

# Tobacco: Curbing its Use

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PAKISTAN

## ACRONYMS

AJK	Azad Jammu and Kashmir
C&F	Cost and Freight
CCTV	Closed-Circuit Television
CPI	Consumer Price Index
DAC	Dark-air Cured
DNP	Duty-non-paid
EU	European Union
FBR	Federal Board of Revenue
FCTC	Framework Convention on Tobacco Control
FCV	Flue-cured Virginia
FDI	Foreign Direct Investment
FED	Federal Excise Duty
FTC	Federal Tobacco Cess
GDP	Gross Domestic Product
IPR	Intellectual Property Rights
LTC	Lakson Tobacco Company
MTDF	Medium-term Development Framework
NWFP	North West Frontier Province
PMI	Philip Morris International
PTC	Pakistan Tobacco Company
TDC	Tobacco Development Cess
VAT	Value Added Tax
WHO	World Health Organization
WP	White Patta

# TOBACCO: CURBING ITS USE

## EXECUTIVE SUMMARY

Tobacco consumption represents one of the largest causes of premature death today. According to a World Bank Study by, the number of tobacco users will rise to 1.6 billion by 2025. Inadequate information about the health and other costs of tobacco consumption, especially with young smokers, has led to higher consumption despite the high health and economic costs of tobacco use. The health consequences of smoking and nicotine addiction include diseases such as cancers, heart disease and respiratory diseases. Smoking also affects the health of nonsmokers, particularly infants. The costs associated with tobacco use also include financial losses resulting from the cost of cigarettes themselves, medical treatment of resulting ailments for smokers and their families, and the loss of earning power resulting from tobacco-related illness. While no independent data are currently available on the health impact of tobacco use in Pakistan, it is likely that its impact on mortality and morbidity is quite significant.

While Pakistan is one of the countries ratifying the WHO Framework Convention on Tobacco Control (FCTC), signing this global treaty in 2004, overall efforts at curbing the use of tobacco through tax and non-tax measures in Pakistan still appear to be half-hearted. While tobacco prevention is a national government objective, enforcement of legislation in practice is weak, as is the political will to regulate tobacco consumption. To curb the adverse epidemic of tobacco, WHO has introduced the MPOWER package of six proven policies, which includes: 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, and Raise taxes on tobacco. These policies serve as a guide for future directions in Pakistan, and this report in particular examines the potential impact of tax policy on tobacco prevalence and consumption.

Tobacco for Pakistan is a relatively minor crop, accounting for 0.27 per cent of the total land under cultivation. Production of tobacco is largely concentrated in North

West Frontier Province (NWFP) and Punjab. These provinces accounted for 97 per cent of total area under tobacco production. Tobacco output has fluctuated, ranging from a low of 75,000 tons in 1990-91 to 120,000 tons in 2006-07. Pakistan grows Virginia (*Tabacum*) and indigenous (*Rustica*) types of tobacco. Six principal types of tobaccos are produced, which are used in the manufacturing of cigarettes, biris (tobacco rolled in leaves), hookah (smoking pipes using water for the purpose of filtering the smoke) and chewing tobacco. It is estimated that about 100,000 persons derive their livelihoods from tobacco cultivation.

The World Bank has estimated that today about one in six adults smoke, or 1.1 billion people. Of these, about 80 percent live in low- and middle-income countries. Persons of low socioeconomic status are more likely to smoke than those of high socioeconomic status. Educational level is also a clear determinant of smoking in many developing countries. Individuals who take to smoking mostly start in adolescence or young adulthood. In South Asia, smokers with college-level education tend more to consume cigarettes, while smokers with low levels of education and income consume larger numbers of the inexpensive biris. The WHO Report on the Global Tobacco Epidemic, 2008 indicates that the overall prevalence rate of Tobacco in Pakistan is 19 per cent in adults and 10 per cent in youth, and is higher for males (at 32 per cent) than females (at 5 per cent). There is a clear rising trend in the prevalence rate, pointing to the growing severity of the epidemic in this country.

Pakistan is largely self-sufficient in tobacco and tobacco products. Overall, the level of imports to and exports from Pakistan are limited. Pakistan has 18 tobacco producing companies having 22 operating cigarette factories. Even though NWFP grows almost 79 per cent of tobacco in the country, only 39 per cent of the installed capacity is located in the province. Sindh has about 23 per cent of installed capacity while five factories are located in Punjab. The tobacco industry is a medium sized industry in Pakistan with a weight of 4 to 5 per cent in total value added by the large-scale manufacturing sector of Pakistan, ranking tenth in size. During 2007-08 value added by the industry is estimated at Rs 40 billion (equivalent to US\$625

million) while industrial employment is estimated to be close to 5,200. The share of the industry in the GDP is about 0.4 per cent.

Two transnational companies hold over 95 per cent of the country's cigarette market. Pakistan Tobacco Company (PTC) holds 48 per cent of the share while Lakson Tobacco Company has a market share of 47 per cent. Over time, the market share of the latter has increased principally because it produces low price cigarettes with a price range of up to Rs. 20 per pack. This pattern indicates that cigarette consumption is rising proportionately more in lower to lower-middle income groups.

Analyses of the balance sheets of these two companies reveal a generally rising trend of profitability during the current decade, where the profit margin on sales and the rate of return on assets have been rising steadily. Similarly, the return on equity has been rising for PTC. There has been some fall in the return on equity in the case of LTC after 2004, but remains high at 49% in 2006. Altogether, the tobacco industry has been highly profitable.

The rationale for tobacco taxation has always been generation of revenues for the central government. A clear relationship is visible between the price level and demand for cigarettes in Pakistan. During the decade of the 90s there was a sharp fall in the 'real' price of cigarettes, which stimulated per capita consumption. During the current decade, increase in cigarette prices has contracted per capita consumption by over 11 percent.

In Pakistan, the government levies a variety of taxes on tobacco and tobacco products. There is a small tobacco cess levied by provincial governments on the output from cultivation of tobacco. At a federal level, an excise duty is levied on the three-tier structure depending upon the retail price. For the low priced cigarettes, there is a specific tax. In the intermediate price range, the excise duty has both a specific and *ad valorem* component. High price cigarettes are subject to an *ad valorem* duty at a rate of 63 per cent on the retail price.

This tax structure also has behavioral consequences: at the lower end, with a specific tax, manufacturers have an incentive to raise the retail price without

incurring any additional tax liability. As a result, prices of low quality cigarettes are likely to cluster at the upper end of tier 1. The discontinuity in the size of the excise duty at the point of transition from tier II to tier III means that there will be less tendency to raise prices of cigarettes that are priced close to this point. Also, Tier III cigarettes will tend to be priced far away from the Tier II – Tier III juncture.

Tax as a percentage of retail price has a U-shaped curve with respect to the retail price. It falls from a high of over 57 percent in the case of a very low priced cigarette to a low of 52 percent and rises for higher priced cigarettes to 62 percent. Cigarettes in the highest tier have tax burden of 68 percent, inclusive of the general sales tax. Overall, based on the market shares of different brands, the overall tax incidence on cigarettes currently is estimated at 57 percent of the price. Literature demonstrates that for taxation to curb tobacco consumption the tax burden has to be at least two thirds of the price. Therefore there appears to be a case for increasing taxation on tobacco, the contribution of which to total revenue has declined to 3.6 percent in 2007-08. In many countries, the share is in excess of 4 percent.

Households in Pakistan spend about 3 percent of their income on tobacco and tobacco products. This proportion is somewhat higher for rural than for urban households. Lower and middle income households in both urban and rural areas are spending a higher proportion of their income on tobacco and tobacco products than the top income households. The price elasticity of the demand for cigarettes in Pakistan is -0.58, and the income elasticity of demand for cigarettes is high at 0.78. This implies that as incomes rise, the price of cigarettes will have to be increased disproportionately if demand is to be curtailed.

The Report presents a new structure of taxation of cigarettes in Pakistan. The design of the new tax structure ensures, first, that the tax incidence rises at all retail prices and, second, largely avoids the discontinuity in tax in the transition from tier II to tier III. The new tax structure leads to a significant enhancement in revenues, which could be up to 24 percent, while the decline in quantity could be as much as 20 percent if manufacturers largely respond to the new tax structure by raising their retail prices. The additional contribution to the national exchequer could be nearly Rs. 8 billion annually.

Non duty paid cigarettes captures about 20 per cent of the cigarette market in Pakistan most of which is illicit production. According to estimates, tax evasion denies the government approximately Rs 7.0 billion in annual revenue. The Government of Pakistan has taken steps to curb the share of the illicit sector. One key measure is the minimum price law. However, due to weak enforcement levels, these measures have not been able to create any substantial deterrence to the duty-non-paid sector, which accounts for most of illicit trade. In addition, there are many known international brands selling in the market openly, largely catering to the demand of high quality cigarettes by upper income smokers. Given the porous borders and high levels of smuggling (e.g. in transit trade with Afghanistan or from Dubai) some estimates show that smuggling leads to revenue losses from cigarettes of up to Rs 3 billion. Proposals for improved tax administration include use of CCTVs, affixing of excise duty stamps on packets, and other measures.

This report concludes with a number of policy implications which include:

- First, a change the direction of public policy by effectively persuading policy makers to view higher short-term revenues from tobacco use as also avoiding long-term costs to the economy;
- Second, refining and rationalizing the fiscal structure in order to make tobacco expensive for its users, in particular by increasing the tax on lower quality cigarettes;
- Third, involvement of local government institutions, which are principally responsible for the basic health network in the country, in the design of tobacco policy;
- Fourth, tightening up the lax tax regime that currently results in smuggling and illicit production, particularly for low quality cigarettes;

- Fifth, higher priority to non-tax and non-price disincentives to curb tobacco use, including enforcement of smoke-free environments, introduction of cessation programs, bans on advertising, promotion and sponsorship, health warnings on cigarette packets, indications of nicotine and tar contents, and the development of a data base for the proper monitoring of tobacco use.

We conclude that the government must give a high priority to curbing the use of tobacco through a multi-pronged strategy such as the one described above as part of an overall health policy for Pakistan. Taxation in particular has been shown to be an effective monetary instrument to regulate the use of tobacco, and there is a huge potential for increasing taxes, regulating the use of tobacco, and enforcing strong tobacco control measures in compliance with the Framework Convention on Tobacco Control. A tobacco free Pakistan will not only yield health benefits to its population, but will ultimately benefit its government in the form of money saved from the health and labor productivity of its population.

