-0.16 (0.389)
	Divorced/separated/widowed	3.41 (1.68, 6.91)	2.75 (1.29, 5.85)	-0.38 (0.205)	-0.56 (0.052)
7.	Occupation (relative to unemployed)				
	Currently employed	0.82 (0.47, 1.41)	0.73 (0.42, 1.28)	0.16 (0.586)	0.17 (0.572)
	Not in labour market	0.36 (0.20, 0.65)	0.34 (0.18, 0.65)	0.28 (0.431)	0.23 (0.515)
8.	Wealth index (relative to lowest wealth index)				
	Low	0.85 (0.61, 1.19)	0.91 (0.64, 1.28)	-.021 (0.058)	-0.19 (0.084)
	Middle	0.93 (0.61, 1.41)	0.94 (0.61, 1.45)	-0.02 (0.891)	-0.01 (0.933)
	High	1.00 (0.68, 1.46)	1.11 (0.75, 1.63)	-0.16 (0.227)	-0.16 (0.248)
	Highest	1.29 (0.77, 2.15)	1.55 (0.91, 2.64)	-0.46* (0.022)	-0.44* (0.026)
9.	Knowledge about smoking hazards	0.95 (0.91, 1.00)	0.94 (0.90, 1.00)	-0.02 (0.305)	-0.002 (0.529)
10.	Smoking restrictions inside home (as compared to no restrictions)	0.14 (0.10, 0.20)	0.14 (0.10 (0.20)	-0.14 (0.464)	-0.12 (0.542)
11.	Local exposure to smoking advertisement	1.24 (1.00, 1.52)	1.28 (1.04, 1.60)	0.09 (0.334)	0.11 (0.222)
12.	Local exposure to antismoking messages	1.18 (0.87, 1.61)	1.16 (0.84, 1.60)	-0.07 (0.538)	-.013 (0.301)
	R square	**0.31**	**0.19**	**0.12 (0.011)**	**0.11 (0.002)**
	Price elasticity	**-0.30 (0.103)**	**-0.18 (0.298)**	**-0.14 (0.452)**	**-0.09 (0.403)**

Appendix 5. Multivariate analysis (Price averaged at each PSU level, excluding the highest income quintile)

Variables	Smoking Participation		Smoking intensity	
	Overall	Male	Overall	Male
	Odd ratios (95% CI)	Odd ratios (95% CI)	Beta (p-value)	Beta (p-value)
Cigarette price per pack	0.997 (0.993, 1.001)	0.998 (0.994, 1.002)	-0.0008 (0.547)	-0.0007 (0.608)
Age (relative to 15-24 years old)				
25-44 years	2.62* (1.52, 4.51)	2.54* (1.46, 4.44)	0.46 (0.077)	0.47 (0.067)
45-64 years	5.57* (3.11, 9.98)	5.17* (2.83, 9.45)	0.61* (0.022)	0.59* (0.025)
65 years or older	3.66* (1.79, 7.50)	3.13* (1.49, 6.61)	0.08 (0.830)	0.19 (0.617)
Male (relative to female)	16.30* (9.65, 27.55)	-	0.64 (0.038)	-
Urban (relative to rural residence)	1.09 (0.82, 1.45)	1.03 (0.76, 1.38)	0.08 (0.420)	0.07 (0.487)
Education (relative to no formal education/less than primary)				
Primary or less than secondary	0.86 (0.63, 1.16)	0.87 (0.63, 1.19)	-0.23* (0.032)	-0.22* (0.039)
Secondary or high school	0.74 (0.52, 1.07)	0.73 (0.51, 1.06)	-0.16 (0.207)	-0.17 (0.199)
Graduate	0.23* (0.10, 0.54)	0.22* (0.09, 0.54)	-0.42 (0.543)	-0.44 (0.530)
Postgraduate or higher	0.38 (0.13, 1.14)	0.39 (0.13, 1.19)	-1.02* (0.000)	-1.02* (0.000)
Marital status (relative to single)				
Currently married	2.78* (1.65, 4.67)	2.92* (1.71, 4.96)	-0.11 (0.567)	-0.11 (0.570)
Divorced/separated/widowed	3.34* (1.60, 6.98)	2.66* (1.20, 5.89)	-0.33 (0.287)	-0.55 (0.071)
Occupation (relative to unemployed)				
Currently employed	0.87 (0.49, 1.56)	0.78 (0.43, 1.40)	0.13 (0.703)	0.13 (0.691)
Not in labour market	0.39* (0.20, 0.74)	0.37* (0.19, 0.74)	0.27 (0.491)	0.21 (0.594)
Wealth index (relative to lowest wealth index)				
Low	0.83 (0.59, 1.16)	0.89 (0.63, 1.25)	-0.21 (0.058)	-0.02 (0.089)
Middle	0.91 (0.60, 1.39)	0.92 (0.60, 1.42)	0.00 (0.995)	0.01 (0.932)
High	0.97 (0.66, 1.42)	1.07 (0.72, 1.59)	-0.14 (0.285)	-0.13 (0.331)
Highest	-		-	
Knowledge about smoking hazards	0.96 (0.91, 1.01)	0.96 (0.90, 1.01)	-0.02 (0.281)	-0.02 (0.350)
Smoking restrictions inside home (as compared to no restrictions)	0.14* (0.09, 0.20)	0.14* (0.09, 0.21)	-0.29 (0.122)	-0.27 (0.169)
Local exposure to smoking advertisement	1.17 (0.92, 1.47)	1.21 (0.95, 1.54)	0.13 (0.140)	0.16 (0.084)
Local exposure to antismoking messages	1.12 (0.80, 1.57)	1.11 (0.78, 1.57)	-0.14 (0.269)	-0.20 (0.107)
(Pseudo) R square	**0.31 (0.000)**	**0.19 (0.000)**	**0.09 (0.000)**	**0.08 (0.000)**
Price elasticity	**-0.12 (0.203)**	**-0.07 (0.472)**	**-0.04 (0.547)**	**-0.03 (0.608)**

