The Economics of Tobacco and Tobacco Taxation in Pakistan

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A uniform specific tax that accounts for 70% of average cigarette price could reduce overall cigarette consumption by 7.5%, increase tax revenues by 27.2 billion Rupees, lead to over half a million users quitting and reduce premature deaths among current adult smokers by over 180,000, while also preventing 725,000 youth from taking up smoking.

mpower

Monitor tobacco use and
prevention policies

Protect people from
tobacco smoke

Offer help to quit tobacco use

Warn about the dangers
of tobacco

Enforce bans on tobacco
advertising, promotion
and sponsorship

Raise taxes on tobacco

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Executive Summary

Introduction

Pakistan has one of the largest populations of tobacco users in the world, with over 22 million adults ages 18 or older smoking cigarettes, water pipe, or some other tobacco product. Almost one-third (32.4%) of men and 5.7% of women smoke tobacco, and 15.9% of adult Pakistanis are daily smokers. Despite bans in recent years, millions of adults use some form of smokeless tobacco product, including gutka, naswar and paan.

Youth tobacco use is an emerging problem in Pakistan. Recent surveys of in-school youth ages 13 through 15 years found prevalence rates of current use of some tobacco product between 6.1% in Lahore and 14.1% in Karachi. In locations where these surveys have been conducted multiple times, youth tobacco use is higher in the most recent survey than in earlier surveys. About one in five youth tobacco users consume cigarettes. Also of concern is the relatively high smoking prevalence among girls. If unchecked, there could be significant increases in smoking prevalence among women in future years.

Available data sources suggest that overall cigarette consumption has been rising in Pakistan over most of the past two decades, before falling in recent years, with per capita cigarette smoking rising by over 85% between 1993 and 2007. In more recent years, declines in per capita consumption have accompanied rising cigarette taxes and prices coupled with the implementation of stronger tobacco control policies.

Given high levels of tobacco use, Pakistan faces considerable health and economic consequences from tobacco. Over 100,000 deaths are attributed to tobacco use each year, with the majority of these deaths resulting from lung and other cancers, strokes, ischemic heart and other cardiovascular diseases, and respiratory diseases. Increasing incidence of oral cancer resulting from smokeless tobacco use is of particular concern and led to a ban on the sale and purchase of certain smokeless products in parts of the country (gutka and Mainpuri in Sind province in 2011). While country-specific estimates are not available, the death and disease caused by tobacco use imposes significant economic costs, including the costs of health care services to treat the diseases caused by tobacco use and the lost productivity that results from absences and premature death among tobacco users.

Tobacco growing and manufacturing

Pakistan was the 10th largest tobacco growing country in the world in 2011, producing more than 100,000 tonnes of tobacco, continuing a long-time slow upward trend in tobacco growing. Tobacco is grown throughout the country, with more than three-quarters of the country's tobacco grown in the Khyber Pakhtunkhwa province (KPK); other key growing areas are located in Punjab and Balochistan. Pakistan is a net exporter of tobacco leaf, but most tobacco grown in the county is used in local tobacco product manufacturing. Employment in tobacco farming accounts for only 0.4–0.5% of agricultural employment in Pakistan.

The cigarette market in Pakistan, as in much of the world, is highly concentrated, with two companies controlling 98% of the market. Pakistan Tobacco

> **Over 100,000 deaths are attributed to tobacco use each year in Pakistan, with the majority of these deaths resulting from lung and other cancers, strokes, ischemic heart and other cardiovascular diseases, and respiratory diseases.**

Company, a subsidiary of British American Tobacco, is one of the oldest tobacco companies in Pakistan and controls 55% of the market currently. In the early 2000s, Lakson Tobacco Company had more than 50% market share. Since 2007, Lakson Tobacco Company has been almost wholly owned by Philip Morris International, and in 2011 it was renamed Philip Morris Pakistan Ltd.; it currently controls 43% of the market. There are several smaller, domestic cigarette companies producing in Pakistan, at least some of which evade taxes by underreporting production and/or manufacturing counterfeit cigarettes. Very few Pakistanis are involved in cigarette manufacturing, with employment in cigarette manufacturing accounting for less than 0.1% of overall manufacturing employment in Pakistan.

Tobacco control efforts

The WHO's Framework Convention on Tobacco Control (FCTC), the world's first public health treaty, calls for governments to adopt comprehensive policies to curb tobacco use. Pakistan signed the FCTC on 18 May, 2004, and ratified it later that year, on 3 November, 2004. Pakistan's participation in the FCTC has resulted in some advances in tobacco control policy, mostly through increasingly strong Statutory Rules and Orders (SROs).

Smoking has been restricted in a variety of public places and private workplaces in Pakistan since 2002, with the country's smoke-free policy significantly strengthened in 2009 by the roll back of an SRO that had allowed for the creation of designated smoking areas. Enforcement, however, remains weak and compliance is low. Textual warning labels have been required for decades and have gradually gotten stronger and more specific over time. In 2010, an SRO replaced the text warning with a rotating, graphic warning label that is required to cover 40% of the front and back of cigarette packs. A 2002 ordinance restricted but did not comprehensively ban a variety of

tobacco product advertising, while a 2009 SRO prohibited some promotional activities. In 2011, legislation requiring minimum pack sizes was implemented. Pakistan has a national agency for tobacco control and tobacco prevention is a national objective, but the agency has limited staff and resources.

While progress has been made in strengthening Pakistan's tobacco control policies, these policies fall short of the strong, comprehensive policies recommended by WHO in guidelines for the various articles of the FCTC and the existing policies are often poorly implemented and enforced, but do appear to be having a small impact on tobacco use in Pakistan.

Tobacco taxes, prices and demand

A 2013 tax structure change resulted in a two-tiered cigarette tax structure. A tax of either 880 or 2335 Rupees per 1000 sticks is levied depending on whether retail price (price before the addition of value added tax) is less than or greater than Rs 2286 per 1000 sticks. The system replaced an even more complicated structure that imposed a specific excise tax on low-priced cigarettes, an *ad valorem* excise tax on high priced brands, and a combination of specific and *ad valorem* taxes on mid-priced brands. Tax incidence rises across the price tiers and cigarette excise taxes in Pakistan account, on average, for just over half of final cigarette prices paid by users, while total taxes on cigarettes account for almost two-thirds of final consumer prices. This is below the level in countries that have taken a comprehensive approach to reducing tobacco use, where taxes account for 70% or

Low taxes coupled with very low manufacturers' prices result in cigarette prices in Pakistan being among the lowest in the world.

more of price and well below the 70% excise tax share in final cigarette price recommended by WHO. The low taxes coupled with very low manufacturers' prices result in cigarette prices in Pakistan being among the lowest in the world. Moreover, infrequent increases in taxes have led to falling real cigarette prices for much of the past two decades. Additionally, increases in real incomes over this time have made cigarettes increasingly affordable. Recent tax and price increases have reversed these trends, with real prices rising and cigarette affordability falling over the past few years contributing to declines in per capita cigarette consumption in Pakistan.

Extensive research from a growing number of countries has documented the inverse relationship between tobacco product prices and consumption. Pakistan is no exception. Existing evidence as well as new estimates produced for this report reiterate the finding that falling cigarette prices lead to increases in smoking, while rising prices reduce smoking, all else constant. These estimates indicate that a 10% increase in average cigarette prices in Pakistan will lead to an almost 5% reduction in cigarette consumption. In addition, new evidence produced for this report shows that rising incomes will lead to significantly more smoking in Pakistan, consistent with the existing empirical evidence for most low- and middle-income countries.

Impact of tax increases on public health and tax revenues

Based on existing and new estimates, we modeled the impact of changes in the existing tax structure and rates. Eliminating the tiered tax structure and adopting a uniform specific excise tax of 31.2 Rupees per pack of 20 cigarettes, so that the cigarette excise tax would account for 70% of final prices, as recommended by WHO would raise average prices by over 15% percent and reduce cigarette consumption by 7.5%. In

Eliminating the tiered tax structure and adopting a uniform specific excise tax of 31.2 Rupees per pack will lead over half a million current Pakistani cigarette smokers ages 18 and older to quit smoking, while preventing almost 725,000 youth under 18 from taking up cigarette smoking.

addition, this tax and price increase will lead over one-half million current Pakistani cigarette smokers ages 18 and older to quit smoking, while preventing almost 725,000 Pakistani youth under 18 from taking up cigarette smoking. Together, these reductions in smoking will prevent over half a million premature deaths caused by tobacco use in the current population cohort. At the same time, because of the inelasticity of cigarette demand, the tax increase will generate over 27 billion Rupees (US$0.3 billion) in new cigarette tax revenues. A larger tax increase — one that taxes all brands at the highest current tax applied of 44 Rupees per pack of 20 cigarettes — would have a much greater public health impact, while generating even higher revenues.

Recommendations

Given this evidence, we make the following recommendations:

1. Adopt a high uniform specific cigarette excise tax that significantly raises cigarette prices and reduces tobacco use.

2. Implement annual adjustments to tobacco tax rates so that they retain their real value over time and are not eroded by inflation.

3. Implement annual adjustments to tobacco excise tax rates so that they result in increases in tobacco product prices that are at least as large as increases in per capita incomes.

4. Increase taxes on other tobacco products to be equivalent to cigarette taxes and to reduce the use of these products.

5. Strengthen tobacco tax administration, increase enforcement, and tax duty free sales of tobacco products in order to reduce tax evasion and avoidance.

6. Earmark tobacco tax revenues for health purposes, including health promotion and tobacco control.

I. Introduction

Tobacco smoking and other forms of tobacco use impose a large and growing public health burden globally and in Pakistan. Globally, tobacco use currently causes 5.4 million premature deaths each year, and if current trends are unchecked, one billion people will die from tobacco use in the 21st century.[1] Tobacco use imposes considerable economic costs, both in terms of the health care expenses incurred to treat the diseases caused by tobacco use and from the lost productivity resulting from tobacco-related illnesses and premature death. Pakistan is one of the largest tobacco consuming countries in the world, with over 22 million persons ages 18 and older smoking tobacco products.[2] Tobacco smoking in Pakistan is split among a variety of different products, with many consuming manufactured cigarettes, while others consume, water pipe, and/or other tobacco products. Men are much more likely to smoke than women, with smoking prevalence among men at 32.4% as compared to 5.7% among women. Despite a subnational ban, smokeless tobacco product use is widespread, with smokeless users consuming gutka, naswar, and paan. In addition, a significant number of Pakistani youth are taking up tobacco use — 17.5% of boys and 9.6% of girls ages 13 through 15 in Karachi were found to use some tobacco product.[3]

The growing recognition of the health and economic consequences of tobacco use have led many in civil society to call for the adoption and implementation of strong tobacco control measures, prompting policy makers to introduce a variety of legislation. To date, however, these efforts have been met with strong opposition from the tobacco industry and existing policies are limited and often poorly complied with. While the country has signed and ratified the WHO Framework Convention on Tobacco Control,[4] much progress remains on meeting the obligations and guidelines of the treaty.[5] Smoke-free policies are relatively comprehensive and cover health care and educational (including university) facilities, government buildings, indoor workplaces, restaurants, public transport and other indoor public places, but compliance with these policies is low. Tobacco advertising is allowed on television and radio, in local magazines and newspapers, on billboards and outdoors, and at the point of sale. Tobacco company sponsorship of public events is banned, as are promotional discounts. Distribution of free samples is allowed. Graphic health warnings are required on cigarette packages, but other constraints on packaging and labeling have not been adopted. Tobacco excise taxes have increased over time, but tobacco products have become more affordable over time and significant tax increases have not been adopted to curb tobacco use. The existing tax structure is complex, keeping some products relatively inexpensive while creating opportunities for tax avoidance and tax evasion. The cigarette market in Pakistan is almost entirely controlled by two firms — the Pakistan Tobacco Company, Ltd., a subsidiary of British American Tobacco (BAT), and Philip Morris Pakistan, Ltd.

In this report, we briefly describe the tobacco environment in Pakistan, beginning with a discussion of tobacco use and its health and economic consequences, followed by a brief review of the supply of tobacco and tobacco products. Given available data, most of the discussion focuses on manufactured cigarettes. We then provide a short description of tobacco control policies in Pakistan followed by a more detailed discussion of tobacco taxes and prices. Existing evidence on the effects of prices on tobacco use is presented and this evidence is used to estimate the impact of alternative tax increases on consumption, excise tax revenues, tobacco use prevalence, and future deaths from tobacco use among those in the current population cohort. The report concludes with recommendations for future tobacco tax policy in Pakistan.

Endnotes to Chapter I

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II. Tobacco Use and its Consequences in Pakistan

Pakistan is one of the largest tobacco consuming countries in the world. Tobacco is consumed in many forms in Pakistan, including smoking of manufactured cigarettes, and waterpipe (shisha), and chewing of gutka, naswar and paan. Cigarettes account for most of smoked tobacco consumption. Limited survey data suggest that overall smoking prevalence has been flat in Pakistan since the mid-1990s, while cigarette consumption has been rising. Initiation of tobacco use appears to occur at relatively older ages in Pakistan, but a large number of Pakistani youth have tried smoking and many consume tobacco products. This section provides some background on Pakistan, and describes the levels of and trends in tobacco use and the resulting health and economic consequences.

Country Profile

The Islamic Republic of Pakistan is divided into four provinces (Punjab, Sindh, Khyber Pakhtunkhwa (KPK; previously known as the Northwest Frontier Province (NWFP)), Balochistan) in addition to the Islamabad Capital Territory, two autonomous territories (Azad Kashmir and Gilgit-Baltistan) and the Federally Administered Tribal Areas. Below this, there are 27 divisions, over 100 districts or zillahs, and over 400 sub-districts or tehsils. Pakistan is a rapidly developing market economy with a growing share of service and industry sectors.

Pakistan's estimated population in 2013 is over 193 million and the country is ethnically diverse. The population is relatively young, with over 45% under the age of 20 years compared to just over 4% ages 65 years or older. With per capita national income of US$1290 in 2012, Pakistan is classified by the World Bank as a lower-middle-income country. Economic growth in Pakistan, however, has been steady in recent years, with an average annual growth rate of over 3.9% in GDP between 2006 and 2011. Poverty rates have fallen over time with economic development. 22.3% of the country was estimated to live in poverty in 2006. Literacy is low but improving, with the literacy rate in 2009 estimated at 54.9% for those ages 15 years and older.

Adult Tobacco Use

Based on data from the World Health Survey conducted in 2003,[2] 19.1% of Pakistanis ages 18 and older smoke some type of tobacco product, with 15.9% reporting daily smoking. Men are nearly six times as likely to smoke as women, with prevalence rates of 32.4% and 5.7%, respectively. Most smokers consume manufactured cigarettes, with daily cigarette smoking prevalence of 10.2% among adults, including 18.1% among men and 1.8% among women. While detailed national data is not available, studies find that many Pakistani adults smoke other forms of tobacco, including water-pipe. One recent study for Rawalpindi found that among daily tobacco users, 13.5% used a smokeless tobacco product and 18% smoked water-pipe. Given estimates of the population ages 18 and older in 2012 of over 115 million, the national prevalence rates suggest that there are nearly 22.1 million adult smokers in Pakistan and millions more who chew some form of tobacco, primarily gutka, naswar, and paan.

Smoking prevalence in Pakistan has been assessed only twice in the past two decades — in 1994 and 2003.