## 1. INTRODUCTION

Pakistan is a country located in the South Asian subcontinent bordered by Afganistan and Iran in the west, India in the east, China in the far northeast, and the Arabian Sea and the Gulf of Oman in the south. It is the 6th most populous country in the world with a population of roughly 161 million in mid-2008. It had a nominal per capita income of \$1085 in 2007-08 and 23.3% of the population was under the official poverty line of Rs. 944.47 (US\$15) per month as of 2005-06 (Government of Pakistan, 2008a). Pakistan is a federation comprising four provinces: Punjab, Sindh, NWFP and Balochistan.

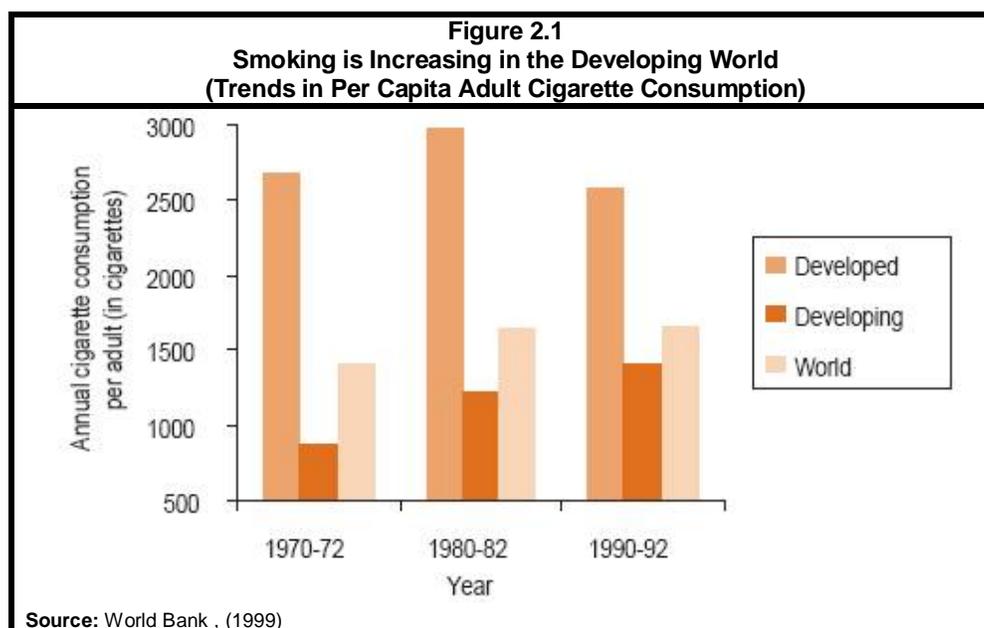
Consumption of tobacco is a major public health challenge in Pakistan, as it is in many other countries. However, comprehensive research that underscores the need for public health policy to regulate tobacco use has been largely absent in Pakistan. This report examines the economic and policy implications of tobacco taxation as a mechanism for tobacco control in Pakistan while bringing together various studies and other scattered information on the economics of tobacco in Pakistan. It is designed to be a reference for policy makers interested in evidence-based policy guidelines on economic approaches to tobacco regulation, researchers interested in examining the major economic issues pertaining to tobacco taxation in Pakistan, and others interested in the current state of knowledge on the economics of tobacco taxation in this major world region.

The health costs of tobacco consumption as the biggest cause of preventable death today have increasingly been highlighted both internationally and locally. A strong case has been made for regulating the use of tobacco through the implementation of a multi-pronged strategy that includes heavier taxation of tobacco and tobacco products, public awareness campaigns targeted especially at vulnerable groups like youth, and restrictions on smoking. The objective of this report is to present such a strategy in the Pakistani context for curbing the use of tobacco.

## 2. TOBACCO USE IN PAKISTAN

### 2.1 Global Trends in Tobacco Use

The World Bank has estimated that today about one in six adults smoke, or 1.1 billion people. Of these, about 80 percent live in low- and middle-income countries. Partly because of growth in the adult population, and partly because of increased consumption, the total number of smokers is expected to reach about 1.6 billion by 2025. The same study reports that the populations of the low- and middle-income countries have been increasing their cigarette consumption since about 1970 (see Figure 2.1). The per capita consumption in these countries climbed steadily between 1970 and 1990, although the upward trend may have slowed a little since the early 1990s.



Describing the pattern of smoking, the report concludes that in low- and middle-income countries, like in developed countries, persons of low socioeconomic status are more likely to smoke than those of high socioeconomic status. Educational level is a clear determinant of smoking in many developing countries like India, Brazil, China, South Africa, Vietnam, and several Central American nations. The study finds that it is less likely that individuals who do not smoke in adolescence or young adulthood will ever become smokers. An overwhelming majority of smokers start before age 25, often in childhood or adolescence. Also, the study states that there

exists a pattern in the type of tobacco consumption, depending on economic status in South Asia. Smokers with college-level education tend more to consume cigarettes, which are relatively more expensive, while smokers with low levels of education and income consume larger numbers of the inexpensive biris.

According to 2001 World Bank study, total cigarette consumption for the South Asia region in 1999 was about 175 billion pieces, accounting for 3.4 percent of world consumption. Since the share of the region in the world's population - 23 percent - was much higher, average use per capita cigarette consumption was much lower than the world average. However, these numbers are misleading for overall tobacco consumption since tobacco products other than cigarettes are widely used in the region.

## 2.2 Tobacco Consumption in Pakistan

Tobacco is consumed mostly in the form of filtered cigarettes in Pakistan, unlike its neighbor India where a large majority of tobacco users consume biris (a biri is a smoking tobacco product made by rolling a dried, rectangular piece of temburni leaf (*diospyros melanoxylon*) with sun-dried, flaked tobacco into a conical shape and securing the roll with a thread). As in other Asian countries, tobacco is used in basically three forms in Pakistan. The first is in the form of cigarettes, most of which are manufactured in the country. The second most popular use of the substance is in Hookahs (waterpipes). Biris are the third form of consumption. A small amount of the substance is used in other ways, particularly as a part of the filling used for pan (betel) leaves.

### 2.2.1 Prevalence of Tobacco Use

As shown in Table 4.1, cigarette consumption is higher in Pakistan compared to other South Asian countries. In terms of packs of cigarette (packs of ten) consumed,

Country	Population (million)	Share in population (%)	Share in cigarette consumption (%)
India	1130	77	54
Pakistan	162	11	32
Bangladesh	150	10	9

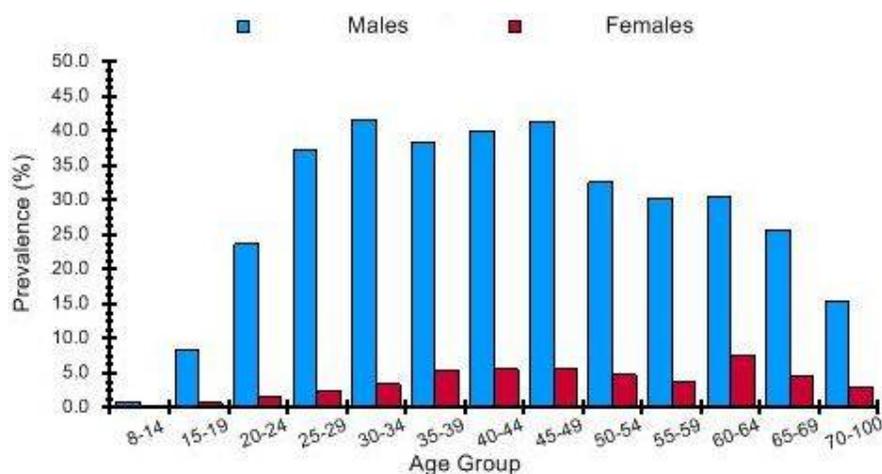
Pakistan had the highest level of annual consumption at 32 packs, followed by 19 for Sri Lanka, 9 for Bangladesh, 7 for India, and 5 each for Afghanistan and Nepal. However, in terms of the prevalence of smoking, India with 26 per cent of the population had the highest ratio followed by 23 per cent for Bangladesh.

No systematic data on prevalence of tobacco use is available in Pakistan. The latest estimates, as reported in the *WHO Report on the Tobacco Epidemic, 2008* indicate that the overall prevalence rate is 19 percent in adults and 10 percent in youth (see Table 2. 2). The prevalence rate is higher for males (at 32 percent) than females (at 5 percent). Interestingly, the difference in the prevalence rates between males and females is much wider in adults than in youth; youth prevalence of tobacco use was estimated to be 12.4% for males and 7.5% for females. This perhaps is a signal indicating the growing severity of the tobacco epidemic in the country in coming years. While male smokers continue to rise, more females are falling prey to the temptation to smoke, resulting in a likely increase in the overall prevalence rates in the future.

	<b>Any tobacco product</b>		<b>Cigarettes</b>	
	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>
<b>Adults (2005)</b>				
Current User	31.7 (25.6-37.7)*	5.2 (3.4-7.1)	26.7 (21.5-31.8)	2.2 (1.3-3.1)
Daily User	25.3 (20.4-30.1)	3.9 (2.4-5.3)	20.3 (16.4-24.3)	1.4 (0.8-2.0)
<b>Youth (2003)</b>				
Current User	12.4 (9.2-16.5)	7.5 (5.4-10.2)	2.3 (0.9-5.4)	0.6 (0.2-1.9)
<ul style="list-style-type: none"> <li>• Figures are age adjusted; figures in brackets represent 95 percent confidence interval estimates.</li> <li>• <b>Source:</b> WHO 2008.</li> </ul>				

Comparing this to earlier national level prevalence data, smoking appears to be increasing in Pakistan. According to the 1990-1994 National Health Survey of Pakistan, the overall prevalence of smoked tobacco was 28.5 percent among adult (15+) males and 3.4 percent among adult females for daily use (World Health Organization, n.d.). The prevalence was found to be the highest in 30-34 & 45-49 age groups among males and 60-64 age groups among females (Figure 2.2). Prevalence among women has also been found to be increasing with age.

Figure 2.2: Tobacco use prevalence by age and gender



Source: Pakistan medical research council, National Health Survey of Pakistan 1990-94, 1998 as reported in World Health Organization (n.d.)