Appendix 6. Multivariate analysis (price averaged at each PSU level, with uncorrected prices)

Variables	Smoking Participation		Smoking intensity	
	Overall	Male	Overall	Male
	Odd ratios (95% CI)	Odd ratios (95% CI)	Beta (p-value)	Beta (p-value)
Cigarette price per pack	1.00 (0.997, 1.005)	1.00 (0.997, 1.006)	-0.004* (0.006)	-0.004* (0.007)
Age (relative to 15-24 years old)				
25-44 years	2.53* (1.54, 4.17)	2.46* (1.47, 4.12)	0.41 (0.099)	0.42 (0.092)
45-64 years	5.16* (3.01, 8.84)	4.83* (2.77, 8.44)	0.58* (0.022)	0.57* (0.025)
65 years or older	3.56* (1.83, 6.91)	3.10* (1.56, 6.16)	0.15 (0.682)	0.25 (0.486)
Male (relative to female)	18.33* (11.04, 30.43)	-	0.63* (0.034)	-
Urban (relative to rural residence)	1.05 (0.80, 1.37)	1.00 (0.75, 1.32)	0.07 (0.495)	0.06 (0.548)
Education (relative to no formal education/less than primary)				
Primary or less than secondary	0.82 (0.61, 1.11)	0.84 (0.62, 1.14)	-0.20* (0.058)	-0.19 (0.072)
Secondary or high school	0.66* (0.46, 0.94)	0.65* (0.45, 0.93)	-0.16 (0.174)	-0.16 (0.180)
Graduate	0.35* (0.17, 0.72)	0.34* (0.17, 0.71)	0.00 (0.989)	0.01 (0.983)
Postgraduate or higher	0.42* (0.19, 0.92)	0.40* (0.18, 0.89)	-1.52* (0.019)	-1.52* (0.018)
Marital status (relative to single)				
Currently married	2.77* (1.72, 4.46)	2.91* (1.79, 4.73)	-0.14 (0.458)	-0.14 (0.463)
Divorced/separated/widowed	3.23* (1.62, 6.45)	2.62* (1.25, 5.50)	-0.37 (0.208)	-0.55 (0.053)
Occupation (relative to unemployed)				
Currently employed	0.83 (0.49, 1.43)	0.74 (0.42, 1.28)	0.16 (0.580)	0.17 (0.565)
Not in labour market	0.35* (0.19, 0.63)	0.32* (0.17, 0.62)	0.25 (0.485)	0.19 (0.598)
Wealth index (relative to lowest wealth index)				
Low	0.85 (0.61, 1.19)	0.91 (0.64, 1.28)	-0.25* (0.027)	-0.23* (0.038)
Middle	0.95 (0.63, 1.44)	0.96 (0.62, 1.47)	-0.04 (0.738)	-0.04 (0.753)
High	1.00 (0.69, 1.46)	1.11 (0.75, 1.64)	-0.18 (0.171)	-0.18 (0.186)
Highest	1.44 (0.84, 2.49)	1.76 (1.00, 3.08)	-0.55* (0.005)	-0.54* (0.006)
Knowledge about smoking hazards	0.96 (0.91, 1.01)	0.95 (0.90, 1.00)	-0.02 (0.267)	-0.02 (0.309)
Smoking restrictions inside home (as compared to no restrictions)	0.16* (0.11, 0.22)	0.16* (0.11, 0.22)	-0.26 (0.139)	-0.26 (0.16)
Local exposure to smoking advertisement	1.32* (1.07, 1.62)	1.35* (1.09, 1.68)	0.08 (0.380)	0.10 (0.287)
Local exposure to antismoking messages	1.12 (0.82, 1.55)	1.12 (0.80, 1.55)	-0.01 (0.919)	-0.06 (0.641)
(Pseudo) R square	**0.31 (0.000)**	**0.19 (0.000)**	**0.17 (0.000)**	**0.17 (0.000)**
Price elasticity	**0.04 (0.654)**	**0.06**	**-0.17* (0.006)**	**-0.17* (0.007)**

Appendix 7. Request to participate in research

Request to Participate in Research

(Political Economy of Tobacco in Pakistan)

Study Title: Stakeholders' perspectives on pricing and affordability of tobacco products in Pakistan

Investigator(s):

1. Haleema Masud (PhD researcher at Warwick Medical School, University of Warwick, UK)
2. Oyinlola Oyebode (Lead supervisor, Warwick Medical School, University of Warwick, UK)

Introduction:

We are inviting you to participate in a research study as an interviewee. This is Haleema Masud's PhD research on *Political Economy of Tobacco Products in Pakistan*, specifically focusing on the *taxation, pricing and affordability* of these products.

As part of this research, we are aiming to collect key stakeholders views on the current taxation/pricing regimen for tobacco products in Pakistan and on opportunities and challenges in modification of these policies in order to achieve both fiscal and public health objectives. We are hoping that the findings of this research will better inform tobacco pricing policies in Pakistan to achieve both fiscal and health objectives.

Tentative interview time: Between 50-80 minutes
Dates: 21 Nov 2019-----5 Dec 2019

For detailed Information please contact: [redacted]

Appendix 8. Participant information leaflet (English)

Participant Information Leaflet

Study Title:	Stakeholders' perspectives on pricing and affordability of tobacco products in Pakistan
Investigator(s):	Haleema Masud (PhD researcher at Warwick Medical School)

Introduction

You are invited to take part in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you. Please take the time to read the following information carefully. Talk to others about the study if you wish.

Please ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the study about?

This study is aimed at identifying tobacco taxation and pricing policy (TTPP) actors in Pakistan and to collect their views on current taxation regimen and on opportunities and challenges in modification of tobacco products affordability in order to achieve public health objectives in Pakistan.

Who is organizing and funding the study?