As reported in the World Health Survey conducted in 2003, 19.1% of Pakistanis ages 18 and older smoke some type of tobacco product, with 15.9% reporting daily smoking. Prevalence rates among men are as high as 32.4%.

Survey methods and samples varied between the surveys, but the data suggest that smoking prevalence has been largely flat among Pakistani adults over time. In 1994, 28.5% of men ages 15 and older reported daily smoking, while 27.3% of men ages 18 and older in 2003. Similarly, daily smoking prevalence among women ages 15 and older was 3.4% in 1994, compared to 4.4% among women ages 18 and older in 2003.

About one in six smokers smoke less than daily, with women smokers more likely to smoke less than daily than male smokers. About two-thirds of daily male smokers are cigarette smokers. Most smokeless tobacco use is in the form of gutka, smuggled in from India, and naswar, which is largely produced illegally at home or in small local factories.[6] About 70% of smokeless tobacco users are males, and 30% females; smokeless tobacco users are older on average.[6]

As in high-income countries, as well as a growing number of low- and middle-income countries, adult smoking prevalence in Pakistan is lowest among those with the highest socioeconomic status, as shown in Graph 2.1.

Smoking initiation appears to occur at later ages in Pakistan than in many other countries, with prevalence rates peaking in middle age for both men and women, as shown in Graph 2.2. In addition, smoking prevalence is higher in rural areas than in urban areas. Cigarette consumption per smoker is relatively modest, with the average daily male smoker smoking 8.5 cigarettes per day and the average daily female smoker consuming 4.3 cigarettes per day.

Youth Tobacco Use

Youth tobacco use is an emerging problem in Pakistan. The Global Youth Survey has been conducted in multiple locations in Pakistan, including twice in some locations (Graph 2.3). The prevalence of current tobacco use among in-school youth ages 13 to 15 years varies considerably by location, with rates ranging from

The prevalence of current tobacco use among in-school youth ages 13 to 15 years ranges from 6.1% in Lahore to 14.1% in Karachi in the 2008 surveys.

Graph 2.1: Smoking Prevalence by Income Quintile, Pakistan, 2003
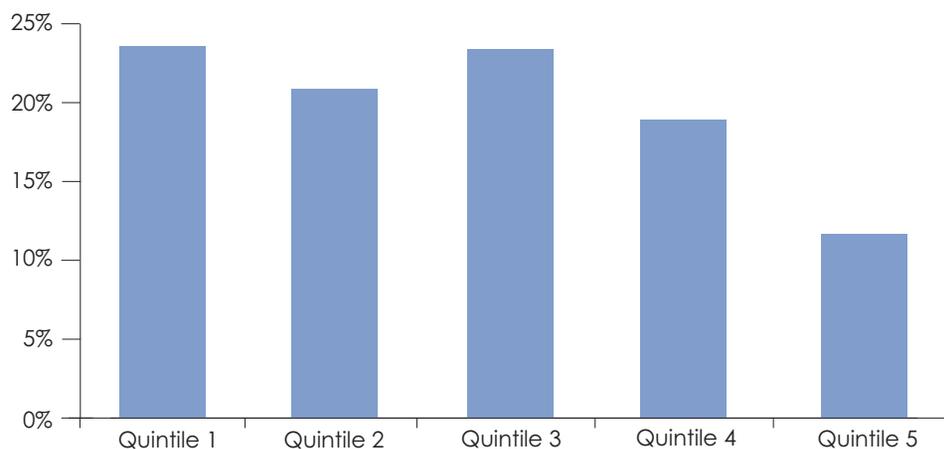
Source: WHS, 2003.

Graph 2.2: Smoking Prevalence, by Age and Gender, Pakistan, 2003
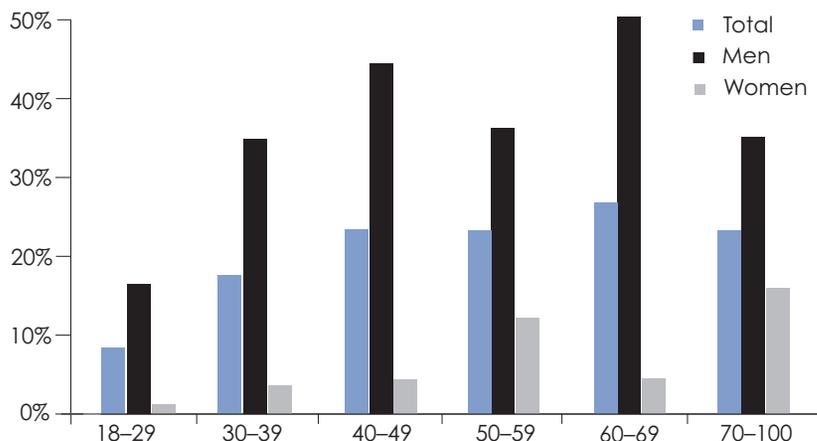
Source: WHS, 2003.

**Graph 2.3: Prevalence of Current Tobacco Use, 13–15 Year Olds, by Gender, Pakistan**
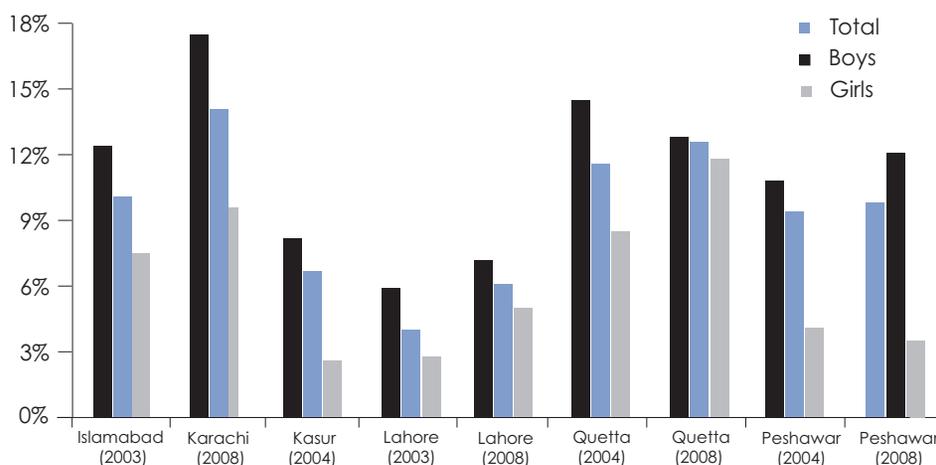
Source: GYTS, various years.

6.1% in Lahore to 14.1% in Karachi in the 2008 surveys. Data from locations surveyed more than once suggest that tobacco use is rising among Pakistani youth. Current tobacco use prevalence among Lahore youth rose from 4% in 2003 to 6.1% in 2008. Most tobacco use by youth is of smokeless products rather than cigarettes.[3]

Boys are more likely to use tobacco products than girls, particularly when it comes to cigarette smoking.

A related concern is the relatively high prevalence of smoking among girls in the various GYTS done in Pakistan. Girls are just over half as likely to report tobacco use, on average, in the various GYTS, with the gap in tobacco use prevalence rates for girls and boys much smaller than that for prevalence among women and men. If similar patterns persist, the relatively high prevalence rates among 13 to 15 year old girls suggest

that future tobacco use prevalence rates among women may be higher than they are currently.[7]

Also of concern are the high rates of youth exposure to secondhand smoke, with more than one-fifth of youth reporting having been exposed at home, and about one in three reporting being exposed to tobacco smoke outside the home. The vast majority of youth surveyed before 2008 were unaware of the risk of exposure to secondhand smoke, but more than half of youth surveyed in 2008 did agree that being exposed to tobacco smoke was harmful to them. In all surveys, a significant majority of youth supported a comprehensive ban on smoking in public places.

Exposure to tobacco company advertising is high, with about two in three Pakistani youth reporting seeing billboard advertising and ads in newspapers or magazines in the month prior to the survey. Exposure to other tobacco marketing is lower and falling. About one in five youth surveyed in earlier years reported being offered free cigarettes, but by 2008, this was down by more than half. Relatively few Pakistani youth report owning cigarette branded merchandise. Tobacco industry messages appear to be at least partly offset by mass-media and school based education programs, with more than three-fourths of youth reporting that they have seen anti-smoking messages in the media in the past month and more than half reporting having been taught in school during the past year about the dangers of smoking.

Cigarette Consumption

Cigarette consumption has been rising in Pakistan for most of the past two decades, both in the aggregate and per capita.[8,9] Between 1997 and 2008, aggregate cigarette consumption rose by nearly 55%, before peaking in 2008 at over 76 billion cigarettes (Graph 2.4). Per capita consumption rose by nearly 23% between 1997 and its peak in 2007 (Graph 2.4). In recent years cigarette consumption has begun to fall in Pakistan. In country after country, declines in tobacco

Exposure to tobacco company advertising is high in Pakistan, with about two in three surveyed youth reporting seeing billboard advertising and ads in newspapers or magazines in the month prior to the survey.

use prevalence are associated with stronger tobacco control policies.

Virtually all cigarettes sold in Pakistan are filter-tipped, and about 85% of these use Virginia tobacco; an additional 10% use an American blend of tobacco.[6] Mid tar brand cigarettes account for about 90% of the market, while low tar brands account for less than 4% of the market. Few Pakistani cigarette smokers smoke menthol brands, which account for only 4% of the market. In 2010, about 60% of cigarettes were sold in packs of 20, with 10-packs accounting for 30% of the market and 14 packs accounting for the remainder. The sale of cigarette packs containing less than 20 sticks has since been banned in Pakistan (with effect from October 1, 2011).

Health and Economic Consequences of Tobacco Use

Currently, tobacco use causes nearly six million deaths per year worldwide — more than one in ten adult deaths. About 70% of current tobacco-attributable deaths occur in low- and middle-income countries.[10] In an extensive study in India, the proportion of tobacco-attributable deaths occurring at

Between 1997 and 2008, aggregate cigarette consumption rose by nearly 55%, before peaking in 2008 at over 76 billion cigarettes. Per capita consumption rose by nearly 23% between 1997 and its peak in 2007.

Graph 2.4: Aggregate and Per Capita Cigarette Consumption, Pakistan, 1997–2010
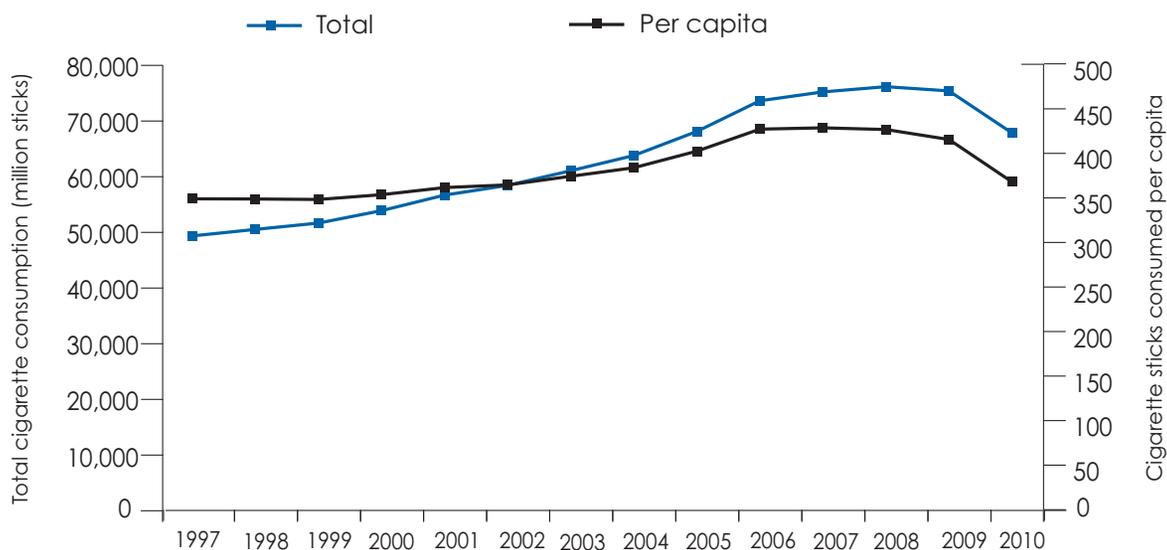
Source: Euromonitor International, 2012.

ages 30–69 was established at 70%.[11] Given current trends, tobacco-attributable deaths are expected to rise to 8.3 million by 2030.[12] While deaths caused by tobacco are expected to fall in high-income countries, they are expected to double to 6.8 million in low- and middle-income countries by 2030.[11]

Globally, about half of all tobacco deaths occur between the ages of 35 and 69, resulting in a loss of 20 to 25 years of life for smokers versus nonsmokers.[10] Smoking cessation, however, is effective in reducing the health consequences of smoking, with those who quit before middle age avoiding almost all of the excess health risks associated with continued smoking.[10,13] Recent studies from high income countries find that those who quit before age 40 avoid about 90% of the excess mortality risks of continuing to smoke, and that continuing smokers face a loss of one decade of life.[14–18]

In Pakistan, tobacco use is estimated to kill over 100,000 people each year.[19]* As in other countries, the

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majority of these deaths result from lung and other cancers, strokes, ischemic heart and other cardiovascular diseases, and respiratory diseases. Of particular concern are the high rates of oral cancer, with the Pakistan Medical Association reporting 1.5 million and rising cases, including many among children under the age of 12 years, resulting from gutka and other smokeless tobacco use.[20]

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* A different estimate suggests a higher toll of as many as 360,000 deaths a year.[6]

> **The Pakistan Medical Association reported 1.5 million and rising cases of oral cancer, including many among children under the age of 12 years, resulting from gutka and other smokeless tobacco use.**

Given the numerous diseases caused by tobacco use, the health care costs of treating these diseases are substantial. In addition to the sizable health care costs resulting from tobacco use, the premature deaths and disability caused by smoking result in significant lost productivity. In most high-income countries, these costs are about the same or slightly higher than the health care costs caused by smoking.[21]

To date, there are no studies that have estimated the economic costs of tobacco use in Pakistan.

Estimates for Bangladesh and India may provide some insight into the likely magnitude of the economic costs in Pakistan. A very conservative estimate of the economic costs of tobacco use in Bangladesh in 2004 is US$1.85 billion, over 3% of GDP in 2004.[22] Similarly, in India in 2004, the estimated health care costs of treating diseases caused by tobacco use were US$1.3 billion, with an additional US$502 million in lost productivity costs.[23] Together, these costs accounted for over 0.7% of GDP in India in 2004, almost certainly a significant underestimate given that the economic cost estimates were based on four major categories of tobacco-related diseases.

Tobacco use also has a distributional dimension given that it is more prevalent among groups with lower socioeconomic status in Pakistan. In addition to the greater burden of disease, increased health care spending, and lost productivity incurred by those most economically vulnerable, poor households' spending on tobacco diverts resources from other needs.

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III. Supply of Tobacco and Tobacco Products in Pakistan

Pakistan was the 10th largest tobacco growing country in the world in 2011, producing just over 100,000 tonnes of tobacco.[24] Tobacco is grown throughout the country, with more than three-quarters of the country's tobacco grown in the KPK (NWFP). Other important tobacco growing areas are located in Punjab and Balochistan. Pakistan is a net exporter of tobacco leaf, but most tobacco grown in Pakistan is used in local tobacco product manufacturing.