Other subpopulation studies conclude that tobacco use prevalence in Pakistan is higher in rural areas than in urban areas, among lower income groups than among higher income groups, and among the illiterate than the literate (Nasir & Rehan (2001); Ahmad et al. (2005); Nisar et al. (2005); Rozi et al. (2005); Ali et al. (2006); Mazahir et al. (2006); Nishtar & Ehsan (2006); Ganatra et al. (2007); Imam et al. (2007); Rozi et al. (2007); Rozi & Akhtar (2007); Alam et al. (2008); Mubeen et al. (2008)). These patterns of tobacco use are similar to those for socio-economic and demographic-based population subgroups in most developing countries.

It is also interesting to note that smoking prevalence varies by gender and regions in Pakistan as shown in Table 2.3. Among the four provinces in Pakistan, the North West Frontier Province (NWFP) has the lowest smoking prevalence, while the Sindh province has the highest prevalence. Female smoking prevalence is close to zero (0.3 percent) in NWFP while Sindh has the highest female smoking prevalence of 7.7 percent.

Table 2.3: Prevalence of smoking by region and gender (%)

	Male	Female	Total
Punjab	27.9	3.6	14.9

Sindh	27.1	7.7	16.1
NWFP	17.4	0.3	7.1
Balochistan	23.9	4.1	12.6
Pakistan	25.4	3.5	14.2

Source: Nasir & Rehan (2001)

In addition, tobacco consumption in other forms, such as hookah, biri, and pan, is significant in Pakistan; around 8.5 percent use hookahs (also known as 'hubble bubbles', a water pipe very common in rural areas of South Asia), while 10 percent consume pan, bidis or chewing tobacco/snuff (ERC, 2007). Such products are largely consumed by older consumers.

### **2.3. Health and Economic Impact**

The health consequences of smoking are twofold. First, smokers rapidly become addicted to nicotine. The addictive properties of nicotine are well documented but are often underestimated by the consumer. Those who smoke have a low success rate in quitting, even in developed countries where the awareness levels are relatively higher and there are programs of assistance for cessation programs. Second, smoking causes fatal and disabling disease, and the risk of premature death is extremely high. Half of all long-term smokers will eventually be killed by tobacco, and of these, half will die during productive middle age, losing 20 to 25 years of life (World Bank, 1999).

The diseases associated with smoking are well documented and include cancers of the lung and other organs, ischemic heart disease and other circulatory diseases, and respiratory diseases such as emphysema. In regions where tuberculosis is prevalent, like Pakistan, smokers also face a greater risk than nonsmokers of dying from this disease.

Since the poor are more likely to smoke poorer quality cigarettes and consume other tobacco products (like biris), their risk of smoking-related diseases and premature death is also greater. In high- and middle-income countries, persons in the lowest socioeconomic groups are up to twice as likely to die in middle age as persons in the

highest socioeconomic groups, and smoking accounts for at least half their greater exposure to risk.

Smoking also affects the health of nonsmokers. Babies born to smoking mothers have lower birth weights, face greater risks of respiratory disease, and are more likely to die of sudden infant death syndrome than babies born to nonsmokers. Adult nonsmokers face small but increased risks of fatal and disabling disease from exposure to others' smoke.

The sphere of grave effects of tobacco smoking is not only injurious to health of an individual but also associated with multi-dimensional financial loss including the cost of cigarettes themselves, medical treatment of resulting ailments of smokers and their families, and the lack of earning during said ailments. These, in most instances, lead to repeated disturbances to the tight economic situations of most developing country families, with serious consequences including a loss of buying power to provide proper food and shelter for children and the lack of ability to continue the education of these children.

An ultimate undesirable outcome is sending the children on various jobs to support family expenditures rather than to school. Tobacco smoking can thus be a contributory factor towards illiteracy and child labor. The associated psychological disturbances in members of such families may lead to anti-social activities and criminality. On the whole, the higher magnitude of such occurrences may also lead to the growth of lawlessness, inducing feelings of insecurity and instability.

The devastating effects of tobacco smoke are not limited to human health, but also to the intellectual, social, educational, scientific, and economic development of a country, particularly a developing country. In recent years, tobacco-related costs in the USA are about US\$193 billion dollars per year, including US\$96 billion dollars spent annually on direct medical care of smoking related illnesses and an additional \$97 billion dollars due to lost productivity and foregone earnings as a result of premature deaths caused by smoking. The economy of any developing country is least likely to be able to bear such a high burden of costs due to smoking.

While no large scale surveys have been carried out in Pakistan to investigate the health consequences of tobacco, it would appear that the impact on mortality and morbidity is quite significant. The death toll due to tobacco in Pakistan is estimated to be around 100,000 a year (L. Ehsan, 2008). There have also been a number of studies among different sub-populations (Jafarey et al., 1997; Bhurgri et al., 2003, 2006; Ismail et al., 2004; Nishtar et al., 2004; Bhurgri, 2005; Jafar et al., 2005; Mazahir et al., 2006; Joshi et al., 2007) that indicate an association between tobacco use and a variety of diseases. Based on evidence from other countries, it would appear that the poor suffer disproportionately more from the ill effects of the use of tobacco.

### **3. TOBACCO CONTROL EFFORTS IN PAKISTAN**

#### **3.1. Economic Rationale for Government Intervention**

A World Bank study (1999), analyzing the smoker's decision to smoke on the basis of costs and benefits, concludes that while smokers clearly perceive benefits from smoking such as pleasure and the avoidance of withdrawal and weigh these against the private costs of their choice, their choice to smoke may differ from the choice to buy other consumer goods in three specific ways. First, there is evidence that many smokers are not fully aware of the high risks of disease and premature death that their choice entails. In low- and middle-income countries, many smokers may simply not know about these risks.

Second, smoking is usually started in adolescence or early adulthood. Even when they have been given information, young people do not always have the capacity to use it to make sound decisions. Young people may be less aware than adults of the risk to their health that smoking poses. Most new recruits and would-be smokers also underestimate the risk of becoming addicted to nicotine. As a result, they seriously undervalue the future costs of smoking—that is, the costs of being unable in later life to reverse a youthful decision to smoke.

Third, smoking creates a negative externality, it imposes costs on nonsmokers. With some of these costs borne by others, smokers may have an incentive to smoke more than they would if they were bearing all the costs themselves. The costs to nonsmokers clearly include health damage as well as nuisance and irritation from exposure to environmental tobacco smoke. In addition, smokers may impose financial costs on others such as the treatment of diseases acquired through second-hand smoking. In high-income countries, smoking-related healthcare accounts for between 6 and 15 percent of all annual healthcare costs. These figures may not necessarily apply to low- and middle-income countries, but the bottom line is clear that due to lack of awareness of risks involved and costs imposed both to self and to society, smokers certainly impose physical and financial costs, without fully realizing that they are doing so.

In the context of Pakistan, in the absence of comprehensive surveys on the awareness levels of smokers, it is perhaps safe to conclude that the choice of

smoking is not based on rational cost-benefit decisions. This is likely to be the case because first, the overall literacy levels are low and, second, systematic awareness creation campaign on costs imposed by smoking have never been launched.

### **3.2. Tobacco Control Environment in Pakistan**

In May 2003, the WHO World Health Assembly unanimously adopted the WHO Framework Convention on Tobacco Control (FCTC), one of the United Nations' most widely embraced treaties – and the world's first public health treaty – in order to mobilize action at the global and country level against the tobacco epidemic. This treaty provides the context for effective policy interventions to stop and reverse the tobacco epidemic.

Pakistan signed the FCTC in May 2004 and ratified it in November 2005. However, the enforcement of smoke free environment policies and other tobacco regulatory policies has been extremely weak in Pakistan. The recent report by World Health Organization gave it a score of four out of 10 on the implementation of bans on tobacco advertisement, promotion and sponsorship and a mere two out of 10 on the implementation of smoke free environment policies (World Health Organization, 2008a). The tobacco control provisions that have been implemented are presented in box 3.1. Progress has been incomplete and patchy to date, and from a standpoint of outcomes, tobacco prevalence continues to increase in Pakistan.

The government of Pakistan promulgated the *Prohibition of Smoking and Protection of Non-Smokers Health Ordinance* in the year 2002 “to provide for prohibition of smoking and other tobacco uses in places of public work or use and public service vehicles and to protect the health of non-smokers” (Government of Pakistan, 2002b). This ordinance effectively amended an ordinance for the printing of warnings on cigarettes from 1979. However, the enforcement or implementation of the 2002 ordinance has not met with good success due to a variety of reasons. Some of them include; lack of commitment on part of decision makers, lack of awareness about specific aspects related to its enforcement, and a lack of clarity relating to the mandate of the responsible officers in charge of enforcing the ordinance (Nishtar & Ehsan, 2006). The youth access restriction in the Ordinance

has also not met with success, due to the fact that child labor has forced many children in Pakistan to become cigarette vendors (Nishtar & Ehsan, 2006).

Box 3.1 National Tobacco Control Provisions									
Tobacco Bans and Restrictions	[B]	[R]	[N.R.]	[U]	Tobacco Requirements and regulations	[B]	[R]	[N.R.]	[U]
[B] = Banned; [R] = Restricted; [N.R.] = Not Regulated; [U] = Unknown									
Advertising in certain media	X				Advertising health warnings/ messages	X			
Advertising to certain audiences		X			Age verification for sales			X	
Advertising in certain locations	X				label design on packaging		X		
Advertisement content or design		X			Ingredient constituent information on package label			X	
Sponsorship or promotion for certain audiences					Amount of tar			X	
Sponsorship advertising of events		X			Amount of nicotine			X	
Brand stretching				X	Amount of other ingredients/ constituents		X		
Sales to minors	X				Product constituents as confidential information				X
Sales by minors				X	Product constituents as public information				X
Place of sales		X			Constituent disclosure by brand				X
Vending machines					Constituent disclosure in the aggregate				X
Free products	X								
Single cigarette sales			X		National tobacco control committee	X			
Misleading information on Packaging				X	Tobacco control education/ promotion	X			
Smoking in government buildings (incl. worksites)	X				Anti-smuggling provisions			X	
Smoking in private worksites		X			Litigation enabling provisions			X	
Smoking in educational facilities	X								
Smoking in health care facilities	X								
Smoking on buses	X								
Smoking on trains	X								
Smoking in government buildings (incl. worksites)	X								
Smoking in Taxis	X								
Smoking on ferries	X								
Smoking in domestic air flights	X								
Smoking in Restaurants			X						
Smoking in other public places		X							

To enable a multi-pronged approach to the fight against the tobacco epidemic, WHO has introduced the MPOWER package of six proven policies as follows:

- 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, and
- Raise taxes on tobacco.