This study is planned as a part of Ms. Haleema Masud's PhD research which is focusing on political economy of tobacco taxation and pricing in Pakistan. Ms. Masud is funded by the Punjab Educational Endowment Fund (PEEF), Pakistan.

What would taking part involve?

Taking part in the study means that you will be interviewed by the researcher. This will be a face-to-face interview. We would like to record the interview, however, if you are not comfortable with audio-recording, we can do this without recording and by taking detailed notes only. The interview is expected to take between 40-60 minutes.

We will also collect some personal information like your age/gender/institutional affiliation/job experience in paper form.

Your participation will be entirely voluntary and you will be free to withdraw from the study at any time.

Do I have to take part?

No. Participation in this study is completely voluntary and choosing not to take part will not affect you in any way. You can also choose to withdraw your participation at any time, without giving a reason by contacting the research team. Further details about withdrawing from the study are provided later on in this document.

If you choose to participate, we will ask you to sign a consent form to confirm that you have agreed to take part.

What are the possible benefits of taking part in this study?

This research is an informative aspect of Tobacco Taxation and Pricing in Pakistan. We hope that it can benefit the country by informing future policies. There are no direct benefits to you (as an individual) for participating in this research, however, voicing your views and experiences can be helpful in understanding overall TTPP arena in Pakistan.

Expenses and payments

The participant will not be reimbursed for their participation in the study or will not receive any form of payment/token for their time.

What are the possible disadvantages, side effects or risks, of taking part in this study?

We do not anticipate any disadvantage, side effects or risks for you by taking part in this study. We will not discuss any personal and sensitive information. Your name and other personally identifiable data will be completely confidential. Although we will mention the names of the organizations where our participants belong, your views will be completely anonymous.

Will my taking part be kept confidential?

Yes, and at every stage.

Interviews will be asking for your opinion, and asking you to share your experience of engaging or not engaging in Tobacco Taxation and Pricing Policies in Pakistan. We will not ask any sensitive or embarrassing questions.

We will ask you to complete a separate profile sheet which will ask for the following details:

Your Age/ Gender/ job experience/ name of affiliated organization/. This is to ensure that we can gain an overview of participants and ensures that we are covering all important stakeholders in TTPP arena in Pakistan.

Profiling data will be separated from interview responses and all data anonymised by the researcher.

The sessions will be audio recorded and anonymised. If you do not want to be recorded, we can either stop the tape when you want to speak or we can offer you an interview where only notes would be taken. It will make it easier if you let us know beforehand.

Data Handling

Any reporting of data both at the aggregate level will be anonymised and pseudonyms will be used for qualitative interviews drawn on. All data will comply with the requirements of the General Data Protection Regulation 2018 and data will be held securely at the University of Warwick. The project laptop is password protected and encrypted.

Any paper documents created (i.e. consent forms, interview notes, focus group notes) will be

scanned within a week of activity, and then shredded/ confidentially disposed. In the interim they will be stored in locked drawers in researcher's custody.

What will happen to the data collected about me?

Research data will be **pseudonymised** as quickly as possible after data collection. This means all direct identifiers will be removed from the research data and will be replaced with a participant number. The key to identification will be stored separately and securely to the research data to safeguard your identity.

What will happen if I don't want to carry on being part of the study?

Your **participation** is entirely voluntary. You can decide to withdraw from the study at any time without giving a reason. This would not affect you in any way.

The withdrawal process is as follows:

• If a participant chooses to withdraw prior to the interview, their personal information (name, organization, job role, experience, gender) will be deleted from the excel file

• In addition to the above, if a participant decides to withdraw following commencement of the interview, their interview recording will be deleted and any written notes taken during the interview will be discarded.

• In addition to the above, if a participant decides to withdraw following completion of the study, every effort will be made to remove quotes from written reports. However this may not be possible if publication has already been published.

• Participants will not have to give their reasons for withdrawal.

What will happen to the results of the study?

The results of this study will be published in academic journals and presented at conferences and policy forums. We also plan to disseminate the findings in the form of policy briefs. However, all the data will be anonymised and your confidentiality will be ensured.

Who has reviewed the study?

This study has been reviewed and given favorable opinion by the University of Warwick's Biomedical & Scientific Research Ethics Committee (BSREC): reference number BSREC 04/19-20

Who should I contact if I want further information?

If you have any questions about any aspect of the study, or your participation in it, not answered by this participant information sheet, please contact:

Oyinlola Oyebode (Lead Supervisor)
Email: [redacted]

Who should I contact if I wish to make a complaint?

Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered will be addressed. Please address your complaint to the person below, who is a senior University of Warwick official entirely independent of this study:

Head of Research Governance
Research & Impact Services
University House
University of Warwick
Coventry
CV4 8UW
[redacted]

If you wish to raise a complaint on how we have handled your personal data, you can contact our [redacted]

If you are not satisfied with our response or believe we are processing your personal data in a way that is not lawful you can complain to the Information Commissioner's Office (ICO).

Thank you for taking the time to read this Participant Information Leaflet

Appendix 9. Consent form (English)

WARWICK
THE UNIVERSITY OF WARWICK

CONSENT FORM

Participant Identification Number for this study:

Title of Project: **Stakeholders' perspectives on pricing and affordability of tobacco products in Pakistan**

Name of Researcher(s):

Haleema Masud (PhD researcher at Warwick Medical School)

Oyinlola Oyebode (Lead Supervisor, Assoc. Prof at Warwick Medical School)

Please initial all boxes

1. I confirm that I have read and understand the participant information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected. ☐
3. I understand that data collected during the study, may be looked at by individuals from The University of Warwick, where it is relevant to my taking part in this study. I give permission for these individuals (academic supervisors) to have access to my data. ☐
4. I agree to allow the interview to be audio-recorded for the purposes of this research ☐
5. I agree to allow the interview to be audio-recorded for the purposes of this research ☐
6. I am happy for my data to be used in future research. ☐
7. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Name of Person taking consent	Date	Signature