The cigarette market in Pakistan, as in much of the world, is highly concentrated. Pakistan Tobacco Company, Ltd. (PTC) a subsidiary of British American Tobacco (BAT) is the largest and one of the oldest tobacco companies in Pakistan. After many years as a minority stakeholder in Lakson Tobacco Company, Ltd. (LTC), Philip Morris International (PMI) acquired nearly complete control of LTC in 2007, and, in 2011, renamed itself Philip Morris (Pakistan) Limited (PMPKL). Together, the two control 98% of the cigarette market in Pakistan. Many small, local cigarette manufacturers account for the remainder.

This section briefly describes the supply side of the tobacco leaf and cigarette markets in Pakistan, highlighting changes over time in these markets.

Tobacco Farming

Tobacco has been grown in Pakistan for many years, with Flue Cured Virginia, Burley, and Dark Air Cured Virginia varieties grown for use in cigarette manufacturing. Light Sun Cured Virginia tobacco is primarily grown for use in water pipes, while Dark Sun Cured Rustica Tobacco is used for naswar. Tobacco is grown throughout the country, but the majority of tobacco is grown in the KPK (NWF), which accounts for more than three-fourths of the overall production. Much

> **In 2010, the acreage devoted to tobacco growing accounted for only 0.27% of acreage for all crop production and, in 2009, the value of the tobacco grown was only 0.44% of the value of all agricultural production.**

of this comes from the Swabi, Mardan, and Charsadda districts. Tobacco is grown elsewhere in Pakistan, including in the Punjab and Balochistan provinces. While widely grown, tobacco is a relatively minor crop in agriculture as a whole in Pakistan. In 2010, the acreage devoted to tobacco growing accounted for only 0.27% of acreage for all crop production and, in 2009, the value of the tobacco grown was only 0.44% of the value of all agricultural production.[24]

The acreage devoted to tobacco growing in Pakistan peaked in the late 1960s, before East Pakistan gained independence and became Bangladesh. For the past 25 years, acreage devoted to tobacco growing has trended upwards, albeit unevenly (Graph 3.1). In 2011, tobacco was grown on just over 51,000 hectares, up over 31% from a low of just under 39,000 hectares in 1987.[24] Over time, with productivity gains, the quantity of tobacco grown has increased more rapidly than acreage devoted to tobacco growing. In 2011, over 100,000 tonnes of tobacco were grown in Pakistan, up almost 50% from a low of just over 69,000 tonnes in 1987 (Graph 3.1).[24]

As shown in Graph 3.2, trade in tobacco leaf both into and out of Pakistan has increased in recent years, but is relatively small in comparison to domestic tobacco growing. Pakistan is not a major player in global tobacco leaf markets. Exports accounted for about 4% of the tobacco grown in Pakistan in 2009, while imports are just over half that quantity.

Graph 3.1: Tobacco Agriculture, Pakistan, 1972–2011
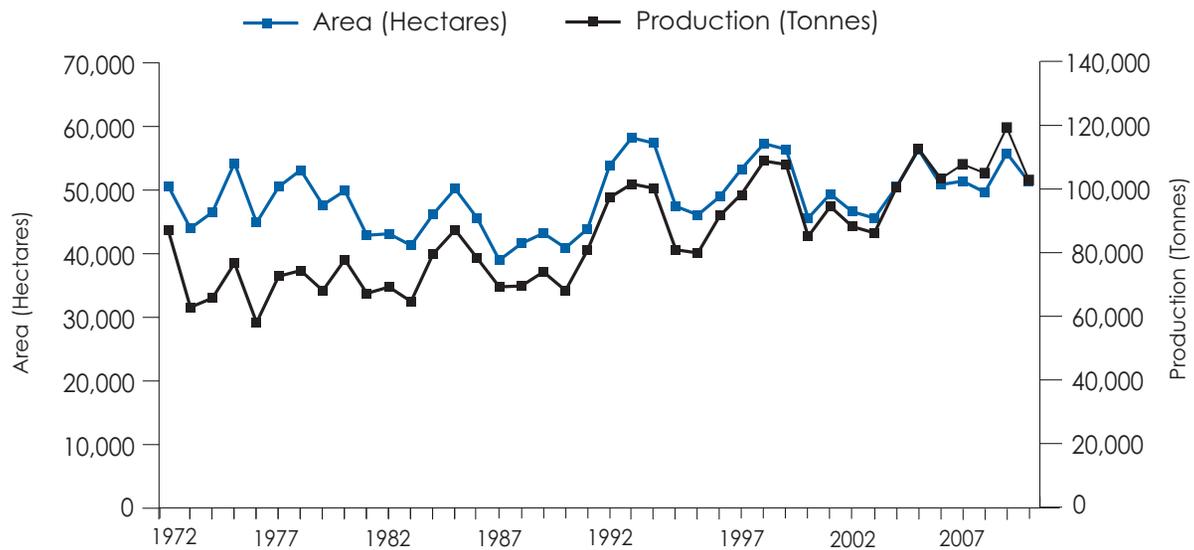
Source: FAOSTAT, 2013

Graph 3.2: Tobacco Leaf Imports and Exports, Pakistan, 1980–2010
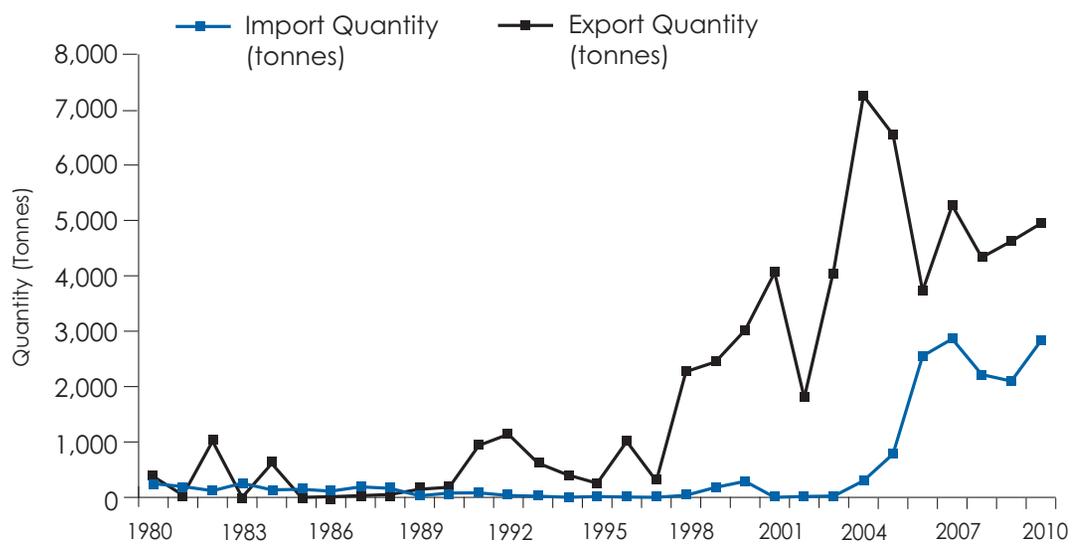
Source: FAOSTAT, 2013

Between 70,000 and 80,000 people are estimated to be employed in tobacco growing. Given that over one-third of the more than 43 million-strong labor force in Pakistan work in the agricultural/fishery sector, tobacco growing accounts for about 0.4–0.5% of the agricultural labor force.

Tobacco growing and marketing is controlled by the Pakistani government through the Pakistan Tobacco Board (PTB), created in 1968. The PTB determines how much tobacco is needed by tobacco product manufacturers and what farmers' average costs are for growing tobacco, then uses this information to set prices for tobacco leaf and quotas for tobacco growing. In recent years, however, farmers have complained that the PTB, under pressure from tobacco companies, has underestimated the costs of tobacco growing and, as a result, set the tobacco leaf support price too low.[25,26] This has led at least some tobacco farmers to begin growing other products. While policies support tobacco farming, programs that would help tobacco farmers make the transition to other economically viable alternative livelihoods are lacking.

Cigarette Manufacturing

Cigarette manufacturing is highly concentrated in Pakistan, as it is in most countries around the world. The Pakistani cigarette market is dominated by two firms — Pakistan Tobacco Company Limited (PTC) and Philip Morris Pakistan Limited (PMPKL). PTC was established in 1947 from the Imperial Tobacco Company of India, after the partition of Pakistan and India, and is an almost wholly owned subsidiary of British American Tobacco (BAT). In 2011, PTC controlled 55% of the cigarette market in Pakistan.[20] PTC sells a variety of brands in each of the three price segments that make up the market, but is strongest in the premium and mid-priced segments. PTC's leading premium brands include John Player Gold Leaf, Benson & Hedges, Dunhill, and Gold Leaf Special. Its mid-priced brands include Pall Mall, Capstan Filter, and Gold Flake, while Embassy King and Embassy Filter are its key low-priced brands.

PMPKL (formerly LTC) has traded places with PTC over the years as the market leader in the Pakistani cigarette market. Lakson Tobacco Company Limited, a long-time family held cigarette producer in Pakistan, merged with Premier Tobacco Industries Limited (controlled by PMI) in 1997 to create the Lakson Tobacco Company. In 2011, PMPKL controlled 43% of the cigarette market in Pakistan.[20] PMPKL is strongest in the low-priced market segment, with its Morven Gold, L&M, Diplomat, Red & White, and K-2 brands. Marlboro is its main premium brand.

There are a number of other smaller domestic cigarette companies operating in Pakistan, including Saleem Cigarette Industries Pvt Ltd., Universal Tobacco Company Ltd., Souvenir Tobacco Company Ltd., Barah Tobacco Company, Alfridi Tobacco, and Tatara Tobacco.[9] Reported production by these companies has been well below potential production and at least some have been found to be evading taxes by underreporting production and/or producing counterfeit cigarettes.[9]

Table 3.1: Cigarette Company Market Shares, Pakistan, Selected Years, 2000–2011

Company	2000	2002	2004	2006	2008	2009	2011
PTC	41.5%	42.8%	47.6%	42.0%	47.3%	48.5%	55%
LTC/PMPKL	50.7%	51.7%	48.1%	47.6%	42.2%	41.0%	43%
Others	7.8%	5.5%	4.3%	10.4%	10.5%	10.5%	2%

Source: ERC Group, 2009.

The dominance of PTC and PMPKL is reflected in brand shares in the Pakistani cigarette market, as shown in Table 3.2. PTC's top two brands — Capstan by Pall Mall and Gold Flake — account for 43% of the market, while PMPKL's top two brands — Red & White, king size filter and Morven Gold — account for 37% of the market. Together, the top 4 brands account for about 80% of cigarette consumption in Pakistan.

Virtually all cigarettes produced and sold in Pakistan are king sized and filter-tipped, and most (85.7%) are mid-tar brands.[8] Prior to October 2011, less expensive cigarette brands were more often sold in packs of 10 or 14, but a ban on sales of packs with fewer than 20 cigarettes was implemented in 2011. The cigarette market in Pakistan is dominated by two brands, Morven Gold and Gold Flake in the lower and mid-priced segments, which also bear some of the lowest excise tax levels and rates. Capstan was rebranded in 2010 as Capstan by Pall Mall and repositioned at a lower price point.

Pakistan does modest trade in cigarettes. Imports have grown over time, accounting for nearly 5% of consumption by 2010. In contrast, exports have risen a bit in recent years, after falling steadily in earlier years.

In 2010, 4% of cigarettes produced in Pakistan were exported. Most cigarette imports come from Singapore, the United States, Malaysia and the Philippines, while most exports are made to Guinea and Sierra Leone.

Tobacco products are sold through a variety of channels in Pakistan, with small vendors accounting for most sales. Almost one-third of cigarettes are sold by street vendors and another more than one-third by convenience stores and news/tobacco stands and kiosks.[8] The significant presence of these informal distribution channels creates opportunities for tax avoidance and evasion, as described below. Most of remaining sales take place through supermarkets, groceries, and non-retail channels.

In Pakistan in 2008/09, about 13% of overall employment — 5.6 million persons — was in manufacturing. According to company websites, PMPKL employs about 2,500 persons in its factories and sales offices, while PTC employs about 1,700 in its factories. Assuming other cigarette companies employ numbers comparable to their relative market shares, total employment in cigarette manufacturing is likely to be less than 5,000, or less than 0.1% of manufacturing employment in Pakistan.

Table 3.2: Cigarette Brand Shares, Pakistan, 2012

Brand	Company	Market Share
Capstan by Pall Mall	PTC	23%
Gold Flake	PTC	20%
Red & White, KSF	PMPKL	20%
Morven Gold	PMPKL	17%
Others	---	20%

Source: FBR, Pakistan, 2013

Endnotes for Chapter III

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IV. Tobacco Control in Pakistan

In addition to the substantial public health burden caused by tobacco, a strong economic rationale exists for government intervention to reduce tobacco use.[10,27] This section reviews the market failures that provide the economic rationale for government intervention to reduce tobacco use and describes the tobacco control environment in Pakistan.

Rationale for Government Intervention

The notion of consumer sovereignty — the principle that an individual makes the best choices for himself or herself — depends on two key assumptions: that an individual fully understands the costs and benefits of these decisions and that an individual bears all of the costs and receives all of the benefits of his or her decisions. Tobacco use clearly violates both of these assumptions, resulting in market failures that justify government intervention.[10,27]

In general, consumers have imperfect information about the health and other consequences of tobacco use. Many users do not fully understand the health hazards associated with tobacco use, and those who do have a general understanding of the risks do not adequately internalize these risks.[10] This is likely to also hold true in Pakistan, where many smokers are less than fully aware of the health consequences of smoking. Data on knowledge about the health consequences of tobacco use are not available for Pakistan, but data from the Global Adult Tobacco Surveys done recently in other parts of South Asia may be illustrative. In Bangladesh, for example, 92.0% of smokers believe smoking causes lung cancer, while only 87% believe smoking causes heart attacks and 84.2% believe that smoking causes strokes.[28] In India, while 87% of current adult smokers believe that smoking tobacco causes lung cancer, only 44% believe it causes stroke and 57.6% believe it causes heart

More than 20% of Pakistani youth are exposed to tobacco smoke at home and about one-third are exposed in public places.

attacks, with awareness much lower among less educated smokers.[29]

This imperfect information is complicated by the fact that many tobacco users initiate use as youths. As noted above, while age of initiation appears somewhat later in Pakistan than in many other countries, millions of Pakistani youth do begin using tobacco by age 15, with many starting at younger ages. Children and adolescents' ability to make fully informed, appropriately forward looking decisions is limited at best, leading governments to intervene with respect to youth in many areas such as driving, drinking alcohol, and voting. The problems of imperfect information are further complicated by the addictive nature of tobacco use, which is poorly understood and underappreciated, particularly among those initiating tobacco use.

Finally, there are externalities associated with tobacco use. Nonusers' exposure to the smoke generated by tobacco users results in various cancers, respiratory and cardiovascular diseases, and other diseases.[30] More than 20% of Pakistani youth are exposed to tobacco smoke at home and about one-third are exposed in public places. Similarly, in Rawalpindi, 56% of adults who do not use tobacco products reported being exposed to tobacco smoke.[31] Additionally, there can be financial externalities that result from publicly financed health care used to treat the diseases caused by tobacco use, something that may become more important as Pakistan works to adopt a publicly funded, universal health insurance system.

Tobacco Control Policy in Pakistan

A variety of tobacco control policies and programs can be used to address the failures inherent in the markets for tobacco products. The WHO's Framework Convention on Tobacco Control (FCTC), the world's first public health treaty, calls for governments to adopt comprehensive policies to curb tobacco use. Pakistan signed the WHO FCTC on 18 May, 2004, and ratified less than six months later, on 3 November, 2004, one of the fastest countries to go from signing to ratifying the treaty.