According to WHO report, the MPOWER policy package can reverse the tobacco epidemic and prevent millions of deaths caused by tobacco use. Strong national and international monitoring is an essential component of the MPOWER package for the fight against the tobacco epidemic. Data from monitoring are necessary to ensure the success of the five other policy interventions in the MPOWER package. Only through accurate measurement can problems caused by tobacco be understood and interventions be effectively managed and improved. Good monitoring systems must track several indicators, including (i) prevalence of tobacco use; (ii) impact of policy interventions; and (iii) tobacco industry marketing, promotion and lobbying. Pakistan has not yet developed such a data base for either public access or for use at the time of public policy formulation.

The case for smoke-free environments can be made on a number of grounds. First, there exists concurrence among researchers that second-hand smoke exposure contributes to a range of diseases, including heart disease and many cancers. Second, smoke-free environments help smokers who want to quit, and smoke-free laws in workplaces can reduce smoking prevalence. In several industrialized nations such laws have reduced total tobacco consumption among workers by an average of 29 percent (WHO (2008)). Finally, legislation mandating smoke-free public places encourages families to make their homes smoke-free, which protects children and other family members from the dangers of second-hand smoke.

WHO (2008) recommends a step-by-step process as the most effective method to create smoke-free environments. The process should start with an educational campaign for selected communities about the dangers of second-hand smoke. Once some ground support is built, the legislation should be drafted and submitted for public comment. Political will is a necessary pre-condition for the successful implementation of such legislation, which should include clear penalties for violations as well as effective enforcement policies. Though Pakistan has, on paper, established a smoke free environment in health care, educational, governmental facilities, restaurants, air ports and indoor offices, it is the enforcement of the law that is weak and in need of strengthening.

Another important component of the tobacco control package is assistance to potential quitters. Like people dependent on any addictive drug, it is difficult for most tobacco users to quit on their own, and they benefit from help and support to overcome their dependence. Countries' health-care systems hold the primary responsibility for treating tobacco dependence. In most cases, a few basic treatment interventions can help tobacco users who want to quit. Three types of treatment should be included in any tobacco prevention effort:

- tobacco cessation advice incorporated into primary health-care services;
- easily accessible and free quit lines; and
- access to low-cost pharmacological therapy.

These treatment methods have differing cost efficiencies, and do not have a uniform impact on individual tobacco users. Treatment should be adapted to local conditions and cultures, and tailored to individual preferences and needs. Pakistan does not have a good record of treatment of tobacco dependence. There are no quitlines or counseling services either in health care clinics or hospitals. General sale of nicotine replacement therapies also is non-existent.

Warning about the risks from using tobacco is another key component of a comprehensive approach to reducing tobacco use. This could be done through strong, graphic warning labels on tobacco product packaging, mass-media

campaigns, and school based education programs. Pakistan does have mandatory warning labels on cigarette packet, in national language and in large, clear, visible and legible words; however, there are no graphic photographs or pictures. There are no anti-smoking or other mass media campaigns to warn about the dangers of tobacco use. School-based education programs do exist, but have limited effectiveness; only 57 percent of youth surveyed as part of the GYTS, for example, report having been taught about the dangers of smoking.

Marketing and promotion increase tobacco sales by encouraging current smokers to smoke more and decreasing their motivation to quit. Marketing also urges potential users – and young people specifically– to try tobacco and become long-term customers. Tobacco advertising targeting youth, in particular, can be very effective. It can make tobacco use “normal”, and in fact can glamorize tobacco use by falsely associating tobacco with desirable qualities such as youth, energy, glamour and sex appeal. This makes it difficult for people to understand the hazards of tobacco use. Marketing also strengthens the tobacco industry’s influence over the media, as well as sporting and entertainment businesses, through billions of dollars in annual spending on advertising, promotion and sponsorship.

In line with its international commitment, Pakistan has imposed a ban on tobacco advertising on television, radio, local magazines, newspapers, billboards and outdoor advertising. No promotional discounts are allowed, and there are no non-tobacco brands using tobacco products or non-tobacco products with tobacco brand names. However, tobacco products continue to appear on television and films and in sponsored events. Therefore, WHO in its enforcement rating of ban on advertising and promotion has given Pakistan a ranking of 4 out of 10 (WHO (2008)).

Turning next to taxation as a mechanism of curbing tobacco use, increasing the price of tobacco through higher taxes is generally considered the single most effective way to decrease consumption and encourage tobacco users to quit. Tobacco taxes have been used historically by governments worldwide. They are well accepted by both the public and political leadership because tobacco is not an essential good.

In Pakistan, taxes on tobacco and tobacco products are levied principally for the purpose of generating revenues, and the government has been more inclined to use non-tax measures to curb the use of tobacco. There are at present multiple taxes imposed on the tobacco industry, described below.

Overall, efforts at curbing the use of tobacco through tax and non-tax measures are sporadic and perhaps half-hearted in Pakistan. Though tobacco prevention is a national government objective and there is a national agency for tobacco control, it is minimally staffed and resourced; the total public expenditure on tobacco control, as reported in WHO (2008), is Rs. 5 million (equivalent to about US\$82,000). Enforcement of legislation is weak, as is the political will to regulate tobacco consumption.

## 4. PRODUCTION OF TOBACCO

### 4.1. Tobacco Growing

In terms of the area under cultivation, tobacco for Pakistan is a relatively minor crop. In recent years, the area under the crop as shown in Table 4.1 below has not exceeded 0.27 per cent of the total land under cultivation. In fact this proportion, registered in 2006-07, was the largest since 1990-91. In terms of the area, only 62,000 hectares are devoted to the crop. The area devoted to tobacco has fluctuated between 44,000 hectares (in 1990-91) and 62,000 hectares more recently in 2006-07. (See Table 4.1). At the same time, Pakistan is among the top 10 producers of tobacco in the world in terms of both the production and the area cultivated, and tobacco is the only crop grown in Pakistan whose yield per acre is well above the world average (Food and Agricultural Organization, 2009; Nishtar & Ehsan, 2006).

Year	Total Cropped Area (Million Hectares)	Area under Tobacco (000 Hectares)	Percentage %	Production of Tobacco '000' Tonnes
1990-91	21.82	44	0.2	75
1991-92	21.72	54	0.25	97
1992-93	22.44	58	0.26	102
1993-94	21.87	57	0.12	100
1994-95	22.14	47	0.21	81
1995-96	22.59	46	0.2	80
1996-97	22.73	49	0.22	92
1997-98	23.84	53	0.23	99
1998-99	22.84	57	0.25	109
1999-00	22.74	56	0.25	108
2000-01	22.04	46	0.21	85
2001-02	22.12	49	0.22	94
2002-03	21.85	47	0.22	88
2003-04	22.94	46	0.2	86
2004-05	22.78	50	0.22	101
2005-06	23.1	56	0.24	113
2006-07	23.13	64	0.27	120

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

Essentially, tobacco production is restricted to two out of the four provinces in the country. As shown in Table 4.2, production of tobacco is largely concentrated in North West Frontier Province (NWFP) and Punjab. These provinces accounted for 97 per cent of total area under tobacco production in 2004-05.

Year	Punjab	Sindh	NWFP	Balochistan	Pakistan
(Area '000' Hectares)					
2000-2001	17.7	0.2	26.5	1.2	45.6
2001-2002	18.5	0.1	29.8	1.0	49.4
2002-2003	18.0	0.1	27.2	1.3	46.6
2003-2004	17.1	0.1	27.0	1.4	45.6
2004-2005	16.6	0.1	32.2	1.6	50.5

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

Tobacco output has also fluctuated, ranging from a low of 75,000 tons in 1990-91 to 120,000 tons in 2006-07 as shown in Table 4.1. This represents an increase of 60 percent, of which about two-thirds was because of the increase in the area under the crop and the remainder the result of increased productivity. Tobacco leaf output is concentrated in the province of NWFP, which contributes over 76 percent of the country's tobacco production, as shown in Table 4.3. Yield per hectare has been the highest in this province, which peaked at 2368 kg per hectare in 2002-03. (See Table 4.4).

Year	Punjab	Sindh	NWFP	Balochistan	Pakistan
(Production '000' Tonnes)					
2000-2001	21.9	0.2	70.0	1.7	85.1
2001-2002	22.9	0.1	63.3	1.5	94.5
2002-2003	21.9	0.1	64.3	1.9	88.2
2003-2004	21.1	0.2	62.9	2.0	86.2
2004-2005	20.6	0.2	77.3	2.4	100.5

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

Year	Punjab	Sindh	NWFP	Balochistan	Pakistan
(Yield per Hectare in Kgs)					

2000-2001	1243	1 000	2309	1417	1866
2001-2002	1240	1198	2351	1454	1914
2002-2003	1211	1164	2368	1448	1891
2003-2004	1236	1190	2328	1444	1888
2004-2005	1241	2000	2401	1500	1990

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

<b>Box 4.1 Types of Tobacco and Tobacco Producing Regions</b>				
<b>Type of Tobacco</b>	<b>Botanical Species</b>	<b>Popular Name</b>	<b>Area where grown</b>	<b>Usage</b>
Flue-cured	Tabacum	Virginia	NWFP/Punjab	Cigarettes
Light air-cured	Tabacum	Burley	Swat	Cigarettes
Light sun-cured	Tabacum	Hookah	Punjab/Sindh	Hookah
Dark air-cured	Tabacum	Dark Air-cured	Punjab	Cigarettes, Biri
Semi-oriental	Rustica	White Patta	NWFP	Chewing ,Hookah
Dark sun-cured	Rustica	Naswari	NWFP, Punjab and Baluchistan	Snuff/Cigarettes

Pakistan grows Virginia (Tabacum) and indigenous (Rustica) types of tobacco. Types of tobacco production, producing areas and tobacco usage are given in Box 4.1. The principal types include Flue-cured Virginia (FCV), Light air-cured (popular name Burley), light-sun cured, dark-air cured (DAC), semi-oriental (white patta (WP)) and dark-sun cured. There are 17 Grades of FCV, five of WP, seven of DAC and fourteen of Burley type tobacco. Tobacco is produced for manufacturing of cigarettes, biris (tobacco rolled in leaves), hookah (smoking pipe using water for the purpose of filtering the smoke) and chewing tobacco. Over 79 percent of the area where tobacco is grown is devoted to producing FCV variety, as shown in Figure 4.1. Pakistan produced 73 million kgs of FCV in 2005-06 (see Table 4.5) at an average yield of 2,523 kgs per hectare (see Appendix Table 2). It is now the seventh largest producer of FCV in the world, as shown in Table 4.6.