Appendix 10. Participant information leaflet (Urdu)

انفارمیشن شیٹ

تحقیق کا عنوان: پاکستان میں تمباکو کی مصنوعات کی قیمتوں کا تعین اور اس کی قوت خرید/برداشت پر اسٹیک ہولڈرز کا نقطہ نظر

محقق کا نام:حلیمہ مسعود: واروک میڈیکل اسکول میں پی ایچ ڈی کی محقق

تعارف

آپ کو اس تحقیق میں حصہ لینے کے لئے مدعو کیا گیا ہے۔ اس تحقیق میں حصہ لینے کا فیصلہ کرنے سے پہلے آپ کویہ جاننےکی ضرورت ہے کہ تحقیق کیوں کی جارہی ہے اور اس میں آپ کے لئے کیا شامل ہے۔ براہ کرم مندرجہ ذیل معلومات کو غور سے پڑھنے کے لئے وقت نکالیں۔ اگر آپ چاہیں تو تحقیق کے بارے میں دوسروں سے بات کرسکتے ہیں ۔

کوئی ایسی چیز جو آپ کوواضح نہیں ہے یا اگر آپ مزید معلومات چاہتے ہیں تو آپ ہم سے پوچھ سکتے ہیں ۔ وقت لے کرفیصلہ کریں کہ آپ حصہ لینا چاہتے ہیں یا نہیں۔

تحقیق کس بارے میں ہے؟

اس تحقیق کا مقصد پاکستان میں تمباکوپر ٹیکس لگانے اور اس کی قیمت سے متعلق پالیسی اداکاروں کی نشاندہی کرناہے اور موجودہ ٹیکس کے طریقہ کار اور پاکستان میں صحت عامہ کے مقاصد کے حصول کے لئے تمباکو کی مصنوعات کی قوت خرید/برداشت کم کرنےکےمواقع اور رکاوٹوں کے بارے میں خیالات اکٹھا کرنا ہے۔

اس تحقیق کا اہتمام کون کررہا ہے؟

یہ تحقیق حلیمہ مسعود صاحبہ کی پی ایچ ڈی ریسرچ کے ایک حصے کے طور پر بنائی گئی ہے جو پاکستان میں تمباکو پرٹیکس اور قیمتوں کا تعین کرنے کی سیاسی معیشت پر توجہ دے رہی ہے۔ اس تحقیق کے لیےان کو پنجاب ایجوکیشنل انڈومنٹ فنڈ (پی ای ای ایف) ، پاکستان کے ذریعے مالی اعانت فراہم کی جاتی ہے۔

حصہ لینے میں کیا شامل ہوگا؟

تحقیق میں حصہ لینے کا مطلب یہ ہے کہ محقق آپ سے انٹرویو لے گا۔ یہ روبرو انٹرویو ہوگا۔ ہم انٹرویو کو ریکارڈ کرنا چاہتے ہیں تاہم اگر آپ آڈیو ریکارڈنگ میں راضی نہیں ہیں تو ہم یہ ریکارڈ کیے بغیر اور صرف تفصیلی نوٹ لے کر کرسکتے ہیں۔ توقع ہے کہ انٹرویو کا دورانیہ۔۴۰- ۶۰منٹ ہو گا۔

ہم کاغذی شکل میں کچھ ذاتی معلومات بھی اکٹھا کریں گے جیسے آپ کی عمر / جنس / ادارہ / اور ملازمت کا تجربہ۔ پاکستان میں تمباکو پالیسی کے میدان میں مختلف اسٹیک ہولڈرز کی حیثیت سے آپ کے خیالات کے بارے میں بھی ایک مختصر سوالنامہ بھرا جائے گا۔

آپ کی شرکت مکمل طور پر رضاکارانہ ہوگی اور آپ کسی بھی وقت اس تحقیق سے دستبردار ہو سکیں گے۔

کیا میراحصہ لینا لازمی ہے؟

نہیں۔ اس تحقیق میں حصہ لینا مکمل طور پر رضاکارانہ ہے اور حصہ نہ لینے کا انتخاب آپ کو کسی طرح متاثر نہیں کرے گا۔ آپ تحقیقاتی ٹیم سے رابطہ کرکے وجہ بتائے بغیر کسی بھی وقت اپنی شرکت واپس لینے کا بھی انتخاب کرسکتے ہیں۔ تحقیق سے دستبرداری کے بارے میں مزید تفصیل بعد میں اس فارم میں فراہم کی گئی ہے۔

اگر آپ حصہ لینے کا انتخاب کرتے ہیں تو ہم آپ سے اس بات کی تصدیق کے لئے رضامندی کے فارم پر دستخط کرنے کو کہیں گے۔

اس تحقیق میں حصہ لینے کے کیا ممکن فوائد ہیں؟

اس تحقیق سے پاکستان میں تمباکو پرٹیکس لگانے اور قیمتوں سے متعلق ہمارے علم میں اضافہ ہوگا۔ ہمیں امید ہے کہ مستقبل میں یہ تحقیق بہتر پالیسی بنانے میں فا ئد ہ مندثابت ہو سکتی ہے۔ آخرمیں اس سے ہماری آبادی میں تمباکو کے نقصانات کم ہوسکتے ہیں اور حکومت کو محصول میں اضافہ ہوسکتا ہے جو قومی ترجیحات پر خرچ کیا جاسکتا ہے۔ اس تحقیق سےآپ کو (انفرادی) براہ راست فوائد نہیں ہیں تاہم آپ کےخیالات اور تجربات پاکستان میں تمباکو ٹیکس اور قیمتوں کا تعین کرنے کے مجموعی عمل کو سمجھنے میں مددگار ثابت ہوسکتےہیں۔

اخراجات اور ادائیگی

شرکت کرنے والے کو تحقیق میں حصہ لینے کے لئے معاوضہ ادا نہیں کیا جائے گا اور وہ اپنے دیے گےوقت کے لیےکسی قسم کی ادائیگی وصول نہیں کریں گے۔