However, several key tobacco control policies in Pakistan fall short of those called for by WHO in its guidelines for implementation of various articles of the WHO FCTC.[32] Pakistan's participation in the WHO FCTC has resulted in some significant advances in tobacco control policy through various Ordinances and Statutory Rules and Orders (SROs) but there is still considerable room for further action. This section briefly reviews tobacco control policies in Pakistan, with the exception of tobacco taxation, which is covered in the next section.

In 2002, Pakistan adopted the Prohibition of Smoking and Protection of Non-Smokers Health Ordinance Number LXXIV (Ordinance LXXIV), prohibiting smoking in a variety of places, including health care and educational facilities, government buildings, restaurants, public transport, indoor workplaces, and other enclosed public places. However, in September 2008, a controversial SRO was issued that allowed for the creation of designated smoking areas, leading to widespread noncompliance with Ordinance LXXIV. Given the outcry from the public health community, in June 2009 Pakistan rolled back the SRO allowing smoking in designated areas. Enforcement, however, remains weak and compliance is low,[32] a problem targeted by a 2011 SRO that provide more guidance on enforcement of the smoke-free policy.

> **Starting in 2010, Pakistan required a graphic warning label on the top 40% of the front and back of cigarette packages, with the image used to be rotated annually. Other restrictions on tobacco product labeling, including a ban on the use of misleading descriptors like "light" or "low tar" are yet to be adopted.**

Textual warning labels have been required on cigarette packs and tobacco advertising since 1979, under the Cigarettes (Printing of Warning) Ordinance. The general nature of this early text warning coupled with the country's high illiteracy rate during this period made it unlikely that the warning significantly increased awareness of the health risks from smoking or had a significant impact on smoking rates in Pakistan. The warning label ordinance was amended in 2002 to replace the original general statement "warning: smoking is injurious to health" with more specific health warning that "tobacco causes cancer and heart diseases". The warning labels were further strengthened by an SRO in 2008 that called for four rotating text warnings beginning in July 2009. Most recently, a 2010 SRO brought the health warnings closer to those recommended in the FCTC Article 11 Guidelines. The guidelines call for multiple rotating, prominent, graphic warning labels on all tobacco products. Starting in 2010, Pakistan required a graphic warning label on the top 40% of the front and back of cigarette packages, with the image used to be rotated annually. Other restrictions on tobacco product labeling, including a ban on the use of misleading descriptors like "light" or "low tar" have not been adopted. Other public education efforts,

including mass-media campaigns to inform smokers of the risks from smoking, are supported by limited resources.

Ordinance LXXIV contained some weak restrictions on tobacco company marketing activities, including a ban on tobacco advertising near schools and some limits on the time during which television advertising of tobacco products was allowed. These restrictions were strengthened by a 2007 SRO that further limited the times during which advertising was allowed on television (between 3 and 4 a.m.), banned billboard advertising, limited other outdoor and point-of-sale tobacco ads to one square foot or less, limited print ads to one square inch or less on inside pages, and more. While not a comprehensive ban, this has led to a sharp drop in tobacco company advertising. More recently, a 2009 SRO prohibited tobacco companies from distributing free samples or offering promotional discounts. Tobacco company sponsorship of events and tobacco product placement in movies and television shows are also prohibited. Despite the somewhat comprehensive limits on tobacco company marketing, well over half of 13 to 15 year olds surveyed in 2008 reported seeing cigarette ads on billboards or in newspapers and magazines.

Ordinance LXXIV also prohibits the sale of tobacco products to youth, and sales of tobacco products near schools have been banned more recently.[9] However, the numerous small tobacco product vendors, particularly the street vendors and small kiosks, make it likely that effective enforcement of the prohibition on sales to minors will be difficult.

Given concerns about sharply increasing incidence of oral cancers, bans were imposed on the manufacture and sale of smokeless tobacco products. However, many Pakistanis continue to use smokeless products, including gutka smuggled in from India and naswar made illegally locally.[6]

Pakistan has a national agency for tobacco control, the Tobacco Control Cell based in the Health Services Academy, Cabinet Division, and tobacco prevention is a national government objective. However, the tobacco control agency has limited staff and resources, with 10 full-time equivalent staff and about 5.5 million Rupees (US$61,000) in funding in 2010.[26] Cessation support is available, but not widely, has limited reach and there are no national cessation practice guidelines or models, or a national quitline to support cessation. Cessation pharmacotherapies, including nicotine replacement products, bupropion, and varenicline, are available and can be obtained without a prescription in local pharmacies.[32]

Evidence from high-income countries and a growing number of low- and middle-income countries demonstrates that strong tobacco control policies will lead to significant reductions in tobacco use, while relatively weak policies will have a limited impact at best.[10,33] To date, the adoption, implementation and strengthening of tobacco control policies appears to be having some impact on smoking in Pakistan, likely to be contributing to the small downturn in cigarette consumption observed in recent years. Stronger, more comprehensive and better enforced policies would help to accelerate the declines in smoking.

In addition, there is an active tobacco control advocacy movement in Pakistan, led by the Coalition for Tobacco Control in Pakistan (CTC-Pak). Well over one hundred organizations from throughout Pakistan participate in the coalition. CTC-Pak advocates for the adoption of strong tobacco control policies consistent with the FCTC, and monitors the implementation of existing policies.

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V. Cigarette Taxes and Prices in Pakistan

Tobacco Excise Taxes: Specific and *Ad Valorem*

Tobacco taxes that translate into price increases are widely considered the single most effective option for reducing tobacco use.[33–35] Significant increases in taxes that raise the prices of tobacco products will reduce their consumption, while at the same time generating substantial increases in revenues.

Of the taxes levied on tobacco products, excise taxes are the most important since they are levied on particular products and raise prices relative to other products. There are two basic types of tobacco excise taxes — specific excises (taxes that are fixed amounts based on quantity or weight and that are independent of price) and *ad valorem* excises (taxes assessed as a percentage of price). Each type of tax has its strengths and weaknesses in terms of tax administration and its impact on public health and on revenues. Many countries rely on a combination of both excise tax types.

Structure of Tobacco Taxes in Pakistan

Pakistan imposes a variety of taxes on tobacco products, including excise taxes on cigarettes, cigars, and cigarillos, a tax on the tobacco leaf used in cigarette production, duties on imported tobacco products and tobacco leaf and a value added tax. Excise taxes are the focus of this analysis.

The term retail price in the context of tobacco taxation in Pakistan is used to denote the price of products before the addition of value added taxes. Pakistan applies a VAT of 16% to the retail price of tobacco products.* In what follows, the term retail price will be used as such, while the terms final price or final consumer price are used to refer to price inclusive of all taxes (that is, the retail price plus the applicable VAT).

Cigarette taxes in Pakistan: 2003–2013 and Changes in 2013

Cigarette excise taxes in Pakistan have historically been a complicated mix of both types of excise taxes, with a specific tax on low-priced brands, an *ad valorem* tax on high priced brands, and a combined specific and *ad valorem* tax on mid-priced brands.

Pakistan for many years defined three price tiers for locally produced cigarettes, with the defining prices adjusted annually (Table 5.1). A specific excise tax was applied to cigarettes in the lowest price tier, an *ad valorem* excise tax was applied to cigarettes in the highest price tier, and a combination of specific and *ad valorem* excises was applied to those in the middle tier. Over time, both the specific tax and *ad valorem* rate have been increased.

Changes in excise tax structure in 2013

As Table 5.1 illustrates, Pakistan's tobacco tax structure was relatively complex compared to other countries, with the tax structure changing across price tiers from a uniform specific tax, to a mixed specific and *ad valorem* tax, to a uniform *ad valorem* tax. Tobacco products other than cigarettes are taxed at an *ad valorem* rate of 65% of retail price.

> **Pakistan's tobacco tax structure was complex, with the tax structure changing across the price tiers from a uniform specific tax, to a mixed specific and *ad valorem* tax, to a uniform *ad valorem* tax.**

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* In effect, this implies VAT is 13.79% of final consumer price, where final price = retail price + VAT. Additional variation from seller to seller is not uncommon.

Table 5.1: Cigarette Tax Rates (Federal Excise Duty) per 10 Cigarettes, Pakistan, Selected Years, 2003/4–2013/14

Price Range (exclusive of VAT)	Specific Excise	Ad Valorem Excise
2004–05		
≤ Rs. 5.32	Rs. 2.27	--
> Rs. 5.32, ≤ Rs. 11	Rs. 2.27	69% of price > Rs. 5.32
> Rs. 12	--	63%
2005–06		
≤ Rs. 5.74	Rs. 2.45	--
> Rs. 5.74 ≤ Rs. 13	Rs. 2.45	69% of price > Rs. 5.74
> Rs. 13	--	63%
2006–07		
≤ Rs. 6.17	Rs. 2.63	--
> Rs. 6.17 ≤ Rs. 14	Rs. 2.63	69% of price > Rs. 6.17
> Rs. 14	--	63%
2007–08		
≤ Rs. 6.57	Rs. 2.80	--
> Rs. 6.57 ≤ Rs. 15	Rs. 2.80	69% of price > Rs. 6.57
> Rs. 15	--	63%
2008–09		
≤ Rs. 7.43	Rs. 3.17	--
> Rs. 7.43 ≤ Rs.16	Rs. 3.17	69% of price > Rs. 7.43
> Rs. 16	--	63%
Feb-09 Ordinance, 14.02.2009		
≤ Rs. 8.29	Rs. 3.54	--
> Rs. 8.29 ≤ Rs.17	Rs. 3.54	69% of price > Rs. 8.29
> Rs. 17	--	63%
2009–10		
≤ Rs. 10.00	Rs. 4.75	--
> Rs. 10.00, ≤ Rs. 19.50	Rs. 4.75	70% of price > Rs. 10.00
> Rs. 19.50	--	64%
2010–11		
≤ Rs. 10.00	Rs. 5.25	--
> Rs. 10.00, ≤ Rs. 19.50	Rs. 5.25	70% of price > Rs. 10.00
> Rs. 19.50	--	65%
2011–12		
≤ Rs. 11.50	Rs. 6.04	--
> Rs. 11.50, ≤ Rs. 21	Rs. 6.04	70% of price > Rs. 11.50
> Rs. 21	--	65%
2012–13		
≤ Rs. 13.36	Rs. 7.02	--
> Rs. 13.36, ≤ Rs. 22.80	Rs. 7.02	70% of price > Rs. 13.36
> Rs. 22.80	--	65%
2013–14		
≤ Rs. 22.86	Rs. 8.80	0%
> Rs. 22.86	Rs. 23.25	0%

Note: Prices are based on a pack of 10 cigarettes, excluding VAT.

The Federal Board of Revenue simplified the Excise duty structure in the Budget 2013–14 to remove the *ad valorem* component and levy only a specific excise duty on cigarettes in Pakistan.

In 2013, the Federal Board of Revenue simplified the excise tax structure in the 2013–14 Budget to remove the *ad valorem* component and reduced the number of tax tiers. The system continues to be tier-based, however it now involves two price tiers with a tax of 880 Rupees/1000 sticks on cigarettes with retail price not exceeding 2286 Rupees/1000 sticks and Rupees 2325 per 1000 sticks on cigarettes whose retail price exceeds 2286 Rupees/1000 sticks.

Implications of Excise Tax Structures

Pakistan's non-uniform tax structure is an instance of a country where excise taxes applied to cigarettes vary based on value, characteristics of the cigarette or other factors.[36]

In the global context, the United States, Australia, South Africa, and many other countries levy a uniform specific excise tax on all cigarettes. The Philippines, India, and others apply a tiered tax structure that imposes differential specific excises that vary based on manufacturers' prices, production scale, whether or not the cigarette is filtered, cigarette length, or other factors. Similarly, Vietnam and other countries levy a uniform *ad valorem* excise tax on all cigarettes, while Bangladesh and others impose differential *ad valorem* taxes based on price or other factors. In the European Union and in several other countries, both types of excises are applied, with some countries varying the specific tax level and/or *ad valorem* tax rate based on cigarette prices, characteristics or other factors. Egypt,

Turkey and a few other countries apply a minimum tax to lower priced cigarette brands, with some variation of the tax structures described above applied to higher priced brands.

A mixed specific and *ad valorem* tax structure can potentially combine the strengths of both types of taxes while limiting their weaknesses. The overall tax will be less eroded by inflation given the significant *ad valorem* component; however, the specific component will need to be regularly increased to keep pace with inflation for the overall tax to retain its real value. Similarly, with a significant uniform specific component, the price gap between premium and lower-priced brands tends to be smaller than it would be under a uniform *ad valorem* tax, which can be advantageous in preventing switching between brands: when all prices are clustered together and rise together with taxes, smokers have a greater incentive to quit rather than switch to smoking cheaper products. This however has not been the case with Pakistan's system — the price gaps are considerable in Pakistan, and have been amplified by the tax structure over the years.

Tax incidence

The tiered tax structure has implications for excise tax incidence, as illustrated in Graph 5.1, both in its previous form, and in its present version.

For the system in place prior to 2013, tiered taxes resulted in three distinct zones in which producers could choose to price their products. In 2012, the tax per 10 cigarettes was flat up to the threshold of 13.36 Rupees, after which the combination of specific and *ad valorem* tax implied that the tax per 10 cigarettes rose until the retail price reached 22.80 Rupees, at which point tax incidence jumped discretely to 65% of price. In terms of the excise tax as a fraction of price, the uniform specific tax applied to low priced brands implied that the tax as a share of price fell as retail price increased, up until the 13.36 Rupees threshold, at which point tax incidence

Graph 5.1: Tax per Pack of 10 Cigarettes, Pakistan, 2012–13 and 2013–14, Rupees
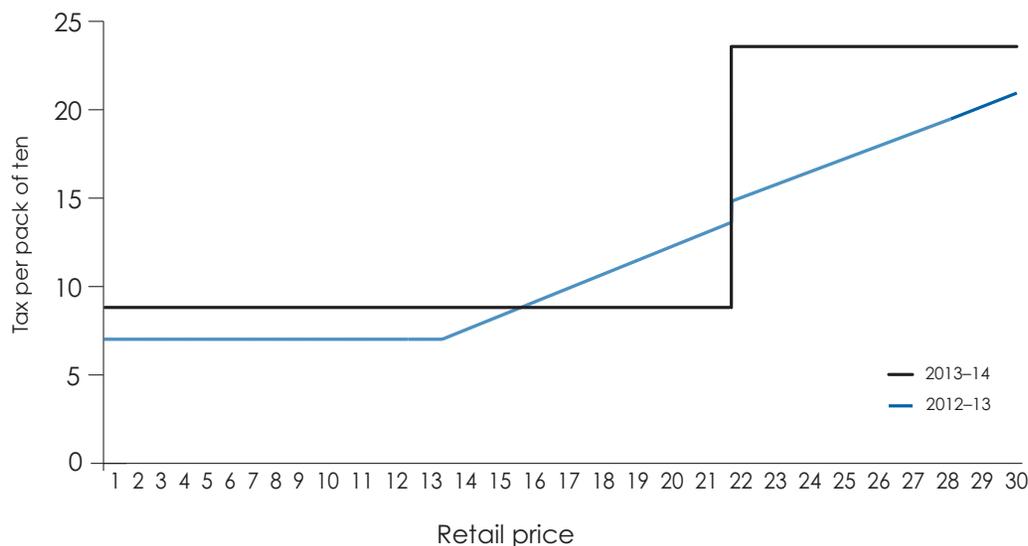
Note: Retail price here is **price before the addition of VAT**. VAT in Pakistan is 16% of retail price, or about 14% of final price.

began to rise slowly up to the 22.80 Rupees threshold, at which point it jumped to 65%. Discrete differences in the tax liability created incentives for producers to keep prices just below the threshold between the middle and high price tiers or to lower prices on brands that are in the top tier in order to reposition them as mid-priced brands. The tiers also increased the differences in prices between cigarette brands in Pakistan. The very low market share of premium brands in Pakistan is, in large part, the result of this complicated tax structure.