<b>Table 4.5 Production of Cigarette Type Tobacco in Pakistan 1996-97 to 2005-06</b>					
<b>Year</b>	<b>Production (Million Kg)</b>				
	<b>FCV</b>	<b>DAC</b>	<b>WP</b>	<b>Burley</b>	<b>Total</b>
1966-97	46.96	2.01	17.03	0.57	67.17
1997-98	52.50	2.97	16.50	0.67	72.64
1998-99	60.23	3.66	17.78	0.82	82.49
1999-00	64.96	2.44	15.10	0.29	82.79
2000-01	50.96	1.17	9.65	0.58	62.36

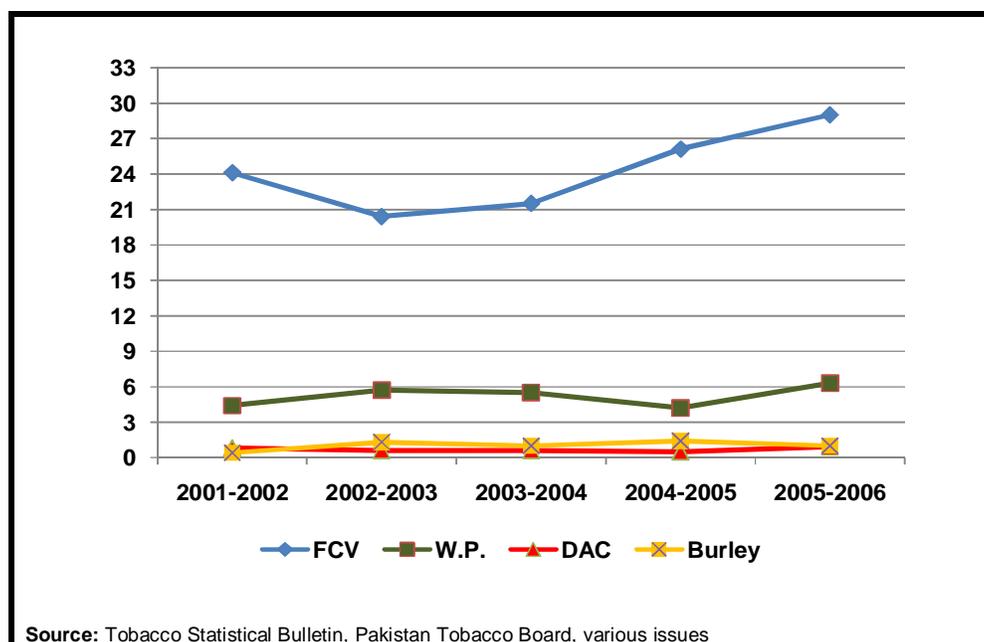
2001-02	59.61	1.94	9.38	0.95	71.88
2002-03	51.31	1.42	10.83	2.15	65.71
2003-04	50.29	0.69	10.98	1.60	63.56
2004-05	65.78	0.86	9.91	1.64	78.19
2005-06	73.75	1.60	13.20	0.92	89.47

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

<b>Table 4.6 Leading FCV Tobacco Producing Countries</b>	
<b>Ranking Countries</b>	<b>Volume – 2006 (mt. Farm Weight)</b>
China	220000
Brazil	632000
India	235000
United States of America	210000
E.U.	93000
Arcent.ina	81000
Pakistan	73750
Zimbabwe	55000
Bangladesh	49000
Tanzania	47000
Indonesia	37000
Malawi	30000
Canada	25000
Zambia	23000
Philippines	22000
Thailand	15000

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

**Figure 4.1  
Tobacco Area**



Based on the total labor force employed in agriculture and on the assumption of a somewhat higher labor intensity of tobacco cultivation, it is estimated that about 100,000 persons derive their livelihood from tobacco cultivation.

## 4.2. Tobacco Product Manufacturing

### 4.2.1. Industry Structure

Pakistan has 18 tobacco companies having 22 cigarette factories with an installed capacity of over 112 million pieces per annum in three shifts (see Table 4.7). Of these 15 factories are located in NWFP with an installed capacity of 44 million pieces. Even though NWFP grows almost 79 percent of tobacco in the country, only 39 percent of the tobacco product production capacity is located in the province. Sindh, which hardly produces any tobacco, has about 23 percent of installed capacity. Five factories are located in Punjab with an installed capacity of 42 million pieces per annum, accounting for the remaining share of installed capacity. Tobacco being an industry relying on a light raw material, is, relatively speaking 'footloose' and location of cultivation is not the major determinant of location of manufacturing facilities. Availability of infrastructure and proximity to consumer markets are also important considerations in location.

Table 4.7

<b>Cigarette Industry in Pakistan</b>				
<b>Particulars</b>		<b>Year of Establishment</b>	<b>Operating/ installed capacity on 3 shifts basis per annum (Million No.)</b>	<b>Existing Status</b>
<b>A. N.W.F.P.</b>				
1.	Pakistan Tobacco Company, Akora Khattak.	1971	22339	3 shifts
2.	Ambar Tobacco Company, Swabi	1992	2100	**
3.	Khyber Tobacco Company, Mardan	1962	4422	2 shifts
4.	Sarhad Cigarette Industries, Nawankili	1975	1150	2 Shifts
5.	Saleem Cigarette Industries, Mardan	1979	1663	2 Shifts
6.	Shaheen Tobacco Company, Khanpur, Julian.	1997	216	**
7.	Bara Cigarette Industry, Bara	1992	800	**
8.	International cigarette Industry, shewa	1991	472	1 shift
9.	Souvenir Tobacco Company, Marium Garhi, Mardan	1986	1950	2 shifts
10.	Mardan cigarette Industry, Mardan.	1999	58	1 Shift
11.	Eastend Tobacco Company, Hattar(Haripur)	1990	900	**
12.	Universal Tobacco Company, Mardan.	1989	600	1 Shift
13.	Paramount Tobacco Company Chota Lahor	1989	4860	**
14.	Imperial Cigarette Industries. Dagai Road, Tarakai	1989	1728	1 Shift
15.	F.S. Tobacco Company, Hakim Abad	1992	1152	**
		<b>Total</b>	<b>44410</b>	
<b>B. SINDH</b>				
1.	Lakson Tobacco Company, Karachi	1976	11000	2 shifts
2.	Lakson Tobacco Company, Kotri	1971	14445	2 Shifts
		<b>Total</b>	<b>25445</b>	
<b>C. PUNJAB</b>				
1.	Pakistan Tobacco Company, Jhelum	1956	18320	2 Shifts
2.	Lakson Tobacco Company, Mandra, Rawalpindi	1972	6050	2 Shifts
3.	Lakson Tobacco Company, Qadir Abad, Sahiwal	1981	17550	2 shifts
4.	Burley Tobacco Company, Fateh Jang.	1995	600	1 shift
		<b>Total</b>	<b>42520</b>	
		<b>Grand Total</b>	<b>112375</b>	

Source: Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

#### 4.2.2. Industry Value Added and Employment

The tobacco industry is a medium sized industry in Pakistan accounting for between 4 and 5 percent in total value added by the large-scale manufacturing sector of Pakistan. It is ranked tenth in size after textiles, vegetable ghee, sugar, petroleum products, pharmaceuticals, chemicals, cement, automobiles and metals. In 2007-08, the value added by the industry is estimated at Rs. 40 billion (equivalent to US\$625 million).

Estimates of employment are available only in the Census of Manufacturing carried out by FBS, which covers factories registered under the Factories Act and employing more than 10 persons. Therefore, relatively small units producing cigarettes are excluded from the Census. The last such Census was in 2000-01

and the reported employment was 4,362. Given increased output, It is likely that employment may have grown since then to about 5,200.

#### 4.2.3. Key Players in Industry

Pakistan has encouraged foreign direct investment (FDI) in the manufacture of cigarettes. In that respect - as in several other respects - it has followed the approach adopted by the state when Pakistan was a part of British India. Two transnational companies hold over 95 percent of the country's cigarette market (see Table 4.8). The Pakistan Tobacco Company (PTC) is a subsidiary of the British American Tobacco. It was incorporated in 1947, the year Pakistan was born following the partition of British India into two independent states. It assumed the business of Imperial Tobacco Company which had been operational in British India since 1905. The main manufacturing facility in Pakistan is located in Jheium, a medium-sized city 60 miles south of Islamabad, the country's capital.

<b>Manufacturer</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Lakson Tobacco Company	35.6	42.2	45.7	47.1	48.1	46.8	46.0	47.0
Pakistan Tobacco Company	53.9	47.5	46.4	46.5	46.7	50.4	51.0	48.4
Other manufacturers	10.5	10.3	7.9	6.4	5.2	2.8	3.0	4.6

**Source:** Tobacco Merchants Association

Lakson Tobacco Company (LTC) is the second largest manufacturer of cigarettes in the country. Established by a Karachi-based industrial group in 1971, it produces the popular Red & White and Marlboro brands under license from Philip Morris International (PMI), a subsidiary of the US based Altria. The purchase of Lakson by PMI in 2006 was a part of Altria's policy of geographical diversification of its operations, and was in keeping with the trend in Pakistan in terms of foreign direct investment.

In recent years LTC has gained market share and has in part eroded the market of companies and also PTC. Table 4.8 shows that the market share of LTC has increased from 35 percent in 2000 to 47 percent in 2007. The share of PTC has declined from almost 54 percent to 48 percent. Smaller manufacturers, largely

located in NWFP, have also lost their market shares of legal production. The principal reason for the success of LTC in increasing its market share is that it produces low price cigarettes (price range of up to Rs. 20 per pack). This pattern indicates that cigarette consumption is rising proportionately more in the lower to lower-middle income groups.

Unlike the countries in East Asia, where a great deal of FDI came in to promote exports, much of foreign investment in Pakistan has been in consumer industries for the domestic market. PMI followed such American companies as Coca Cola, Pepsi Cola and McDonald's in focusing on items of daily consumption in fast expanding and large markets. Investments in consumer industries and services by the multinationals in Pakistan can create contingent liabilities for the country since the earnings will be in rupees which will have to be remitted in foreign currencies. Bringing this fact to the attention of the policy makers could be the basis for discouraging further foreign direct investment in the manufacture of tobacco products.