تحقیق میں حصہ لینے کے ممکنہ نقصانات ، مضر اثرات یا خطرات کیا ہیں؟

ہم اس تحقیق میں حصہ لینے پرآپ کے لئے کسی قسم کے نقصان ، مضر اثرات یا خطرات کا امکان نہیں رکھتے ہیں۔ ہم کسی بھی ذاتی اور حساس معلومات پر تبادلہ خیال نہیں کریں گے۔ آپ کا نام اور دیگر ذاتی طور پر قابل شناخت ڈیٹا مکمل طور پر خفیہ ہوگا۔ اگرچہ ہم ان تنظیموں کے ناموں کا ذکر کریں گے جہاں ہماری تحقیق میں حصہ لینےوالے موجودہیں ، لیکن آپ کے خیالات پوری طرح سے گمنام ہوں گے۔ ہم سمجھتے ہیں کہ آپ کا وقت اہم ہے ، ہم کوشش کریں گے کہ آپ انٹرویو کے دورانیےسے سمجھوتہ نہ کریں۔

کیا میرے حصہ لینے کو خفیہ رکھا جائے گا؟

ہاں ، ایسا ہر مرحلے میں کیا جاے گا۔

انٹرویو میں ہم آپ کی رائے کے بارے میں پوچھیں گے ، اور آپ سے پاکستان میں تمباکو ٹیکس لگانے اور قیمتوں سے متعلق پالیسیونیں شامل ہونے یا اس میں شامل نہ ہونے سے متعلق اپنے تجربات کو بتانے کے لئے کہیں گے۔ ہم کوئی حساس یا غیر آرام دہ سوال نہیں کریں گے۔

ہم آپ سے ایک علیحدہ پروفائل شیٹ مکمل کرنے کے لئے کہیں گے جو درج ذیل تفصیلات پوچھے گی۔

آپ کی عمر / صنف / ملازمت کا تجربہ / وابستہ تنظیم کا نام /۔ ان تفصیلات کوپوچھنےسے ہمیں یہ یقینی بنانا ہے کہ ہم پاکستان میں اس میدان میں تمام اہم اسٹیک ہولڈرز کا احاطہ کر رہے ہیں۔

پروفائلنگ ڈیٹا کو انٹرویو سے اکھٹا کی گی معلومات سے الگ رکھا جائے گا۔اور ان تمام معلومات کو گمنام رکھا جائےگا۔

انٹرویوسیشن آڈیو ریکارڈ کیے جائیں گے اور ان کوتحریری نقل میں نامعلوم رکھا جا ئے گا ۔ تحریری نقل بنانےکے بعد آڈیو ریکارڈنگ کو حذف کردیا جائے گا۔ اگر آپ اپنا انٹرویوریکارڈ نہیں کرانا چاہتے تو ہم یا توجب آپ بولنا چاہتے ہوناس وقت ٹیپ کو روک سکتے ہیں یا ہم آپ کو ایک انٹرویو پیش کرسکتے ہیں جہاں صرف نوٹس لئے جائیں گے۔ اگر آپ ہمیناس بارے میں پہلے سے آگاہ کریں تو یہ ہمارے لیےآسان ہوجائے گا۔

ڈیٹا ہینڈلنگ اور شیئرنگ

آپ کا ذاتی ڈیٹا کسی کے ساتھ شیئرنہیں کیا جائے گا۔ مجموعی طور پر کسی بھی طرح کے ڈیٹاکو گمنام کردیا جائے گا ، اور حصہ لینے والے افراد کی تعداد کو کوالٹیٹو انٹرویو کی نقلوں کے لئے استعمال کیا جائے گا۔ تمام اعداد و شمار یورپی یونین جنرل ڈیٹا پروٹیکشن ریگولیشن ۲۰۱۹ کی تمام ضروریات کی تعمیل کریں گے اور یونیورسٹی آف واروک میں ڈیٹا کو محفوظ طریقے سے رکھا جائے گا۔ تمام فائلوں کو پاس ورڈ سے محفوظ اور انکرپٹ کیا جائے گا۔

تمام دستاویزات (یعنی رضامندی کے فارم ، انٹرویو نوٹس ، سوالنامہ) کو سرگرمی کے ایک ہفتے کے اندر اسکین کیا جائےگا، اور پھر اس کو رازداری میں رکھا جائےگا ۔ عبوری عمل میں یہ محقق کی تحویل میں لاکڈ اور محفوظ درازوں میں رکھے جائیں گے۔

میرے بارے میں جمع کردہ ڈیٹا کا کیا ہوگا؟

ڈیٹا اکٹھا کرنے کے بعد ریسرچ ڈیٹا کو جلد سے جلد گمنام کردیا جائے گا۔ اس کا مطلب یہ ہے کہ تحقیق میں حصہ لینے والے افراد کی شناخت کو تحقیقی ڈیٹا سے ہٹا دیا جائے گا اور اس کی جگہ اڈنٹیفیکیشن نمبردیا جائے گا ۔ آپ کی شناخت کو علیحدہ سے محفوظ کیا جائے گا تاکہ آپ کے ریسرچ ڈیٹاکو اچھے طریقے سے محفوظ کیا جا سکے۔

اگر میں تحقیق کا حصہ نہیں بننا چاہوں تو کیا ہوگا؟

آپ کی شرکت مکمل طور پر رضاکارانہ ہے۔ آپ بغیر وجہ بتائے کسی بھی وقت تحقیق سے دستبردار ہونے کا فیصلہ کرسکتے ہیں۔ یہ آپ کو کسی بھی طرح سے متاثر نہیں کرے گا۔

تحقیق سے دستبردار ہونےکا عمل درج ذیل ہے۔

اگر آپ انٹرویو سے قبل دستبرداری کا انتخاب کرتے ہیں تو آپ کی ذاتی معلومات (نام ، تنظیم ، نوکری ، تجربہ ، جنس) ایکسل فائل سے حذف ہوجائیں گی۔