Graph 5.1 also illustrates the implications of the changes in the excise tax structure in 2013. The tax revenue raised per 10 cigarettes is slightly higher than in the past for brands with a retail price lower than 15.90 Rupees, and is considerably higher for brands with prices greater than 22.86 Rupees. For brands with retail prices between 16 and 22.86 Rupees, tax revenues are actually lower per 10 sticks than under the previous system.

Price differentials

With respect to their impact on tobacco product prices, *ad valorem* taxes tend to result in greater differentials in prices between high and low priced products than is the case for a uniform specific tax. This creates more opportunities for users to switch down to cheaper brands in response to tax induced and other price increases, reducing the impact of tax and price increases on tobacco use. Because of the potential for substitution to lower priced brands, manufacturers of premium brands (often multinational tobacco companies) generally prefer specific taxes to *ad valorem* taxes that tend to favor low priced brands (that are often produced by locally based manufacturers).

In this respect, Pakistan's tiered system, where the magnitude of the tax is a function of price results in larger price differentials between high and low priced brands than would have existed with a uniform specific rate. This creates incentives for smokers to substitute

Pakistan's tiered system creates incentives for smokers to substitute to cheaper brands rather than quit as taxes and prices rise and/or cigarettes become less affordable.

to cheaper brands rather than quit as taxes and prices rise and/or cigarettes become less affordable. In addition, this type of tiered tax structure also tends to result in manufacturers' prices for various brands clustering at or near the top of the range of prices in each tier to which taxes are applied.

Graph 5.2 shows the composition of cigarette final consumer prices (inclusive of VAT) for brands in each price tier in 2012. The price of cigarettes for the lowest tier is at the maximum price possible for that tax tier—in effect, with a uniform specific tax, economy brands

are positioned at the price that brings in the most revenue per stick to the producers. In contrast, the price for the middle tier (about 33 Rupees) is at the mid-point of the price range for this tier, with two rival brands positioned at the same price point and occupying the largest share of the market. The prices of premium cigarettes are clustered at the low end of the highest tax tier — with the ad valorem tax applicable for that tier, high priced brands also have to surrender larger revenues per pack as tax. As illustrated in Graph 5.2, the tiered specific and *ad valorem* tax structure in Pakistan resulted in significant price gaps between brands in different price categories, with low priced brands selling for a bit more than half of what premium brands sell for, at a minimum. The availability of inexpensive cigarettes and the large price gaps between price tiers creates considerable opportunity for cigarette smokers to substitute down to cheaper brands in response to tax and price increases.

Graph 5.2: Price Dispersion and Brand Shares of Cigarettes in Pakistan, 2012
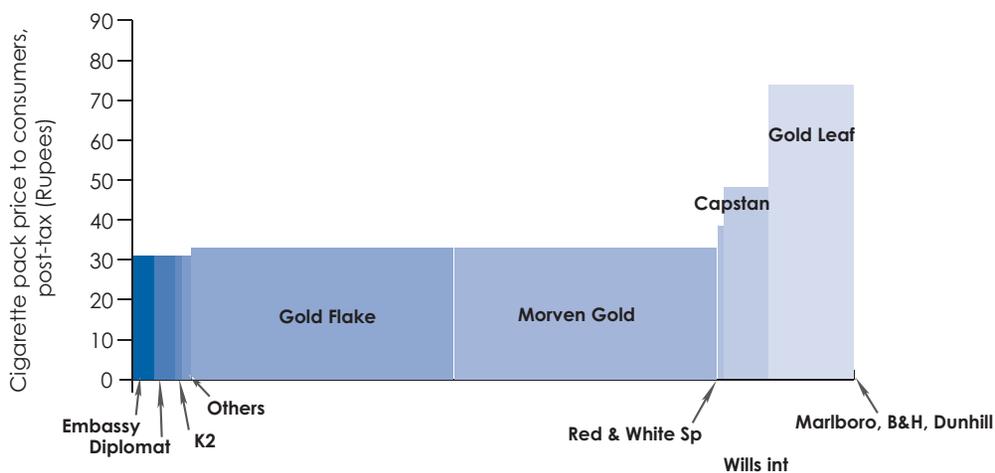
Note: the graph depicts cigarette brands in Pakistan in increasing order of price per pack of 20 cigarettes; the width of columns is proportionate to brand-specific market shares. Consumer price here is calculated as retail price (the term used in Pakistan for pre-VAT, excise-inclusive price) plus value added tax

Source: Retail prices and brand market shares from FBR, Pakistan.

Graph 5.3: Cigarette Taxes and Final Consumer Prices, by Price Tier, Pakistan, 2012–13
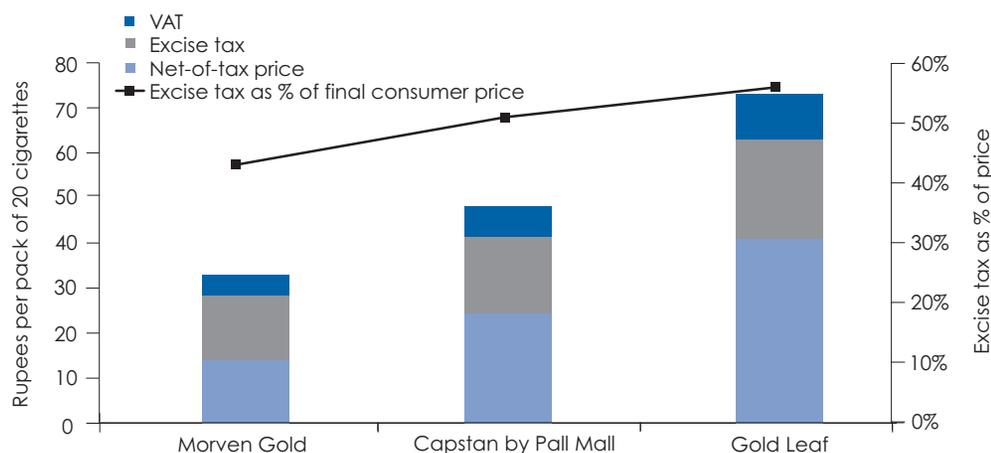
Source: FBR, 2013; the net of tax price and excise tax together constitute retail price. Adding VAT yields the final price consumers pay for a pack of cigarettes.

In 2012, cigarette excise taxes in Pakistan accounted for just over half of the final prices. The tiered tax structure implied that the share of the final price accounted for by excise taxes rose with price, from just over 42% on popular low priced brands to just over 56% of price on high priced brands.

On average, cigarette excise taxes in Pakistan currently account for just over half of the final prices. Graph 5.3 shows that excise taxes as a percentage of final cigarette prices paid by consumers in 2012–13 were well below the levels recommended by the WHO, which recommends that cigarette excise taxes should account for at least 70% of the final price for cigarettes. The tiered tax structure implied that the share of the final price accounted for by excise taxes rose with price, from just over 42% on popular low priced brands to just over 56% of price on high priced brands.

Graph 5.4 replicates the data from Graph 5.3 but adds the predicted final consumer prices with the 2013 two-tiered specific tax structure if other elements of price (including pre-tax price) were unchanged. Since the tax on the lower tier (Rupees 880 per 1000 sticks) is less than 40% of the tax on the higher tier (Rupees 2325 per 1000 sticks), the large gap in prices between economy and mid-priced brands as a group versus higher priced brands is preserved. If — as might be recommended as a near to medium term strategy — the tax on the lower tier were raised considerably, the prices of those brands would rise.

Real price trends over time

With *ad valorem* excises, the tax per unit rises with prices so that the tax and the revenues it

Graph 5.4: Cigarette Taxes and Final Consumer Prices, by Price Tier, Pakistan, 2012–13 versus Predicted 2013–2014 Prices
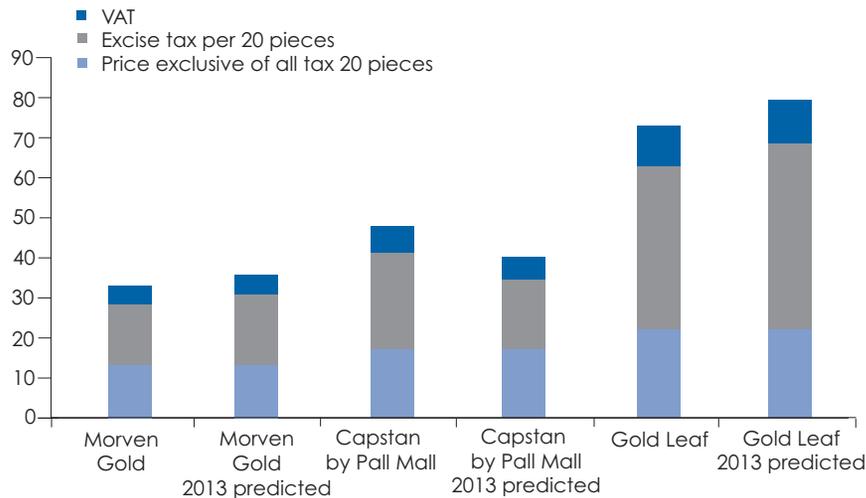
Note: Source for 2012 prices: FBR, 2013; the net of tax price and excise tax together constitute retail price. Adding VAT yields the final price consumers pay for a pack of cigarettes. 2013 prices are computed assuming unchanged pre-tax prices and a new excise structure following the 2013 budget.

> **While the excise tax rates and the values that define the price tiers have been increased periodically, these increases have not always kept pace with inflation.**

generates are more likely to keep pace with inflation, in contrast to specific taxes where the real value of the tax and resulting revenues will fall with inflation unless regularly adjusted upward. Specific taxes require regular increases to keep pace with inflation.

Graph 5.5 illustrates an additional consequence for tobacco control of Pakistan's cigarette taxes over

time. While the excise tax rates and the values that define the price tiers have been increased periodically, these increases have not always kept pace with inflation. As a result, the inflation-adjusted price of cigarettes fell sharply in the 1990s and again in the mid-2000s, while rising when effective tax rates were increased starting in 2001 and again in recent years, particularly since 2009–10. The decline in real prices in the 1990s and mid-2000s appear to be a particularly important factor in explaining the rise in per capita cigarette consumption over these periods.

Infrequent and small increases in the tax rates, coupled with the modest increases in the price ranges for the price tiers have led to declining real cigarette prices in Pakistan over some years. Some countries have addressed the problem of inflation eroding the value of a specific tobacco tax by creating mechanisms for annual or other administrative adjustments to

Graph 5.5: Inflation Adjusted Cigarette Prices and Per Capita Cigarette Consumption in Pakistan, 1990–2010
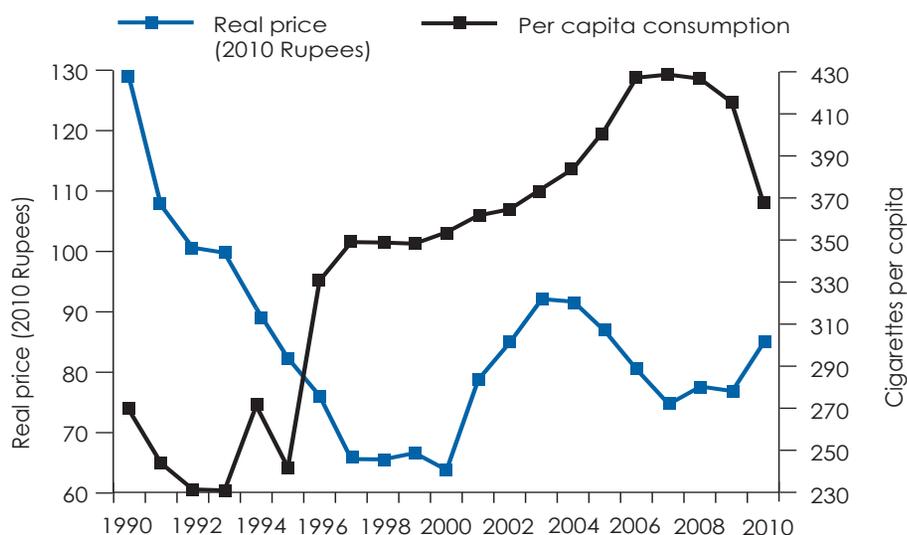
Sources: Consumption - Euromonitor International, 2011 (1997-2010) and ERC Group, 2009 (1990-1996); Price - Economist Intelligence Unit, 2011; CPI - World Bank, 2011; and authors' calculations.

Note: Price is the average price reported by EIU for a pack of 20 local brand cigarettes in supermarkets and mid-priced stores.

specific tax rates that maintain the real value of the tax over time.

Cigarette Affordability

The relationship between prices, income, and cigarette consumption in Pakistan is clearer when one considers the affordability of cigarettes, measured by the ratio of average cigarette pack price to per capita income, as illustrated in Graph 5.6. Though real cigarette prices in Pakistan fell in the early 1990s, cigarettes actually became less affordable because real incomes were falling more rapidly. Real incomes rose rapidly after 1995 while real prices continued to decline. This led to cigarettes becoming much more affordable. The reduction in affordability in the early 1990s contributed to the declines in per capita cigarette consumption during this period. Similarly,

increasing affordability of cigarettes in the mid/late-1990s is a key factor in the rise in per capita cigarette consumption during this period. More recently, declining real incomes coupled with rising real prices have reduced the affordability of cigarettes, contributing to significant reductions in per capita consumption over the past several years.

Cigarette Taxes and Prices – Regional Comparison

Compared to other countries in both the WHO Eastern Mediterranean region that it is grouped in, as also the WHO South East Asia region where similar tobacco products are pervasive, cigarette taxes in Pakistan are at the higher end of the range, in terms of the percentage of the final consumer price of the most sold brand of cigarettes accounted for by taxes (Graph

Graph 5.6: Cigarette Affordability and Per Capita Cigarette Sales, Pakistan, 1990–2010
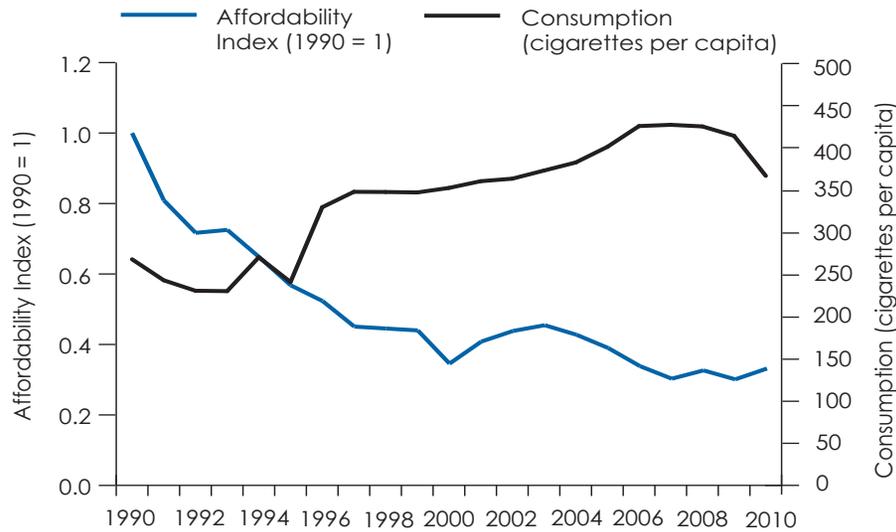
Sources: Consumption - Euromonitor International, 2011 (1997–2010) and ERC Group, 2009 (1990–1996); Price - Economist Intelligence Unit, 2011; Income - World Bank, 2011; and authors' calculations.