PTC is the largest contributor to the public exchequer. In 2004-05, it paid Rs. 14 billion (US\$237 million at that year's exchange rate) in excise, income and sales taxes to the government. Like PTC, Lakson is also a major contributor to the treasury. In 2004-05, it paid Rs. 11 billion (US\$186 million) as taxes to the government. The two companies together were responsible for a total of Rs. 25 billion (US\$423 million) in government tax revenues.

Both the big tobacco companies, LTC and PTC, are public limited companies quoted in the Karachi Stock Exchange. Analysis of the balance sheets of these two companies reveals a generally rising trend of profitability from 2001 to 2006, during the period when the economy of Pakistan was buoyant and grew at over 7 percent per annum.

Table 4.9 gives four indicators of the financial status of the companies. The profit margin on sales has been rising steadily, with LTC enjoying a somewhat larger margin than PTC. By 2006, the share of operating profit in the value of sales had risen to over 11 percent in the case of LTC and to 8 percent in the case of PTC. The rate of return on assets has also risen sharply during the period, and reached the

peak of 40 percent for LTC and 33 percent for PTC. Similarly, the return on equity has been rising for PTC and attained a peak of 69 percent in 2006. There has been some fall in the return on equity in the case of LTC after 2004, but remains high at 49 percent in 2006. Altogether, during the current decade the tobacco industry has been highly profitable, and it appears that the industry has the ability to absorb higher taxes through a reduction in profit margins.

	2001	2002	21003	2004	2005	2006
(%)						
<b>Overhead and Other Expenses as % of gross sales</b>						
LTC	95.3	93.0	91.7	90.2	89.2	88.7
PTC	97.0	95.6	96.9	95.8	93.2	92.0
<b>Self-Financing Ratio</b>						
LTC	76.9	83.2	183.6	139.1	69.4	96.8
PTC	81.4	154.9	-	233.7	216.4	18.0
<b>Return on Assets</b>						
LTC	20.4	29.5	33.2	39.0	46.2	40.2
PTC	5.3	10.9	8.4	15.0	26.1	32.8
<b>Return on Equity</b>						
LTC	48.2	65.7	66.5	76.1	63.0	48.6
PTC	14.4	24.9	21.0	32.3	57.2	69.1
<b>Source:</b> State Bank of Pakistan, Balance Sheet Analysis of Joint Stock Companies on the Karachi Stock Exchange, 2007						

The brand market in Pakistan, like the manufacturers share, is also very concentrated. Two brands, *Morven* and *Gold Flake*, account for over 67 percent of the market. The top five brands account for 91 percent of the market share (see Table 4.10). The higher share of the top two brands can, at least in part, be attributed to their low

Brand	Manufacturer	Market Share (in 2006)
Morven	LTC	37.6
Gold Flake	PTC	29.5
Gold Leaf	PTC	9.4
Capstan	PTC	7.8
Embassy	PTC	6.7
Tobacco Merchants Association		

prices. Both brands sell for about Rs. 20 per packet (about US\$0.25). This high market share of low price brands is perhaps indicative of first, the rising cigarette consumption in lower income groups; and second, that upper income group cigarette demand is, in part, catered to by the smuggling of expensive brands.

### 4.3. Trade in Tobacco

Pakistan is largely self-sufficient in tobacco and tobacco products. The total value of imports of tobacco and tobacco products was Rs. 481 million (about US \$ 8 million) in 2005-06. This has increased from Rs.87 million (about US \$ 1 million) a year earlier. There is a clear upward trend in the import of tobacco into Pakistan, while no clear trend exists in imports of tobacco products (see Table 4.11). These figures, however, do not include tobacco products entering the country through unofficial channels. As will be discussed below, a number of high quality cigarette brands infiltrate the tobacco market in the country.

Year	Tobacco		Cigarettes		Cigars (Rs million)	Total Value of Imports (Rs million)
	Quantity (‘000’ Kg)	Value (Rs million)	Quantity (Nos million)	Value (Rs million)		
2001-02	21.7	8.8	27.3	20.4	6.6	85.7
2002-03	35.4	9.5	40.5	33.8	14.6	57.9
2003-04	308.6	64.3	19.7	16.0	2.8	83.2
2004-05	792.9	77.2	11.2	9.4	1.1	87.7
2005-06	2572.0	447.5	32.9	29.9	4.1	481.5

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

Year	Quantity Exported			Value Realized			Total Value (Million Rs.)
	Tobacco (Million Kgs)	Cigarettes (Million Pieces)	Cigars (Million Pieces)	Tobacco (Million Rs.)	Cigarettes (Million Rs.)	Cigars	
2001-02	3.21	84.19	3.86	231.11	46.20	9.10	286.41
2002-03	5.49	74.03	0.20	316.76	45.21	0.41	362.37
2003-04	8.27	160.37	3.59	642.74	120.58	3.77	767.09
2004-05	7.17	38.93	5.80	626.67	34.15	12.79	673.61
2005-06	4.83	21.16	1.15	365.10	17.93	3.29	386.32

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

Year	Exports of Tobacco		Total
	Unmanufactured Flu-Curved Virginia	Manufactured Hookah Chewing, kala pata, smoking, Tobacco, snuff etc.	

2002-03	4090	1405	5495
2003-04	7224	1046	8270
2004-05	6290	881	7171
2005-06	3725	1101	4826

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

<b>Countries</b>	<b>Total value (Rs million)</b>	<b>Share %</b>
Egypt	101.1	30.73%
Russian Federation	66.9	20.33%
Dubai	44.4	13.5%
Malaysia	30.7	9.32%
Afghanistan	20.2	6.15%
Belgium	15.8	4.8%
Bangladesh	15.6	4.75%
Germany	12.0	3.65%
Rwanda	11.3	3.42%
Yemen	11.0	3.35%
<b>Total of Above</b>	<b>329.0</b>	<b>100%</b>

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

Exports of tobacco and its products from Pakistan are also limited in magnitude. In 2005-06, total value of exports from Pakistan was Rs. 386 million (US \$ 6 million) (see Table 4.12). The bulk of this was the export of FCV tobacco (see Table 4.13). Almost 65 percent of exports are to three countries, Egypt, Russian Federation and United Arab Emirates (see Table 4.14). Egypt is the biggest importer of Pakistani tobacco, accounting for over 30 per cent of the exports. The two major tobacco manufacturing companies – Pakistan Tobacco Company and Lakson Tobacco Company - account for 87 percent of total exports of tobacco and tobacco products from Pakistan (see Annexure Table). Overall, the net value of the tobacco-related trade deficit is minimal, at Rs.95 million (about US \$1.5 million).

#### **4.4 The Pakistan Tobacco Board**

The Pakistan Tobacco Board (PTB) is a statutory semi-autonomous corporate body with its own Board of Directors and a Chairman who heads the organization. It works under the overall administrative and policy control of the Federal Government of Pakistan in the Ministry of Commerce and Trade. It was formed in 1968 through a statute known as the PTB Ordinance No.1 of 1968 (which subsequently in 1973 became a part of the Constitution of Pakistan) for the promotion of the cultivation,

manufacture and export of tobacco and tobacco products and matters ancillary thereto. Functions of the PTB include the following:

- a) To require, control and promote the export of tobacco and tobacco products, and to fix grading standards;
- b) To undertake and assist research connected with tobacco industry, impart training in tobacco testing and generally to take measures in the interest to tobacco industry;
- c) To render assistance for the development of new tobacco growing areas and establishment of model farms, to organize and assist special research connected with tobacco cultivation, and to generally render assistance for improving tobacco production;
- d) To collect statistics on any matter relating to tobacco and tobacco industry.

The PTB has the following research and extension services:

- Extension services located at pivotal points for quick transference of new technology to growers.
- The Tobacco Research Station, Mardan, serves as the Principal Centre to undertake major laboratory and field research in Tobacco Breeding, Agronomy, Chemistry, Entomology, Plant Pathology and Physiology.
- Tobacco Research Sub-Stations at Mansehra, Kunjah (Gujrat) and Okara serve as regional testing stations for developing the tobacco production technology according to the prevailing soil and climatic conditions.

PTB is financially a self-sustaining organization of the federal government and meets its costs through an *ad valorem* tobacco assessment of 3 percent on the production value of tobacco. There is general recognition that PTB has played a significant role in enhancing tobacco cultivation and making Pakistan largely self-sufficient in tobacco. It has also contributed to the increase in the FCV variety of tobacco.

## **5. TOBACCO TAXES AND PRICES**

The rationale for tobacco taxation has always been generation of revenues for the central government. Cigarettes are a major item for producing government revenues. With the consumption of alcohol having been banned in 1976, cigarettes have acquired even more prominence as source of revenue, in particular for the federal government. However, fiscal policy has yet to be used fully for curbing the consumption of tobacco and its products.

The tobacco industry has held that increased taxation on tobacco is inefficient and unwarranted. The basis for such a position rests on the belief that smokers consume tobacco with full information about its health consequences and take into account the costs and benefits associated with its consumption. However, as described above, the market for tobacco products is characterised by 'market failures' that justify government intervention. The basic rationale for high levels of taxation on tobacco and tobacco products is that, by raising price, higher taxes are effective in reducing consumption.