مذکورہ بالا کے علاوہ ، اگر آپ انٹرویو کے آغاز کے بعد تحقیق سے دستبردار ہونے کا فیصلہ کرتے ہیں تو ، آپ کے انٹرویو کی ریکارڈنگ کو حذف کردیا جائے گا اور انٹرویو کے دوران جو بھی تحریری نوٹ لیا گیا ہے اسے خارج کردیا جائے گا۔
اس کے علاوہ ، اگر آپ تحقیق کی تکمیل کے بعد دستبردار ہونے کا فیصلہ کرتے ہیں تو ، تحریری رپورٹس سے حوالہ جات ہٹانے کی ہر ممکن کوشش کی جائے گی۔ تاہم ، اگر یہ تحقیق پہلے ہی شائع ہوجاتی ہے تو یہ ممکن نہیں ہوگا۔
آپ کو دستبردار ہونے کے لئے وجہ بتانے کی ضرورت نہیں ہے

تحقیق کے نتائج کا کیا ہوگا؟
اس تحقیق کے نتائج حلیمہ مسعودصاحبہ کے پی ایچ ڈی تھیسس کا ایک حصہ بنیں گے اور اسے تعلیمی جرائد میں شائع کیا جائے گا اور کانفرنسوں اور پالیسی فورموں میں پیش کیا جائے گا۔ ان اشاعتوں میں صرف آپ کی تنظیموں کی شناخت ہوگی۔ ہم نتائج کو پالیسی بریف کی شکل میں پھیلانے کا بھی ارادہ رکھتے ہیں۔ تاہم ، تمام اعداد و شمار گمنامی میں ہوں گے اور آپ کی رازداری کو یقینی بنایا جائے گا

اس تحقیق کا جائزہ /ریویو کون لے گا؟
یونیورسٹی آف واروک کی بایومیڈیکل اینڈ سائنسی ریسرچ ایتھکس کمیٹی (بی ایس آر ای سی) نے اس تحقیق کا ### جائزہ لیا گیا ہے اور اس کے بارے میں رائے دی ہے۔حوالہ نمبر

اگر میں مزید معلومات لینا چاہوں تو مجھے کس سے رابطہ کرنا چاہئے؟
اگر آپ کے پاس تحقیق کے کسی بھی پہلو ، یا اس میں آپ کی شرکت کے بارے میں کوئی سوال ہے جس کا معلوماتی شیٹ کے ذریعے جواب نہیں دیا گیا ہے تو براہ کرم مندرجہ ذیل پر رابطہ کریں:
(لیڈ سپروائزر) Oyinlola Oyebode
ای میل: O.R.O.Oyebode@warwick.ac.uk
اگر میں شکایت کرنا چاہوں تو مجھے کس سے رابطہ کرنا چاہئے؟
تحقیق کے دوران آپ کے ساتھ جس طرح سے برتاؤ کیا گیا ہے یا کسی بھی ممکنہ نقصان یاشکایت کا ازالہ کیا جائے گا۔ براہ کرم نیچے دیئے گئے فرد سے اپنی شکایت کی نشاندہی کریں ، جو یونیورسٹی کے واروک کے ایک سینئر اہلکار ہیں اور وہ اس تحقیق سے بالکل آزاد ہیں۔
ہیڈ آف ریسرچ گورننس
ریسرچ اینڈ امپیکٹ سروسز
یونیورسٹی ہاؤس
یونیورسٹی آف واروک
کوونٹری
CV4 8UW
ای میل: researchgovernance@warwick.ac.uk
ٹیلیفون: 024 76 522746

اگر آپکو آپ کے ذاتی ڈیٹا کو سنبھالنے کے بارے میں شکایت ہے تو آپ ہمارے ڈیٹا پروٹیکشن آفیسر ، انجلی بجاز اورانفارمیشن اینڈ ڈیٹا ڈائریکٹر سے رابطہ کرسکتے ہیں جو اس معاملے کی تحقیقات کرے گا:
DPO@warwick.ac.uk-
اگر آپ ہمارے جواب سے مطمئن نہیں ہیں یا سمجھتے ہیں کہ ہم آپ کے ذاتی ڈیٹا پر اس طرح کارروائی کر رہے کو شکایت کرسکتے ہیں۔ (ICO) ہیں جو ٹھیک نہیں ہے تو آپ انفارمیشن کمشنر آفس

انفارمیشن لیفلیٹ کو پڑھنے کے لئے وقت نکالنے کے لئے آپ کا شکریہ

آپ کو انفارمیشن شیٹ کی ایک کاپی اور پاس رکھنے کے لئے ایک دستخط شدہ رضامندی فارم دیا جائے گا۔

Appendix 11. Consent form (Urdu)

رضامندی فارم

شناختی نمبر:_____

تحقیق کا عنوان: پاکستان میں تمباکو کی مصنوعات کی قیمت کا تعین اور اس کی قوت خرید/برداشت کے بارے میں اسٹیک ہولڈرز کا نقطہ نظر

محققین کے نام:

حلیمہ مسعود : واروک میڈیکل اسکول میں پی ایچ ڈی کی محقق

Oyinlola Oyebode (واروک میڈیکل اسکول میں لیڈ سپروائزر ، ایسوسی ایٹ پروفیسر)

براہ کرم تمام خانوں کو پر کریں

۱۔ میں اس بات کی تصدیق کرتا /کرتی ہوں کہ میں نے مذکورہ تحقیق کے لئے دیے گے معلوماتی فارم کو پڑھا اور سمجھا ہے۔ مجھے معلومات پر غور کرنے ، سوالات پوچھنے اور اطمینان بخش جواب دینے کا موقع ملا ہے۔ ☐