Notes: The affordability index is calculated by dividing average pack price for cigarettes in local currency units by the average GDP per capita. The average price used is the average price reported by EIU for a pack of 20 local brand cigarettes in supermarkets and mid-priced stores. A falling index reflects the fact that cigarette pack prices have risen much more slowly than GDP per capita.

> **With respect to tax administration, uniform specific excise taxes tend to be easier to administer than *ad valorem* excises given that they are based on quantity rather than value.**

5.7).[37] However, very low industry prices and the resulting low absolute tax that results from the tiered tax structure rate make cigarette prices in Pakistan among the lowest in both the Eastern Mediterranean and the South-East Asian regions (Graph 5.8), as well as among the lowest in the world.[37] Moreover, the complicated tiered cigarette tax structure makes the price gap between brands larger in Pakistan than in many other countries, contributing to the most popular brand being among the cheapest brands.

Revenue considerations

In terms of revenues, tobacco tax revenues will be more stable and predictable with a specific tax than with an *ad valorem* tax. With an *ad valorem* tax, the amount of the tax varies with industry prices, implying that the industry can reduce the revenue and public health impact of a tax increase by lowering its prices in response. In addition, any industry price cut will result in a reduction in the tax liability per unit sold, leading to a larger price reduction than accounted for by the industry price cut alone. A tiered system can exacerbate this problem if producers reposition brands from

Graph 5.7: Pakistan in Comparison to WHO Eastern Mediterranean and South-East Asia Regions: Share of Total and Excise Taxes in the Price of a Pack of the Most Sold Brand of Cigarettes, 2012
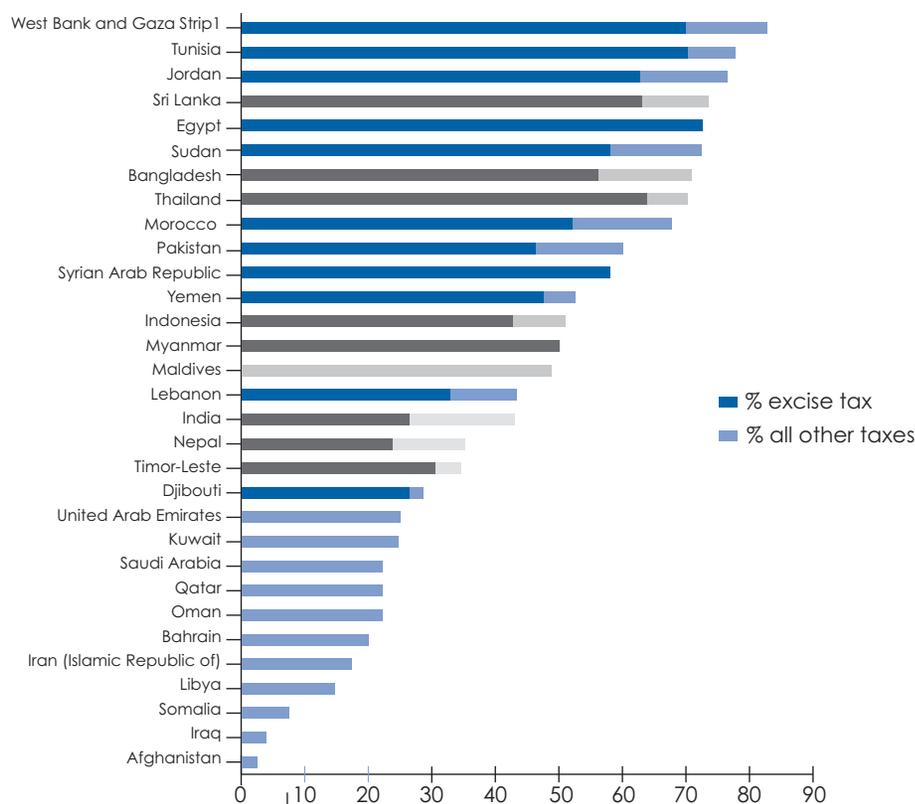
Source: WHO, 2013.
Notes:
Data not reported/not available for: Morocco.
1 Data apply only to West Bank.
Data not reported/not available for: Democratic People's Republic of Korea.
It is illegal to sell cigarettes in Bhutan.
SEARO countries depicted in shades of grey

higher tax/price tiers to lower price tiers, reducing the effective tax on the repositioned brands.

With respect to tax administration, uniform specific excise taxes tend to be easier to administer than *ad valorem* or tiered specific excises given that they are based on quantity rather than value. With *ad valorem* or tiered specific excises, firms have a greater opportunity to avoid paying taxes when the taxes are based on ex-factory prices. For example, firms can reduce their tax liability by setting an artificially low price at which they sell to their own distributors who then raise prices significantly before selling to wholesalers and/or retailers. This problem of undervaluation could be entirely avoided by the application of a uniform specific tax.

Graph 5.8: Pakistan in Comparison to WHO Eastern Mediterranean and South-East Asia Regions: Prices of Pack* of Most Sold and Cheapest Brands of Cigarettes in International Dollars, 2012

Sri Lanka
India
Morocco
Maldives
Sudan
Tunisia
Thailand
Timor-Leste
Bahrain
Lebanon
Saudi Arabia
Oman
Qatar
Indonesia
Egypt
Djibouti
Kuwait
Iran (Islamic Republic of)
Jordan
Yemen
Myanmar
Bangladesh
United Arab Emirates
Nepal
Libya
Pakistan   **$0.81**
Afghanistan
Iraq

$0.00 $1.00 $2.00 $3.00 $4.00 $5.00 $6.00 $7.00 $8.00 $9.00

■ Cheapest brand
■ Most sold brand
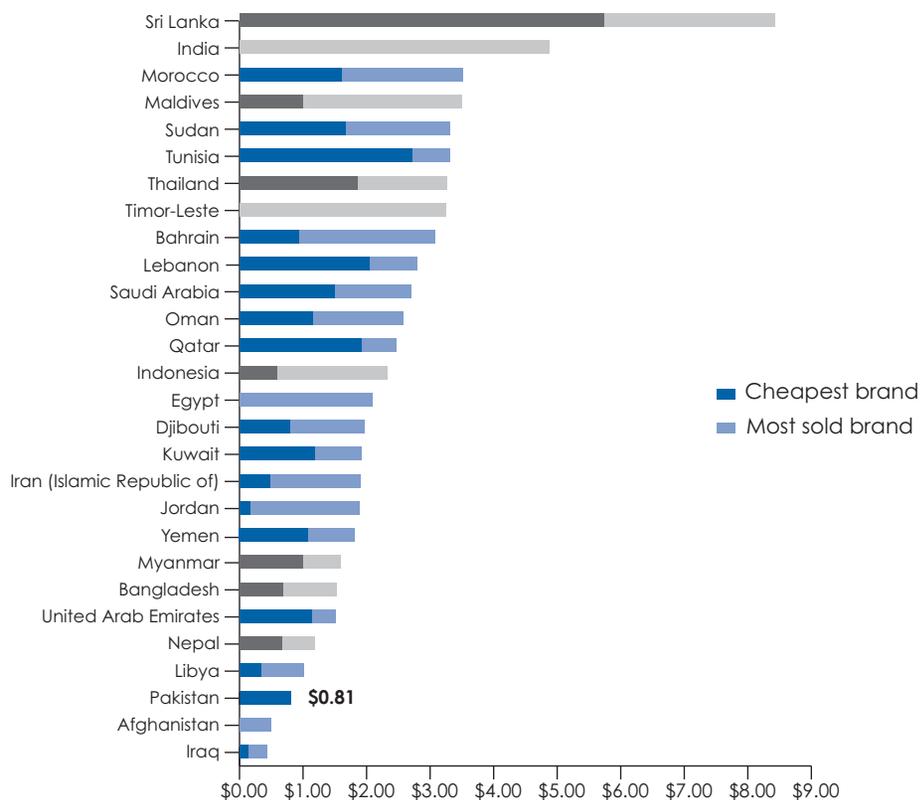
Source: WHO, 2013.

Notes:

PPP not available for: Somalia and West Bank and Gaza Strip.

Data not reported/not available for: Democratic People's Republic of Korea.

It is illegal to sell cigarettes in Bhutan.

*SEARO countries depicted in shades of grey.*

* 20 pieces

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VI. The Demand for Cigarettes in Pakistan

Considerable empirical evidence from high-income countries and growing evidence from low- and middle-income countries demonstrates that higher tobacco product taxes and prices lead to reductions in tobacco use.[33–35] These result from increased cessation, fewer former users restarting, lower rates of initiation, and reductions in consumption among continuing users. This section briefly reviews existing global evidence, with an emphasis on studies from low- and middle-income countries, particularly South Asia, as well as the limited existing evidence for Pakistan. This is followed by new estimates of the impact of price and income on cigarette demand in Pakistan.

Global Evidence

Many studies have employed aggregate data to examine the impact of cigarette and other tobacco product taxes and prices on overall tobacco use.[35] Before 2000, nearly all of these studies came from high-income countries including the United States, Canada, the United Kingdom, Australia, and several others. These studies consistently find that increases in taxes and prices on tobacco products lead to reductions in tobacco use. Most studies have focused on cigarette smoking, given that cigarettes account for nearly all the tobacco use in high-income countries. While these studies have produced a wide range of estimates of the magnitude of the effects of price on overall cigarette consumption, the vast majority of these studies estimate price elasticities in the range from −0.25 to −0.5, with most of these clustered around −0.4, suggesting that a 10% increase in cigarette prices will, on average, bring about a 4% reduction in consumption. Models that account for the addictive nature of tobacco use find that demand is more responsive to price in the long run than it is in the short run.

Over the past decade, a growing number of studies has examined the impact of taxes and prices on tobacco use in low- and middle-income countries. These studies have estimated a wide range of price elasticities, with some, but not all, indicating that demand for tobacco products is more responsive to price in low- and middle-income countries than it is in high-income countries. For example, Hu and Mao (2002) estimate that the price elasticity of cigarette demand in China ranges from −0.50 to −0.64, while Karki and colleagues (2003) estimate an overall price elasticity of cigarette demand of −0.88 in Nepal.[38, 39] As in studies for high-income countries, studies from low- and middle-income countries that account for the addictive nature of tobacco use find that demand responds more to price in the long run. For example, Aloui (2003) estimates short run price elasticities for tobacco use in Morocco in the range from −0.51 to −0.73, and estimates long run elasticities that range from −1.36 to −1.54.[40]

Findings from studies based on individual-level survey data on adult tobacco use indicate that taxes and prices influence both tobacco use decisions (prevalence) and the frequency and amount of tobacco consumption. In general, the estimates from high-income countries suggest that about half of the impact of price on tobacco use results from its effect on prevalence. Given that relatively little initiation occurs during adulthood, these changes largely result from cessation among adult users. This is confirmed by a small number of studies which find that increases in prices lead a number of current users to try to quit, with some successful in doing so in the long run.

Studies using survey data from low- and middle-income countries similarly find that price affects prevalence, although the relative impact on prevalence and consumption varies considerably across studies and countries. For example, Adioetomo and colleagues (2005) find no impact of price on the prevalence of smoking in Indonesia, while at the same time

estimating an elasticity for conditional cigarette demand (changes in consumption of cigarettes by current smokers) of −0.62.[41] In contrast, Kyaing (2003) estimates a prevalence price elasticity of −1.28 and a conditional demand elasticity of −0.34 in Myanmar.[42]

Several studies based on survey data have examined the differential responses of various population subgroups to changes in the prices for tobacco products, including those based on age, gender, income, education, race/ethnicity, and location (urban vs. rural). Findings for gender, race/ethnicity and location vary across countries, while consistent patterns are more evident with respect to age and socioeconomic status (as measured by income and/or education). In general, most studies for different age groups find that tobacco use among younger persons is more responsive to price than is tobacco use among older persons. Similarly, as predicted by economic theory, sub-populations registering a lower socioeconomic status are more responsive to price than are sub-populations with a higher socioeconomic status. For example, Sayginsoy and colleagues (2002) estimate cigarette demand elasticities of −1.33, −1 and −0.52 for low, middle and high-income populations in Bulgaria.[43] Similarly, van Walbeek (2002) estimates elasticities by income quartile ranging from −1.39 for the lowest quartile to −0.81 for the highest quartile in South Africa.[44]

Finally, several studies examine the potential for substitution among tobacco products in response to changes in the relative prices of these products. In general, these studies find that part of the reduction in the use of one tobacco product in response to an increase in its price will be offset by increased use of other products if the prices of these products are not also increased. For example, Laxminarayan and Deolalikar (2004) find that changes in relative prices for cigarettes and rustic tobacco in Vietnam will lead to substitution between the two, particularly for substitution from cigarettes to rustic tobacco in

response to an increase in the relative price of cigarettes.[45] This potential for substitution highlights the importance of increasing taxes and prices for all tobacco products if the public health benefits of higher prices are one of the motives for tobacco tax increases.

Tobacco Demand in South Asia

India and Bangladesh are countries whose tobacco markets have many similarities with and whose histories are tied to Pakistan's. Prevalence of smoking tobacco is high among men and low among women, many smokers smoke products other than manufactured cigarettes, and both men and women consume a variety of smokeless tobacco products. Their tobacco tax structures are complex, with tiered taxes leading to large price differences among cigarette brands and to significant differences between different tobacco products. Given these commonalities, the emerging evidence on the demand for tobacco products in India and Bangladesh may be of particular interest for understanding the demand for tobacco products in Pakistan.

John (2008) used household data from the 1999/2000 National Sample Survey (NSS) of India to estimate the price elasticity of demand for tobacco products in India.[46] Using an estimation strategy developed by Deaton (1988) that accounts for spatial and quality-based differences in prices, John estimated the own- and cross-price elasticities for cigarettes, bidis, and leaf tobacco.[47] He estimated significant, negative own-price effects, with estimated price elasticities of −0.35, −0.91, and −0.88 for cigarettes, bidis, and leaf tobacco, respectively. In general, John found weak evidence of cross-price effects that suggested that cigarettes and bidis may be economic complements.

More recently, Guindon and colleagues (2011) updated and extended John's (2008) analysis in their analysis of data from ten rounds of the NSS conducted

between 1993/94 and 2007/08.[48] Using a modified version of John's empirical approach, they obtained similar price elasticity estimates for bidis, in the range from −0.5 to −1.0. In contrast to John who found that cigarette demand was much less responsive to price than was bidi demand, Guindon and colleagues concluded that cigarette and bidi demand were both similarly responsive to price. In specifications that pooled 7 waves of the NSS from 1990/00 through 2007/08, they estimated a price elasticity of bidi demand of −0.94 and a price elasticity of cigarette demand of −1.03. They found limited evidence of socio-economic differences in price responsiveness, with estimates indicating that lower-SES groups were somewhat more responsive to price than higher-SES groups. For example, based on expenditure quintiles and using data on all households, they estimated cigarette and bidi price elasticities of −0.95 and −1.12 for households in the lowest three quintiles, compared to elasticities of −0.86 and −0.99 for those in the highest two quintiles. They also find some evidence of cross-price effects for bidis and cigarettes, with differences based on household characteristics. Specifically, they find that rural and low-SES households may substitute bidis and cigarettes when the price of one increases relative to the other, while the two may be complements for higher-SES households.