### **5.1. Trends in Cigarette Prices and Consumption**

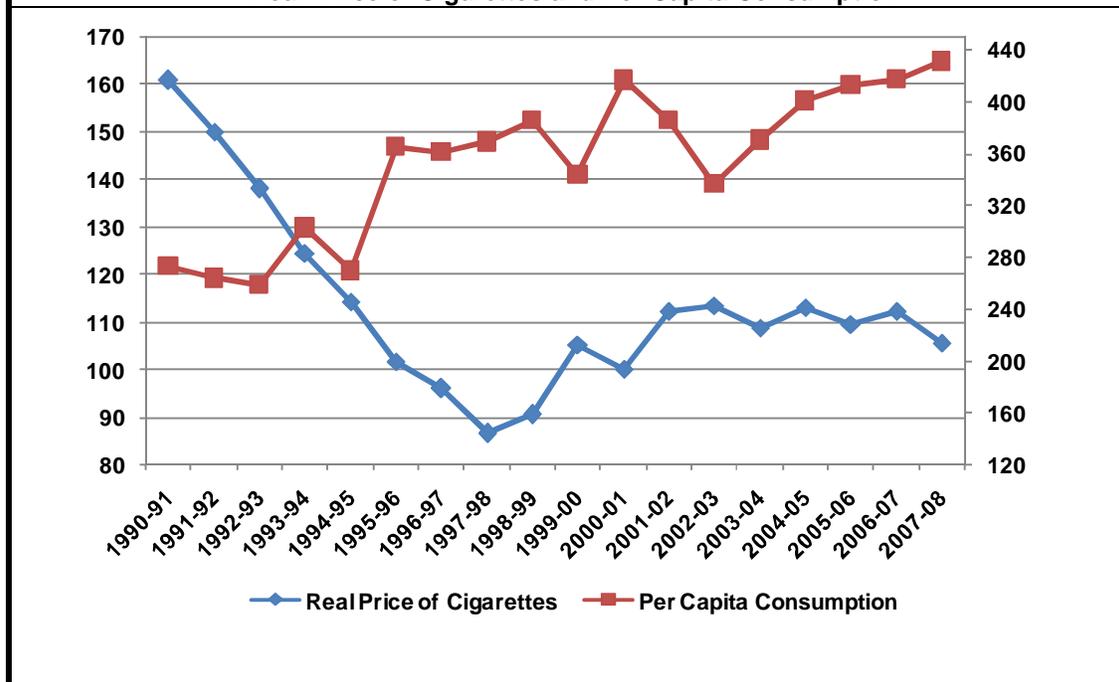
Table 5.1 and Figure 5.1 show the trend in the 'real' price (price index of cigarettes deflated by the overall consumer price index) of cigarettes and per capita consumption during the period, 1990–91 to 2007-08, in Pakistan.

**Table 5.1**  
**Trend In Real Price Of Cigarettes and Per Capita Consumption**

	Price (2000-01 = 100) Index of Cigarettes	CPI (2000-01=100)	'Real' Price of Cigarettes	Per capita Consumption	Per capita Income at 1999-2000 prices
1990-91	69.46	43.20	160.79	272.4	22740
1991-92	71.06	47.41	149.88	263.3	23336
1992-93	71.86	52.07	138.01	258.7	23136
1993-94	72.06	57.94	124.37	302.4	23428
1994-95	74.85	65.48	114.31	269.1	24138
1995-96	73.65	72.55	101.52	364.9	24841
1996-97	77.84	81.11	95.96	361.0	24554
1997-98	75.64	87.45	86.49	368.6	24771
1998-99	83.63	92.46	90.44	385.2	25242
1999-00	100.60	95.78	105.03	343.1	25551
2000-01	100.00	100.00	100.00	416.1	25610
2001-02	116.16	103.54	112.19	385.4	26428
2002-03	120.95	106.75	113.30	336.3	27592
2003-04	121.35	111.63	108.71	370.0	28776
2004-05	137.92	121.98	112.90	400.6	30696
2005-06	100.31	131.64	109.60	412.7	31826
2006-07	159.28	141.87	112.27	417.1	33352
2007-08	167.69	158.89	105.50	430.7	34769

Source: Ministry of Finance, Government of Pakistan, Pakistan Economic Survey, 2007-08

**Figure 7.1**  
**'Real' Price of Cigarettes and Per Capita Consumption**



A clear relationship is visible between the price level and demand for cigarettes. During the 1990s, there was a sharp fall in the 'real' price of cigarettes which stimulated consumption in per capita terms by over 40 percent. During the first four years of the current decade, however, cigarette prices rose faster than the overall rate of inflation and per capita consumption fell by over 11 percent. More recently, 'real' cigarette prices have been relatively flat, before falling sharply in 2007-08, contributing to the attainment of an all-time peak in cigarette consumption of 431 sticks per capita. There are clear indications that the level of taxation of cigarettes must be enhanced significantly if the 'real' price is to be restored as part of the strategy for curbing consumption.

## 5.2. Tobacco Tax Rates and Structure

In Pakistan, the government levies a variety of taxes on tobacco and tobacco products. There is a **tobacco assessment** levied by provincial governments on the output from cultivation of tobacco. Most of the revenue accrues to the government of the NWFP where bulk of the tobacco is grown. The tobacco assessment is a relatively small source of revenue and yields about Rs. 40 million annually, with limited buoyancy. It accounts for less than 2 percent of the revenues of the government of NWFP, and is collected from buyers, not growers, at the rate of Rs. 1 per kg.

At the federal level, an excise duty is levied on the items shown in Table 5.2.

Table 5.2 Excise Duties on Tobacco and Tobacco Products in Pakistan

Item	Types of Excise Duty	Rate
(i) Unmanufactured Tobacco	Specific	5 Rs per kg
(ii) Cigars, cheroots, cigarillos and cigarettes of tobacco or tobacco substitutes	Advalorem	63%
(iii) Locally produced cigarettes	Specific and Advalorem	Described below
<b>Source:</b> Excise Department, Federal Board of Revenue		

The excise duty on cigarettes is based on the three-tier structure depending upon the retail price. For low priced cigarettes (those up to Rs. 14.86 per pack), there is a specific tax of Rs. 6.34 per pack. In the intermediate price range (between Rs.

14.86 and 32.00 per pack), the excise duty has both a specific (Rs. 6.34 per pack) and *ad valorem* (69 percent of price above Rs. 14.86 per pack) component. High price cigarettes (above Rs. 32.00 per pack) are subject to an *ad valorem* duty of 63 percent. The evolution of the structure of excise duty on cigarettes is given in Table 5.3.

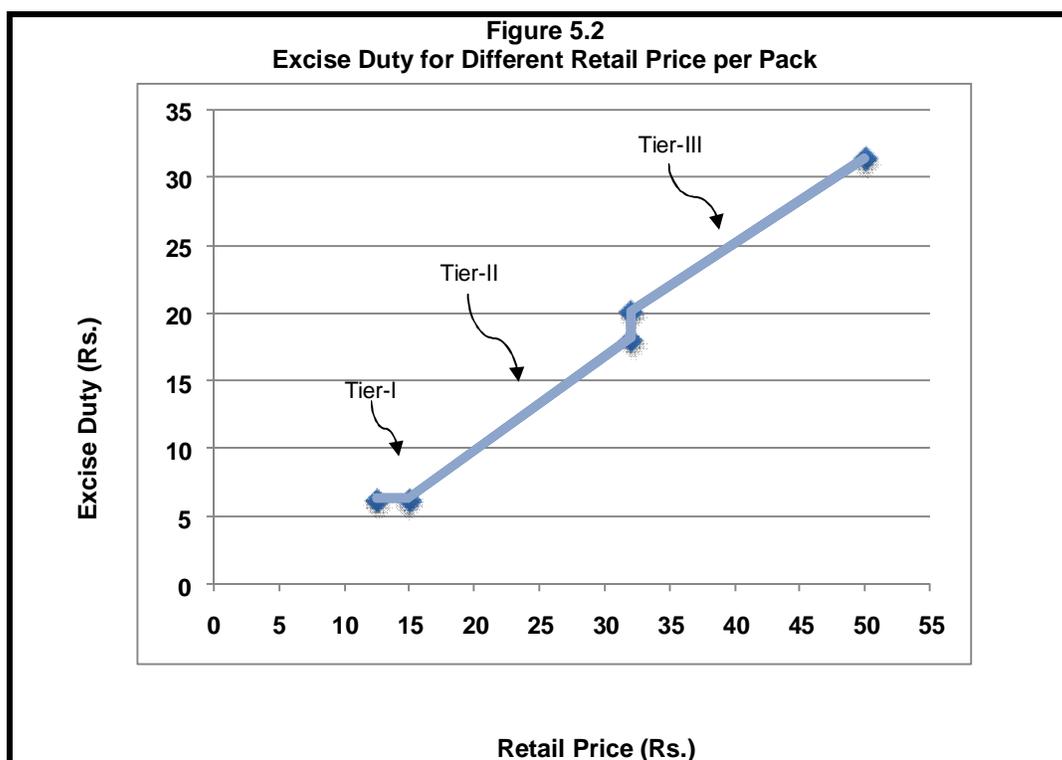
In addition to the excise tax, a sales tax on the VAT mode is levied on cigarettes. The rate was 15 percent on the retail price until the latest budget, when it was increased to 16 percent. All other manufactured tobacco products are taxed at a flat rate of 63 percent. Unmanufactured tobacco is taxed at a specific rate of Rs. 5 per kg.

The motivation behind the complexity of the excise duty structure appears to be: first, to ensure a minimum price to discourage low quality consumption; second, to increase the progressivity in the rates as the price rises; and third, to simplify valuation and reduce under-declaration of price at the lower end of the market.

Periodically, as shown in Table 5.3, the specific tax rate for low priced cigarettes and the price ranges at which the different taxes apply are adjusted to account for inflation. In 2003-04 the minimum tax was Rs. 4.20 per pack of 20 cigarettes, which was enhanced to Rs. 6.34 by the current fiscal year. These adjustments have generally maintained an effective excise tax rate on lower priced cigarettes of just under 43 percent at the high end of the range. Similarly, the price up to which the specific (minimum) tax applies has been raised from Rs. 9.84 to Rs. 14.86. It is significant that this has introduced some distortions in the tax structure as shown in Figure 5.2. In addition, there has been an upward shift in the threshold level for tier III high priced cigarettes from Rs. 22.00 to Rs. 32.00.

		Excise Duty
<b>2003-04</b>		
Tier		
I.	For retail price Rs. 9.8	Rs. 4.20
II.	For retail price more than Rs. 9.8 up to Rs. 22.00	Rs. 4.20+69% of price above Rs 9.48
III.	For retail price above Rs. 22.00	63%
<b>2004-05</b>		
Tier		

I. For retail prices up to Rs. 10.64	Rs. 4.54
II. For retail price more than Rs. 10.64 up to Rs. 24.00	Rs. 4.54+69% of price above Rs. 10.64
III. For retail price above Rs. 24.00	63%
<b>2005-06 to 2007-08</b>	
Tier	
I. For retail price up to Rs 11.48	Rs. 4.90
II. For retail price more than Rs 11.48 up to Rs 26.00	Rs. 4.90+69% of price above Rs 11.48
III. For retail price above Rs 26.00	63%
<b>2008-09</b>	
Tier	
I. For retail price up to Rs 14.86	Rs. 6.34
II. For retail price more than Rs 14.86 up to Rs 32.00	Rs. 6.34+69% of price above Rs 14.86
III. For retail price above Rs 32.00	63%
<b>Source:</b> Excise Department, Federal Board of Revenue	



The evolution of the tax structure over time has created a situation where the highest burden of excise duty had actually fallen on the intermediate price range. Manufacturers will have, no doubt, exploited this defect in the design of the tax structure. It is not surprising that some of the more popular brands are in this range. The three most widely sold brands of cigarettes in Pakistan now have a total tax burden of slightly over 50%, well below the World Bank recommendation of two-third to four-fifth of retail price (Petit & Sunley, 2008).