۲۔ میں سمجھتا /سمجھتی ہوں کہ میری شرکت رضاکارانہ ہے اور میں اپنے قانونی حقوق کو متاثر کیے بغیر ، بغیر کسی وجہ بتائے کسی بھی وقت اس تحقیق سےدستبردار ہونےمیں آزاد ہوں۔ ☐

۳۔ میں سمجھتا / سمجھتی ہوں کہ تحقیق کے دوران میرے حصہ لینے سے متعلق اکٹھا کیا گیا ڈیٹا ، یونیورسٹی آف واروک کے افراد کے ذریعہ دیکھا جاسکتا ہے ۔ میں ان افراد (اکیڈمک سپروائزر) کو اپنے ڈیٹا تک رسائی کی اجازت دیتا ہوں۔ ☐

۴۔ میں اس تحقیق کے مقاصد کے لئے انٹرویو کو آڈیو ریکارڈ کرنے کی اجازت دیتا/دیتی ہوں۔ ☐

۵۔ میں مذکورہ تحقیق میں حصہ لینے پر راضی ہوں۔ ☐

تحقیق میں شرکت کرنے والے کا نام_____

_____ _____

دستخط تاریخ

رضامندی لینے والے کا نام_____ تاریخ_____ دستخط _____

Appendix 12. Interview guide

INTERVIEW GUIDE

Stakeholders' perspectives on pricing and affordability of tobacco products in Pakistan

Focus	Questions/Discussion points/transitions	Probes/notes
Information asymmetries (Tobacco use and control/ تمباکو نوشی اور اس کی روک تھام)	1. How would you personally describe tobacco use in Pakistan? آپ ذاتی طور پر پاکستان میں تمباکو کے استعمال کو کس طرح بیان کریں گے؟	1.1. Extent of tobacco use/different tobacco products تمباکو کے استعمال کی حد / تمباکو کی مختلف مصنوعات 1.2. Tobacco harms تمباکو کے نقصانات 1.3. Contribution to country's economy ملک کی معیشت میں شراکت 1.4. Health costs صحت کے اخراجات 1.5. Sources of information معلومات کے ذرائع
	2. How do you look upon tobacco as a public health issue آپ تمباکو نوشی کو صحت عامہ کے مسلے کے طور پر کس طرح سے دیکھتے ہیں؟	
	3. What are your opinions about tobacco control in Pakistan? پاکستان میں تمباکونوشی کی روک تھام کے بارے میں آپ کی کیا رائے ہے؟	3.1. What kind of interventions are available as tobacco control measures تمباکو کے استعمال کی روک تھام کے لیے کس طرح کے طریقے موجود ہیں؟
	4. What is your own organisation's role if any in tobacco control تمباکونوشی کی روک تھام میں آپ کی اپنی تنظیم کا کیا کردار ہے؟	
Information (Tobacco taxation) تمباکوپر ٹیکسکا اطلاق	5. What is your opinion about using taxation and high prices for tobacco control? تمباکونوشی کی روک تھام کے تمباکوپر ٹیکس اور قیمتوں کو بڑھانے کے بارے میں آپ کا کیا خیال ہے؟	5.1. Effectiveness of tobacco taxation as tobacco control intervention تمباکونوشی کی روک تھام کے لیے تمباکوپر ٹیکس لگانے کی افادیت
	6. What is an optimal tobacco taxation policy according to you? آپ کے مطابق تمباکو ٹیکس کی بہتر پالیسی کیاہو سکتی ہے؟	6.1. Aim/goal مقصد 6.2. Tax level ٹیکس کی سطح 6.3. Tax structure ٹیکس کا ڈھانچہ 6.4. Tax administration ٹیکس لگانے کا انتظام

	7. What can make a tobacco taxation policy successful or a failure? کیا چیز تمباکو ٹیکس ٹیکس پالیسی کو کامیاب یا ناکامی کیا بناسکتی ہے؟	
Structural variables	8. As you mentioned (...Summarizing the points mentioned by informant about optimal taxation policy)... do you think it can work in Pakistan considering the broader political economy of the country and the policy making culture. جیسا کہ آپ نے ذکر کیا ہے.....(انٹرویو دینے والے کے تمباکو ٹیکس کی بہتر پالیسی کےبارے میں بیان کردہ نکات کا خلاصہ بیان کرتے ہوے)کیا آپ کو لگتا ہے یہ سب پاکستان کی وسیع سیاسی معیشت اور پالیسی سازی کی ثقافت میں کام کرسکتا ہے؟	8.1. Political will سیاسی ارادہ 8.2. Economic feasibility معاشی حیثیت 8.3. Tax evasion/illegal market ٹیکس چوری / غیر قانونی مارکیٹ 8.4. Tobacco industry interference تمباکو کی صنعت کی مداخلت
Institutional variables	9. What is your opinion of the current laws and regulations to use tobacco tax as tobacco control? تمباکونوشی کی روک تھام کےلیے تمباکو ٹیکس کو استعمال کرنےپر موجودہ قوانین اور ضوابط کے بارے میں آپ کی کیا رائے ہے؟	9.1. Tax laws (tax rate, collection, estimation of tax level) (ٹیکس قوانین (ٹیکس کی شرح ، وصولی ، ٹیکس کی سطح کا تخمینہ 9.2. Strengths & Weaknesses فوائد اور کمیاں 9.3. Illicit trade ناجائز تجار 9.4. Minimum price law کم سے کم قیمت کا قانون
Stakeholder analysis (اسٹیک ہولڈرز کا تجزیہ)	10. In your opinion/experience who is involved in designing taxation policy/laws for tobacco products in Pakistan? (From agenda setting to approval) آپ کی رائے / تجربےکے مطابق کون افراد پاکستان میں تمباکو کی مصنوعات کے لئے ٹیکس ٹیکس پالیسی / قوانین وضع کرنے میں ملوث ہے؟ (ایجنڈا ترتیب کرنے سے لے کر منظوری تک)	10.1. List as many as possible actors (Go to questionnaire) زیادہ سے زیادہ اداکاروں کی فہرست بنائیں (سوالنامے پر جائیں)
	11. For each actor, including the affiliated organization of the participant ask about: a. Their Role/How do they influence policy b. Their position (Seven point position scale) c. The interest ہر اداکار سے (بشمول شرکت کرنے والے کی منسلک تنظیم کے بارے میں) ان چیزوں کا پوچھیں ا۔ ان کا کردار / وہ پالیسی پر کس طرح اثر ڈالتے ہیں ۲۔ان کی پوزیشن (سات نکاتی پوزیشن اسکیل ۳۔ دلچسپی	11.1. The position and interest of actors---(if a stricter TTPP is introduced) اداکاروں کا مقام اور دلچسپی ---سخت ٹی ٹی پی پی متعارف کرانے کی صورت میں