To date, a few studies have estimated the price elasticity of demand for tobacco products in Bangladesh. Ali and colleagues (2003) were the first to estimate tobacco demand for Bangladesh using annual time series data from 1983 through 1999 to estimate a relatively parsimonious model that included prices and per capita GDP as the only explanatory variables.[49] They obtained a negative but insignificant price elasticity of −0.27, and a positive and significant income elasticity of 0.62.

Soon after, Guindon and colleagues (2003) estimated cigarette demand for Bangladesh as part of a larger study that also estimated demand in Indonesia, Nepal, Sri Lanka, Thailand, Maldives, and Myanmar.[50] Using annual time series data from 1970 through 2000, they too estimated a relatively parsimonious model that included only price and income as determinants of demand. In addition to estimating a conventional demand model, they also estimated a myopic addiction model. Like Ali and colleagues, they found no significant effect of prices on cigarette demand in either model. In their country-specific models for the other countries they examined, the generally found negative and often significant price effects, with short-run price elasticity estimates for cigarette demand clustered around −0.5 and long-run elasticity estimates clustered around −0.7. In addition to the country-specific estimates, they also estimated demand models using pooled data from the seven countries. Price elasticity estimates from their conventional demand models ranged from −0.6 to −0.9, while long-run elasticities from their myopic addition models ranged from −0.8 to −1.40.

More recently, Nargis and colleagues (2010, 2011) have used the individual level data from the ITC-Bangladesh survey to estimate the price elasticity of cigarette and bidi demand in Bangladesh. Given the low prevalence rates of cigarette smoking among women, cigarette demand models were estimated for adult males only; bidi demand models were estimated for both men and women.[51, 52] In addition to price and income, Nargis and colleagues controlled for a variety of other factors in their demand models, including age, marital status, educational attainment, employment status, household size, urban/rural location, the number of years since initiation, and survey year (in the 2011 analysis that used both the 2009 and 2010 survey data). Nargis and colleagues estimate significant negative effects of cigarette prices on both cigarette smoking prevalence and on cigarette consumption among smokers, with the effects on prevalence about twice those of the effects on

conditional demand. Their overall cigarette price elasticities range from −0.43 to −0.66, somewhat less inelastic estimates than the range estimated in studies from high-income countries and well within the range estimated in studies from low- and middle-income countries. In contrast, estimates for bidi demand are either statistically insignificant or weakly significant and no clear pattern emerges for the relative impact of price on prevalence versus conditional demand. Estimates based on the 2009 data alone suggest that higher bidi prices are associated with reduced prevalence of bidi smoking, while those for 2009 and 2010 combined show no effect of bidi prices on bidi smoking prevalence, with the opposite found for conditional demand. Nargis and colleagues interpret the relatively inelastic estimates obtained for bidi demand to the very low prices for bidis which make them highly affordable. In their analysis of the pooled 2009/10 ITC-Bangladesh data, Nargis and colleagues also estimate price elasticity for subgroups based on socioeconomic status. Consistent with Guidon and colleagues (2011) estimates for India, they find some evidence that cigarette smoking lower socioeconomic groups is somewhat more sensitive to price, with overall elasticities of −0.76 and −0.59 for the lowest and highest tertiles, respectively.[52] No clear patterns emerge for bidis, given the mostly statistically insignificant estimates.

Cigarette Demand in Pakistan — Existing Evidence

To date, only one published study has examined the demand for tobacco products in Pakistan.[53] Using annual data on net cigarette production (domestic production plus imports minus exports) from 1981 through 2009, Mushtaq and colleagues estimated cigarette demand as a function of price and income. Their price measure reflected the price of a low-priced brand of cigarettes given that these brands account for the majority of cigarette consumed in Pakistan during the period covered by their data. Given the nonstationarity of their data, they used co integration methods* and employed a myopic addiction model.† They found that both price and income had a significant negative impact on cigarette demand. Given these estimates, Mushtaq and colleagues concluded that demand was price inelastic in the short run, with an elasticity of −0.48, but was much more responsive to price in the long run, with an elasticity of −1.17. Short run income elasticity was estimated to be −0.34, with an estimated long run income elasticity of −0.84. They hypothesized that the negative impact of income was picking up the increased education and awareness of the harms caused by smoking as income rose and that this increased knowledge led to reductions in smoking in Pakistan during this period.

Cigarette Demand in Pakistan — New Estimates

Using annual time series data on aggregate cigarette consumption from 1990/91 through 2007/08, we estimate a relatively simple model of cigarette demand in Pakistan. Given available data, our model is similarly parsimonious and includes only real price and real income as determinants of per capita cigarette demand. Cigarette price is found to have a negative and statistically significant impact on cigarette demand in Pakistan, with an estimated price

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* Nonstationarity is a feature of time series data that arises when a variable's average value changes over time. When economic variables like price and quantity have trends, regressions to estimate the effect of price on quantity can result in biased estimates (due to spurious correlation of variables that trend over time). Cointegreation is a statistical technique that corrects for such spurious correlation.

† The myopic addiction approach, frequently used in the estimation of demand for products like cigarettes, recognizes the addictive nature of certain commodities—in effect, since consumers tend to overweight the present benefits they derive from smoking over the longer term harms, price increases tend to lead to smaller reductions in demand in the short run that they do in the long run.

Between 1990 and 2006 general trends of falling real (i.e. inflation-adjusted) cigarette prices and increasingly affordable cigarettes led to significant increases in cigarette smoking in Pakistan.

elasticity of −0.58. In contrast to Mushtaq and colleagues, and more consistent with estimates from most low- and middle-income countries, income is found to have a positive and statistically significant impact, with an estimated income elasticity of 0.78. Together, the estimates imply that the past two decades' general trends of falling real prices and increasingly affordable cigarettes led to significant increases in cigarette smoking in Pakistan, while the more recent combination of higher taxes and increasingly less affordable cigarettes accounts for the sharp reductions in smoking over the past few years.

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VII. Impact of Cigarette and Tax Increases in Pakistan

Using the price elasticity estimates described above, we simulate the effects of cigarette tax increases on several outcomes related to cigarette smoking in Pakistan, including overall cigarette consumption, government tax revenues, the number of current and future smokers, and deaths caused by smoking. In these analyses, all other factors, most notably per capita income, are being held constant. To the extent that income is rising, the tax increases will generate smaller reductions in tobacco use, but larger increases in revenues than predicted, given that increases in income result in greater cigarette consumption.

The tax scenarios modeled are uniform specific excise taxes, a departure, both from the mixed system in place through 2013, and the two-tiered specific system in place since the 2013 budget. In addition to being analytically easier to model, uniform specific taxes have the advantage of reducing gaps in prices across segments and reducing the incentive to manufacture cheap cigarettes and sustain a large economy segment. From a revenue perspective, this has the effect of raising additional revenues from the economy and medium tiers that currently account for a smaller share of total revenues. From a public health perspective, the reduction in price gaps across segments is important to reducing substitution possibilities and encouraging effective quits by current smokers when taxes are raised.

Finally, we discuss other impacts of tax increases, including their effects on the poor, illicit trade, and employment in Pakistan.

(In the first modeled scenario) a uniform specific cigarette excise tax of 31.2 Rupees (US$0.32) per pack of 20 cigarettes raises the percentage of average final cigarette prices accounted for by tax to 70%.

Impact of Tax Increases on Cigarette Consumption and Tax Revenues

For the baseline we assume that the average price of cigarettes of a pack of 20 cigarettes in 2013 is 38.7 Rupees (US$0.40) per pack, based on averages of prices within price tiers and the share of the market accounted for by each tier; that, on average, cigarette excise taxes are 67.5% of total final price inclusive of all taxes (26.2 Rupees or US$0.27 per pack);* and that total tax-paid cigarette sales were just over 3.2 billion packs of 20 cigarettes per year. At these values, total cigarette excise tax revenues were estimated to be almost 85 billion Rupees (US$862 million). Our first analysis simulates the impact of replacing the current tiered cigarette excise tax structure with a uniform specific cigarette excise tax of 31.2 Rupees (US$0.32) per pack of 20 cigarettes, raising the percentage of average final cigarette prices accounted for by tax to 70%, in accordance with WHO recommendations.[30] We estimate that this tax increase will raise average final prices paid by consumers to 44.6 Rupees (US$0.45) per pack — just over a 15% increase in price.

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*   Tax rates listed in Table 5.1 are per 10 sticks. The 2013-14 rates per 20 sticks are Rupees 17.60 and Rupees 46.50 respectively for cigarettes with retail prices less than and greater than Rupees 45.72 per 20 sticks.

(In the second modeled scenario) the current tiered cigarette excise tax structure is replaced by a uniform specific cigarette excise tax of 44 Rupees (US$0.45), the highest excise tax that was applied in 2012 to a pack of 20 cigarettes in Pakistan. This tax would raise the share of excise tax in average cigarette price to 74%.

Our second analysis simulates the impact of replacing the current tiered cigarette excise tax structure with a uniform specific cigarette excise tax of 44 Rupees (US$0.45), the highest excise tax that was applied in 2012 to a pack of 20 cigarettes in Pakistan. This tax would raise the percentage of average cigarette prices accounted for by the excise tax to 74%. At this tax level, the average final price, inclusive of all taxes, would rise to 59.4 Rupees (US$0.61), an over 53% increase in average cigarette prices over the baseline.

At the midpoint of the elasticity range (−0.41 to −0.58) obtained from the estimates described above (−0.495), we estimate that a uniform specific tax accounting for 70% of the average cigarette price will reduce overall cigarette sales by 7.5%, while at the same time generating substantial new revenues. At the new, lower level of consumption, we estimate that cigarette tax revenues would increase by 27.2 billion

A tobacco tax accounting for 70% of the average cigarette price will reduce overall cigarette sales by 7.5%, raise cigarette tax revenues by 27.2 billion Rupees (US$277 million).

Taxing all brands at 44 Rupees per pack would cut cigarette sales by more than 26% while increasing revenues by about 39.5 billion Rupees (US$403 million) above the baseline.

Rupees (US$277 million). We estimate that taxing all brands at 44 Rupees per pack would cut cigarette sales by more than 26% while increasing revenues by about 39.5 billion Rupees (US$403 million) above the baseline. These estimates, as well as estimates based on the range of elasticities described in this report are presented in Table 7.1.

Impact of Tax Increases on Public Health

In addition to estimating the impact on smoking and tax revenues, we simulate the impact of the two tax increases described above on the number of smokers and on future deaths caused by smoking among the current population cohort in Pakistan. Estimates based on the range of elasticities described in this report are also presented in Table 7.1. Given current population and smoking prevalence estimates, just over 14 million persons ages 18 and older in Pakistan are smokers in the baseline scenario. Estimates indicate that more than one in two lifetime smokers will die prematurely from diseases caused by cigarette smoking.[54] Given this evidence, we assume that half of long-term smokers will die prematurely as a result of their addiction. With these assumptions, we estimate that just over 7 million adults in the current population cohort will die prematurely from a disease caused by smoking. Assuming that the current cohort of youth in Pakistan will take up smoking at the same rates as in the current adult cohort, we estimate that almost 9.7 million youth ages 0 through 17 will become smokers as adults and that over 4.8 million of them will die prematurely from diseases caused by smoking.

Table 7.1: The Impact of Increasing Cigarette Excise Taxes on Smoking, Smoking-Attributable Mortality and Government Revenue

Model parameters, baseline						
Current smokers (millions)			14.0			
Premature deaths in current smokers (millions)			7.0			
Expected future smokers (millions)			9.7			
Premature deaths in future smokers (millions)			4.8			
Average cigarette excise tax			**26.2**			
Average cigarette price			38.7			
Excise tax as a percentage of price			67.5%			

Model projections						
Increased average cigarette tax		**31.2**			**44.0**	
Increased average cigarette pack price		**44.6**			**59.4**	
Cigarette excise tax as a percentage of price		**70.0%**			**74.0%**	
Alternative elasticity assumptions	**−0.41**	**−0.495**	**−0.58**	**−0.41**	**−0.495**	**−0.58**
Reduction in number of current smokers (millions)	0.43	**0.52**	0.61	1.53	**1.85**	2.17
Percentage reduction in numbers of smokers	3.1%	**3.7%**	4.4%	10.9%	**13.2%**	15.5%
Reduction in premature deaths caused by smoking among current smokers (millions)	0.15	**0.18**	0.21	0.54	**0.65**	0.76
Percentage of premature deaths in current smokers averted by higher taxes	2.2%	**2.6%**	3.1%	7.7%	**9.2%**	10.8%
Reduction in number of future smokers (millions)	0.60	**0.72**	0.85	2.12	**2.55**	2.99
Reduction in premature deaths caused by smoking among future smokers (Millions)	0.30	**0.36**	0.42	1.06	**1.28**	1.50
Percentage of premature deaths in future smokers averted by higher taxes	6.2%	**7.5%**	8.8%	21.9%	**26.4%**	31.0%
Total reduction in number of smokers (millions)	1.03	**1.25**	1.46	3.65	**4.40**	5.16
Total reduction in premature deaths caused by smoking (millions)	0.45	**0.55**	0.64	1.59	**1.92**	2.25
Percentage of premature deaths in current and future smokers averted by higher taxes	3.8%	**4.6%**	5.4%	13.5%	**16.3%**	19.1%
Additional Excise Tax Revenues (PKR billions)	28.7	**27.2**	25.6	47.2	**39.5**	31.9
Additional Excise Tax Revenues (US$ millions)	292.7	**276.9**	261.1	480.9	**402.9**	325.0

Global evidence suggests that about half of the impact of price on overall smoking among adults results from a reduction in smoking prevalence.[37] Given this, we estimate that the average prevalence elasticity implied by the estimates described in this report is −0.25. Based on this estimate, the price increase resulting from replacing the current tax system with a uniform specific cigarette excise tax that accounts for 70% of average final cigarette prices will reduce adult smoking prevalence by over 3.7%, amounting to a reduction of over half a million adult smokers. Taxing all cigarettes at 44 Rupees per pack, an increase in the excise tax to 74% of average final cigarette prices would bring the total reduction in smoking prevalence to over 13%, or almost 1.9 million adult smokers.

Given the evidence on the health benefits of smoking cessation, we estimate that 70% of those who would have otherwise died prematurely from diseases caused by smoking avoid premature death by quitting. Based on the assumption that half of long term smokers will die prematurely, we estimate that the price increase that would result from a uniform specific excise tax that, on average, accounts for 70% of final consumer

The price increase that would result from a uniform specific excise tax that, on average, accounts for 70% of final consumer price will reduce the number of premature deaths expected among current adult smokers by over 180,000.

A further increase that adopts a uniform specific excise tax of 44 Rupees per pack and raises the excise tax to 74% of final consumer price would bring the total reduction in premature deaths among current adult smokers to nearly 650,000.

A uniform specific excise tax accounting for 70% of cigarette prices, on average, will reduce youth smoking prevalence by about 7%, preventing almost 725,000 Pakistani youth from taking up smoking.

Increasing the tax by taxing all cigarette brands at 44 Rupees per pack would reduce youth smoking by over 26% and prevent 2.5 million youth from taking up smoking.

price will reduce the number of premature deaths expected among current adult smokers by over 180,000. A further increase that adopts a uniform specific excise tax of 44 Rupees per pack and raises the excise tax to 74% of final consumer price would bring the total reduction in premature deaths among current adult smokers to nearly 650,000.

Considerable research shows that youth smoking is more responsive to price than adult smoking, with estimates from high-income countries, as well as emerging evidence from low- and middle-income countries, suggesting that price elasticity of cigarette demand among youth is two or more times higher than it is among adults.[35–37] Assuming that youth smoking in Pakistan is twice as sensitive to price as is adult smoking, we estimate that a uniform specific excise tax accounting for 70% of cigarette prices, on average, will reduce youth smoking prevalence by about 7%, preventing almost 725,000 Pakistani youth from taking up smoking. All smoking attributable premature deaths will be avoided among youth prevented from starting. Based on the assumption that half of long-term

smokers will die prematurely because of their smoking, this implies a reduction of over 350,000 deaths among youth who do not initiate smoking as a result of this tax increase.

Further increasing the tax by taxing all cigarette brands at 44 Rupees per pack would raise the total reduction in youth smoking prevalence to over 26% and prevent over 2.5 million youth from taking up smoking. The health impact would be significant, with almost 1.3 million deaths prevented among youth who do not initiate smoking as a result of this tax increase.

Impact on the Poor

Concerns about the impact of tobacco tax increases on the poor are often raised in opposition to higher cigarette taxes. As described above, estimates from a variety of countries, including India and Bangladesh, show that smoking in lower income households is more responsive to changes in cigarette prices than is smoking in high-income households. These estimates imply that the reductions in smoking among the poor that result from higher tobacco taxes will be larger than those that occur among rich so that the health benefits that result from a tax increase will be progressive. Moreover, the differences in price sensitivity imply that the relative burden of an increase in the tax will fall more heavily on richer households, given that a tax increase will reduce smoking by more in poorer households than in richer households.

To the extent that concerns remain about the impact of tobacco tax increases on the poor, these can be at least partly addressed by spending the new tax revenues generated by the tax increase in a progressive manner. Using the new revenues to increase government spending on education, health care, and social assistance programs that benefit the poor can offset any negative impact of higher taxes on low-income smokers.

Tax Avoidance and Tax Evasion

While the tobacco industry and others argue that increased tobacco taxes result in extensive tax avoidance and tax evasion, existing evidence indicates that a variety of other factors are important determinants of large scale, organized smuggling, individual tax avoidance, counterfeiting, and other illicit cigarette trade.[35] For example, while differences in cigarette taxes can contribute to the smuggling of cigarettes from low tax to high tax jurisdictions, pre-tax price differences are often substantial and create a financial incentive to smuggle. Other researchers have found that the level of corruption in a county explains at least as much of the extent of smuggling as is explained by tax and price levels.[55] Other important determinants include the presence of an informal distribution network for cigarettes within a country, poor technology and communications at customs, weak or non-existent enforcement, and minimal penalties for those caught trading illegally in cigarettes.[35,48]

In Pakistan, illicit trade in cigarettes is problematic, with untaxed cigarettes accounting for about one-third of overall cigarette consumption in 2011.[14] Several factors contribute to illicit trade in Pakistan, most notably the long and porous border with Afghanistan, poor monitoring and the resulting underreporting of production, the lack of regional partnerships aimed at curbing illicit trade in tobacco products and internal corruption. These factors suggest that cigarette tax increase of the magnitude described above would likely lead to increased tax avoidance and evasion that would reduce, but not eliminate, the public health and revenue impact of tobacco tax increases.

Pakistan's Federal Board of Revenue has taken several actions in an effort to curb illicit trade, including: launching a media campaign to create awareness in the general public about the penalties

which can be imposed on persons involved in selling/purchasing non-duty paid cigarettes; creating a task force in Peshawar city to investigate the sale of non-duty paid and/or smuggled cigarettes; monitoring transit trade with Afghanistan given that this transit trade is a major source of smuggled cigarettes in Pakistan; and researching new technologies for monitoring the production and distribution of tobacco products in Pakistan.[56]

As described in WHO's *Technical Manual for Tobacco Tax Administration*, strengthened tax administration would help keep problems with increased illicit trade in tobacco products to a minimum.[30] One key step is the adoption of the recently approved Illicit Trade Protocol to the WHO FCTC (ITP). Among its key provisions, the ITP calls for the use of new, more sophisticated cigarette tax stamps that are being used in an increasing number of jurisdictions, that are more difficult to counterfeit, and that allow better tracking and tracing of tobacco products from the manufacturer to the retailer. Similarly, tax authorities in Pakistan could adopt state-of-the-art production monitoring technologies, such as those employed in Turkey and Brazil, coupled with other pack markings to facilitate tracking and tracing of cigarettes through the distribution chain. In addition, imposing swift, severe penalties for those caught engaging in illicit cigarette trade, and substantially enhancing enforcement efforts, particularly along the border with Afghanistan, would be effective in deterring illicit tobacco trade. Requiring licenses for all engaged in tobacco product

manufacturing, distribution, and retailing would facilitate such enforcement efforts. The additional revenues generated from these activities would almost certainly more than pay for them many times over.[30]

Employment

As described above, relatively few jobs in Pakistan are dependent on tobacco, with tobacco farming accounting for less than 0.5% of total agricultural employment and tobacco manufacturing accounting for less than 0.1% of manufacturing employment. Together, tobacco farming and tobacco product manufacturing account for less than 0.2% of overall employment in Pakistan. Given this, reductions in tobacco use that result from tax increases or other tobacco control activities will have little impact on overall employment in Pakistan as the funds once spent on tobacco products are spent on other goods and services and as the government spends new tax revenues on more labor intensive activities, creating new jobs that offset any loss of tobacco-dependent jobs. This has been demonstrated empirically for many countries, where reductions in tobacco use that result in job losses in the tobacco sectors are offset or more than offset by increases in jobs in other sectors.[35]

To the extent that there are concerns about job losses in more tobacco-dependent sectors or provinces, using a portion of new tobacco tax revenues generated by a tax increase to move tobacco farmers into other crops and/or to retrain those employed in tobacco product manufacturing for work in other sectors can alleviate these concerns.

Endnotes for Chapter VII

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VII.   Summary and Recommendations

Summary

Pakistan has one of the largest populations of tobacco users in the world, with over 22 million adults ages 18 or older smoking cigarettes, waterpipe, bidis, or some other tobacco product and millions more using smokeless tobacco products, including gutka, naswar, and paan. Almost one-third (32.4%) of men and 5.7% of women smoke tobacco, and 15.9% of adult Pakistanis are daily smokers. A significant number of Pakistani youth consume tobacco products, and relative rates of smoking among girls versus boys are higher than among women versus men, raising concerns about significantly increased prevalence among women in future years. Given the high levels of tobacco use, Pakistan faces considerable health and economic consequences from tobacco.

The growing recognition of these problems has led to changes in the tobacco control environment in Pakistan, including the adoption of limits on tobacco use in a variety of public places and workplaces, some limits on tobacco company marketing, graphic warning labels on smoked tobacco products, and a ban on the manufacture, distribution and sale of smokeless tobacco products. However, these policies are not comprehensive and are often poorly implemented and enforced; strengthening them is critical to ensuring that reductions in smoking in Pakistan continue into the future.

At the same time, cigarette prices in Pakistan are among the lowest in the world, and real cigarette prices have been falling and increases in income have made cigarettes increasingly affordable over much of the past two decades. These trends, however, have seen reversals in recent years as cigarette taxes have been increased, raising real cigarette prices and reducing the affordability of cigarettes.

Extensive research from a growing number of countries has documented the inverse relationship between tobacco product prices and consumption. Pakistan is no exception. Existing evidence as well as new estimates produced for this report clearly show that falling cigarette prices lead to increases in smoking, while rising prices will reduce smoking, all else constant. These estimates indicate that a 10% increase in average cigarette prices in Pakistan will lead to about a 5% reduction in cigarette consumption. Evidence on the impact of income on cigarette smoking is mixed, but the new evidence produced in this report shows that rising incomes will lead to significantly more smoking in Pakistan, consistent with the existing empirical evidence for most low- and middle-income countries.

The cigarette tax structure in Pakistan is complicated, with a tiered structure that imposes different excise taxes based on retail cigarette prices. Until 2013, the system was comprised of a specific tax applied to low priced cigarettes, an *ad valorem* tax levied on high priced cigarettes, and a combination of specific and *ad valorem* taxes applied to mid-priced cigarettes. The tax system was simplified in the 2013–14 budget — *ad valorem* taxes were eliminated and three tiers were collapsed into two, although the gap in tax between the lower and the higher tier is still substantial. Cigarette excise taxes in Pakistan account for just over half of final cigarette prices paid by consumers on average, while total taxes on cigarettes account for almost two-thirds of final prices. This is below the level in countries that have taken a comprehensive approach to reducing tobacco use, where taxes account for 70% or more of price, and the excise tax share is below the 70% level recommended by the World Health Organization.

Based on existing and new estimates, we modeled the impact of changes in the existing tax structure and rates. Eliminating the tiered tax structure and adopting a uniform specific excise tax of 31.2 Rupees per pack of

20 cigarettes, so that the cigarette excise tax would account for 70% of final prices as recommended by WHO would raise average prices by over 15% and reduce cigarette consumption by 7.5%. In addition, this tax and price increase will lead over one-half million current Pakistani cigarette smokers ages 18 and older to quit smoking, while preventing almost 725,000 Pakistani youth under 18 from taking up cigarette smoking. Together, these reductions in smoking will prevent over one-half million premature deaths caused by tobacco use in the current population cohort. At the same time, because of the inelasticity of cigarette demand, the tax increase will generate over 27 billion Rupees (US$0.3 billion) in new cigarette tax revenues. A larger tax increase — one that taxes all brands at 44 Rupees per pack of 20 cigarettes — would have a much greater public health impact, while generating even higher revenues.

Recommendations

Given this evidence, we make the following recommendations:

(1) **Adopt a high uniform specific cigarette excise tax that significantly raises cigarette prices and reduces tobacco use.**

The current tax structure that applies different tax rates on cigarettes based on retail price simplifies the more complex mixed system used in prior years, but continues to result in relatively low prices for the majority of cigarette brands and large differences in prices between high and low priced brands. One consequence of this is that increases in cigarette tax rates will have less impact on public health than they would if a single uniform specific tax was applied to all cigarettes, since the large price differences continue to create an incentive to switch down to cheaper cigarettes in response to tax increases. Replacing Pakistan's tiered excise tax structure with a uniform specific tax on all cigarettes would eliminate opportunities for tax avoidance through misclassification or repositioning of brands and send the clear message that all cigarettes are equally harmful, while reducing the incentives for substitution to less expensive cigarettes in response to a tax increase. By raising prices, this tax increase will prevent cigarette smoking initiation, promote cessation, lower consumption among continuing smokers, and reduce the death, disease, and economic costs that result from smoking. The recent switch to a two-tiered specific system is an important first step in simplifying taxes. However, given the fact that tobacco excise taxes continue to be lower for the majority of brands in the market compared to the equally harmful but higher priced brands, an increase in the lower tier tax will be important in the medium term as an intermediate step towards equalizing taxes at a uniform, higher level.

(2) **Implement annual adjustments to tobacco tax rates so that they retain their real value over time and are not eroded by inflation.**

One caveat associated with the proposed uniform excise tax on cigarettes recommended above is that the real value of this tax will be eroded over time by inflation. In Pakistan, despite periodic increases in cigarette tax rates and increases in the price tiers to which they apply, real cigarette price have fallen for much of the past 20 years. These falling real cigarette prices result in higher levels of cigarette consumption, together with its health and economic consequences. Annual or more frequent adjustments of the proposed uniform specific cigarette tax will maintain its real value over time which will maximize the public health and revenue impact of the tax.

(3) **Implement annual adjustments to tobacco excise tax rates so that they result in increases in tobacco product prices that are at least as large as increases in per capita incomes.**

New evidence provided in this study clearly shows that cigarette demand in Pakistan rises with income. For much of the past two decades, the combination of falling real cigarette prices and rising incomes has led to cigarettes becoming much more affordable in Pakistan. This increasing affordability resulted in more cigarette smoking than would have otherwise been the case. In addition to raising taxes to offset the effects of inflation, further increases in excise taxes that reduce the affordability of cigarettes are needed in order to improve public health by reducing smoking.

(4) **Increase taxes on other tobacco products to be equivalent to cigarette taxes and to reduce the use of these products.**

Equating taxes on all tobacco products reduces incentives to substitute from higher taxed products to lower taxed products, maximizing the health and revenue impact of these taxes. Specific taxes on these products should be annually increased so that they keep pace with inflation and do not fall in real terms over time. In addition to indexing, tobacco taxes should be regularly increased over time, with the long run objective of tobacco excise taxes accounting for at least 70% of average prices, as recommended by WHO. Once that goal is achieved, subsequent increases should be adopted that are sufficient to further reduce the affordability of tobacco products.

(5) **Strengthen tobacco tax administration, increase enforcement, and tax duty free sales of tobacco products in order to reduce tax evasion and avoidance.**

Tax avoidance and tax evasion in Pakistan cost the government revenue and adversely affect public health. As called for in the recently adopted Illicit Trade Protocol to the WHO Framework Convention on Tobacco Use, several steps should be undertaken to strengthen tobacco tax administration in Pakistan. First, a well established monitoring system should be put in place that employs new technologies for monitoring the production and distribution of tobacco products. These new technologies include adoption of: a state-of-the-art production monitoring system; the new generation of more sophisticated, hard to counterfeit tax stamps; and a tracking-and-tracing system that can follow tobacco products through the distribution chain. The government's initial investment in these technologies would almost certainly more than pay for itself through the revenues collected on products for which taxes would otherwise not have been paid.

Pakistani tax administrators' capacity for tracking and tracing should be further strengthened by licensing all involved in tobacco production and distribution and resources should be allocated to enforcing tax policies. When done in combination with the adoption of the technologies discussed above, licensing would be highly useful in enforcement efforts and allow customs to more easily identify illicit product and to identify those higher up in the distribution chain that are responsible. Severe administrative penalties should be imposed on those caught engaging in tax evasion so as to significantly increase the

swiftness and severity of these penalties, making them a greater deterrent. Again, the government's investment in enhanced enforcement efforts would almost certainly more than pay for themselves through the increased taxes collected from previously untaxed products.

All taxes should be applied to tobacco products sold in duty free outlets. Doing so increases the public health impact of higher tobacco taxes by raising all tobacco product prices and by reducing opportunities for tax avoidance and evasion, while at the same time generating additional revenues.

(6) **Earmark tobacco tax revenues for health purposes, including health promotion and tobacco control**

Higher tobacco taxes will generate significant new revenues. Using these revenues to support programs that help existing tobacco users quit, particularly among the poor, and that support other programs targeting the poor will reduce any potentially regressive impact of the higher taxes on the large segment of the Pakistani population that lives in poverty. Moreover, earmarking of tobacco tax revenues for health purposes increases public support for tax increases and adds to the impact of these tax increases on health and development. This includes dedicating a portion of tobacco tax revenues for comprehensive tobacco control programs that include, but are not limited to, support for community level interventions, mass media public education campaigns about the harms from tobacco use, provision of support for smokers trying to quit smoking and efforts to prevent young people from taking up tobacco use.

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