	12. (Mentioning the position stated by the informant…) a. In what manner would you demonstrate this support/opposition? b. Would this support/opposition be public (Yes/No)? c. Would you take the initiative in supporting/opposing strict taxation policy, or would you wait for others to do so? d. Do you have financial or human resources available to support this policy? e. Which resources are available and how quickly can they be mobilized? f. Would you ally with any other persons or organizations in these actions? Which persons/organizations?	NOTES: Sources of **power**? can be actors' organizational affiliation, rank or official position, finances, technology/knowledge and persuasive power, OR personal connections with industry or politicians) Number of resources they have, 1=few, 2=some, 3=many. The ability to mobilize resources, 1=actor cannot make a decision on using the resources, 2=actor is part of a larger group to make use of the resources, 3=actor alone is able to make use of resources in his/her organization or field. **نوٹ:** **طاقت کے ذرائع؟** (اداکاروں کی تنظیموں سے وابستگی ، عہدہ یا کوئی سرکاری عہدہ ، مالیات ، ٹکنالوجی / علم اور قائل کرنےکی طاقت یا سیاست دانوں سے ذاتی تعلق) ہوسکتے ہے **وسائل کی تعداد** ، 1 = کچھ ، 2 = کچھ زیادہ ، 3 = بہت سے۔ وسائل کو متحرک کرنے کی صلاحیت ، 1 = اداکار وسائل کو استعمال کرنے کے بارے میں فیصلہ نہیں کر سکتا ، 2 = اداکار وسائل کا استعمال کرنےوالے ایک بڑے گروپ کا حصہ ہے ، 3 = اداکار تنہا اپنی تنظیم میں وسائل کا استعمال کرنے کے قابل ہے۔
Historical legacies (تاریخی میراث)	Now I am going to ask you about two recent developments in tobacco taxation policy, I would like to know how do you see/interpret/explain them. اب میں آپ سے تمباکو ٹیکس پالیسی میں حالیہ دو پیشرفتوں کے بارے میں پوچھنے جا رہی ہوں ، میں جاننا چاہوں گی کہ آپ انہیں کس طرح دیکھتے اور سمجھتے ہیں؟	
	13. Recently, prior to 2019-20 budget announcement, a health tax of PKR 10 per pack was approved in the cabinet meeting, but it did not appear in the finance bill or Act. How would you interpret/explain this? حال ہی میں ، ۲۰۱۹-۲۰ کے بجٹ کے اعلان سے قبل 10 روپےفی پیک کا ہیلتھ ٹیکس کابینہ کے اجلاس میں منظور کیا گیا تھا ، لیکن یہ فنانس بل یا ایکٹ میں ظاہر نہیں ہوا تھا۔ آپ اس کی ترجمانی / وضاحت کس طرح کریں گے؟	13.1. Actors/factors involved in pushing it to agenda (and then reversing it) اداکار/ عوامل جو اس کو ایجنڈے میں دھکیلنے اور پھر اس کو واپس موڑنے میں ملوث ہیں 13.2. What about use of under the table deals ٹیبل ٹیل کو استعمال کرنے کے بارے میں کیا خیال ہے 13.3. Tobacco industry interference تمباکو کی صنعت کی مداخلت
	14. Recent decision to move back from three-tiered system to two-tiered, How do you see/interpret/explain this? تین درجے کے نظام سے واپس دو درجے پر جانے کا حالیہ فیصلہ ، آپ اسے کس طرح دیکھتے اور سمجھتے ہیں؟	
Future strategies (مستقبل کی حکمت عملی)	15. You know that the international recommendations (by WHO, World Bank) are to increase tobacco excise duty of at least 70% share in retail price and a flat tax system without price-tiers. Do you think, this could work in existing political economy scenario in Pakistan?	15.1. Facilitators سہولتیں 15.2. Barriers رکاوٹیں

	آپ جانتے ہیں کہ بین الاقوامی سفارشات کے مطابق (ڈبلیو ایچ او ، ورلڈ بینک) خوردہ قیمت میں کم از کم ۷۰ فیصد تمباکو ایکسائز ڈیوٹی کا اضافہ اور قیمتوں کے بغیر فلیٹ ٹیکس نظام میں اضافہ کرنا ہوتا ہے۔ کیا آپ کو لگتا ہے کہ یہ پاکستان میں موجودہ سیاسی معاشی منظرنامے میں کام آسکتا ہے؟	
	16. What could be a workable solution in this regard? اس سلسلے میں قابل عمل حل کیا ہوسکتا ہے؟	

Appendix 13. Stakeholder analysis questionnaire

Stakeholder analysis questionnaire

Date: _____ Participant ID: _____

Time on recorder: _____

S. No.	Actors	Role/How do they influence policy	Position (for a strict tax regimen and high prices)							Interest (for a strict tax regimen to achieve public health objectives)	
			HS	MS	LS	NM	LO	MO	HO	Potential advantages	Potential disadvantages
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Key:

HS: High Support, MS: Medium Support, LS: Low Support, NM: Non-mobilized, LO: Low Opposition, MO: Medium Opposition, HO: High Opposition