Also, at any given moment of time, the tax structure has some behavioral consequences. At the lower end, with a specific tax, manufacturers have an incentive to raise the retail price without incurring any additional tax liability. Therefore, prices of low quality cigarettes are likely to cluster at the upper end of tier 1. This is desirable if the objective is to raise cigarette prices, especially those at the low priced end of the market, and reduce the harmful effects on health. However, the discontinuity, in the size of the excise duty at the point of transition from tier II to tier III means that there will be a lower tendency to raise prices of cigarettes that are priced close to this point.

The above distortions highlight that the following elements that must be kept in mind in the design of the future excise duty structure on cigarettes:

- (i) As shown in the Technical Appendix, if the minimum tax is to be raised by say,  $\Delta t_0$ , and the price range in the first tier increased by say,  $\Delta P_1$ , then it must be ensured that

$$\Delta t_0 > e_1 \Delta P_1$$

Where  $e_1$  is the marginal *ad valorem* excise duty rate in the second tier. This will mean that the tax incidence will rise in all prices up to the maximum price in tier II.

- (ii) The discontinuity in tax incidence between tier II and tier III should be eliminated to the extent possible by raising the marginal *ad valorem* excise duty rate,  $e_2$ , in tier II.

According to Petit & Sunley (2008), annual adjustments to the first tier specific rates and the annual adjustments to the excise schedule have had the effect of reducing the tax on cigarettes in the mid-price range. They point out that there does not appear to be a sound tax policy or health policy reason for increasing the tax burden on low-priced cigarettes, lowering the tax burden on mid-price cigarettes, while leaving the tax burden on high-priced cigarettes unchanged. These authors advocate for the replacement of current three tier tax system with a two tier system and propose that the specific excise be increased to Rs. 15 per pack of 20 cigarettes and the bracket between the first and second tiers be increased to Rs. 28. For the cigarettes in second tier, the excise tax should be 63 percent of the retail price before VAT. They also feel this should be followed by an automatic adjustment of

the specific rate and the bracket between the first and second tiers by indexing it with inflation.

The trend in 'real' tax on average per pack during the current decade is given in Table 5.4. The 'real' tax is the nominal tax burden divided by the overall price index. In line with earlier conclusion on the negative relationship between 'real' price of cigarettes and per capita consumption, we observe that as the 'real' tax burden increased from 2000-01 to 2002-03 there was a sharp fall in reported consumption. However, there was a sharp increase in consumption as the 'real' tax fell thereafter by almost 22 percent by 2007-08. This again underscores the need for enhancement in the rates of excise duty on cigarettes.

	<b>Tax Per Pack (Rs)</b>	<b>Real Tax (Rs) (at 2000-01 Prices)</b>	<b>Per Capita Cigarette Consumption</b>
2000-01	7.10	7.10	416
2001-02	7.67	7.40	385
2002-03	8.99	8.42	336
2003-04	8.32	7.46	376
2004-05	9.02	7.39	401
2005-06	8.93	6.79	413
2006-07	10.70	7.54	417
2007-08	10.49	6.60	431

\*excise duty + sales tax  
Source: Federal Board of Revenue and Pakistan Economic Survey

### 5.3. Cigarette Prices

A breakdown of the current price of some popular brands of cigarettes is given in Table 5.5.

<b>Cigarette</b>	<b>Type(Tier)</b>	<b>Ex-Factory Cost</b>	<b>Excise Duty</b>	<b>Retail Price (excl VAT)</b>	<b>VAT</b>	<b>Retail Price</b>	<b>Total Tax</b>	<b>Tax Incidence (%)</b>
DIPLOMAT	I	7.79	6.34	14.13	2.27	16.40	8.61	52.5
EMBASSY	I	8.52	6.34	14.86	2.38	17.24	8.72	50.6
GOLD FLAKE/ MORVEN GOLD	II	8.83	7.03	15.86	2.54	18.40	9.57	52.0
WILLS	II	11.21	12.32	23.53	3.77	27.30	16.09	58.9

CAPSTAN	II	13.08	16.48	29.56	4.74	34.30	21.22	61.9
MARLBORO	III	20.25	34.49	54.74	8.76	63.50	43.25	68.1
*retail price and VAT are printed on the packs Source: Market Survey of Retail Outlets								

It should be noticed that the tax as a percentage of retail price (inclusive of VAT) has a U-shaped curve with respect to the retail price. It falls from a high of over 57 percent in the case of a very low priced cigarette like *Melburn* to a low of 50.6 percent for Embassy and 52.0 percent for Morven Gold and Gold Flake, the two most popular brands of cigarettes in the Pakistan market. For higher priced cigarettes, like Capstan in tier II, the tax incidence rises to 62 percent. All cigarettes in tier III have the highest tax burden of 68 percent in the retail price. Initially, in the presence of the specific tax, the tax structure is regressive and becomes progressive as the *ad valorem* component takes over.

The *Tobacco Atlas* gives the price for a pack of 20 cigarettes (in US \$) of Marlboro and a local brand of relatively high quality. These prices for selected Asian countries are given in Table 5.6. Cigarette prices appear to be somewhat higher in South Asian than East Asian countries. Within the former, however, the prices of cigarettes in Pakistan are relatively low. In fact, only the Philippines has a lower price than Pakistan for both Marlboro and the

	<b>Marlboro</b>	<b>Local Brand</b>
<b>SOUTH ASIA</b>	<b>1.28</b>	<b>0.98</b>
Bangladesh	1.26	0.83
India	1.24	0.91
Pakistan	0.83	0.53
Sri Lanka	1.78	1.66
<b>EAST ASIA</b>	<b>1.04</b>	<b>0.88</b>
China	1.57	1.40
Indonesia	0.62	0.62
Korea, Rep of	1.50	1.26
Malaysia	1.13	1.08
Philippines	0.67	0.51
Thailand	1.08	0.69
Vietnam	0.72	0.57
Source: WHO, Tobacco Atlas		

local brand in the sample of countries shown in the table. This again demonstrates the scope for additional taxation of cigarettes in Pakistan.

Based on the market shares of different brands, the overall tax incidence on cigarettes currently is estimated at 57 percent of the price. The tax burden in Pakistan is in the middle of effective tax rates in Asian countries according to WHO, which range from 30 percent to 75 percent.

#### 5.4. Tax Revenues from the Tobacco Sector

In many countries, the tobacco sector is important from the viewpoint of generating revenues from taxes like the excise duty, sales tax (VAT) and custom duty. In Pakistan, as of 2006-07, the tobacco sector was ranked fourth after the petroleum, automobiles and telecommunications sectors, as shown in Table 5.7.

Rank	Sector	Revenue (Rs in Billion)	Share (%)
1	Petroleum	119.5	21.2
2	Automobiles	47.3	8.4
3	Telecommunications	38.1	6.8
4	Cigarettes*	35.2	6.1
5	Machinery	29.5	5.2
<b>Total of Above</b>		<b>268.6</b>	<b>47.7</b>

**Source:** Ministry of Finance, Government of Pakistan, Fiscal Policy Statement, 2007-08

In fact, a year earlier, the tobacco sector was ranked third when it generated more revenues than the telecommunications sector. During the current fiscal year, there is a slump in the automobile sector in Pakistan due to the credit crunch and the high interest rates in consumer finance. Therefore, the tobacco sector is likely to be back in the list of top three revenue generators. The target, however, should be to make tobacco the second largest source of revenue after petroleum through appropriate changes in the tax structure.

The contribution of tobacco taxes to total revenue is given in Table 5.8. The disappointing aspect of the trend since 2000-01 is the decline in contribution from 5.3 percent to 3.6 percent in 2007-08. In many countries, the share is in excess of 4 percent. Since the overall tax-to-GDP ratio has remained static between 10 and 11 percent, this implies that tobacco taxes which aggregated to about 0.5 percent of the GDP in 2000-01 have fallen to below 0.4 percent by 2007-08.

	Total Tobacco Revenue (Rs in Billion)	Total Tax Revenue (Rs in Billion)	%	Total Indirect Tax Revenue (Rs in Billion)	%	Total Excise + Domestic Sales Tax Revenue (Rs in Billion)	%	Excise Revenue (Rs in Billion)	%
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2000-01	20.7	392.3	5.3	267.7	7.7	114.1	18.1	49.1	33.4
2001-02	21.1	404.1	5.2	261.6	8.1	121.0	17.4	47.2	35.2
2002-03	22.2	460.6	4.8	308.7	7.2	134.3	16.5	44.8	38.6
2003-04	23.5	520.8	4.5	355.8	6.6	138.9	16.9	45.6	39.5
2004-05	27.6	590.4	4.7	407.0	6.8	146.8	18.8	53.1	40.6
2005-06	28.6	713.4	4.0	488.5	5.9	176.6	16.2	53.3	41.4
2006-07	35.2	847.2	4.2	577.0	6.1	205.3	17.1	71.8	39.5
2007-08	36.4	1007.2	3.6	619.7	5.9	262.2	13.9	92.2	30.9

**Source:** Federal Board of Revenue, Year Book, 2006-07

With regard to the share in indirect taxes, this has also fallen during the period from 7.7 percent to 5.9 percent. In excise duty, the largest revenue is from cigarettes. The percentage of total excise revenue in Pakistan collected from tobacco products, at 31 to over 40 percent is very high compared to its neighbor India, whose tobacco excise contributes only around eight percent of the total excise revenue. In spite of the insignificant presence of tobacco in Pakistan's agricultural economy, the money it brings to the government exchequer in the form of excise tax is very large. Here also, however, there is a decline in share from a peak of 44.1 percent in 2005-06 to below 31 percent in 2007-08.

## 6. THE DEMAND FOR TOBACCO IN PAKISTAN

### 6.1 Affordability of Tobacco Products

According to the Household Integrated Economic Survey of the FBS, households in Pakistan spend 2.6 percent of their income on tobacco and tobacco products on average (see Table 6.1). This proportion is somewhat higher for rural than for urban households. Lower and middle income households in both urban

	<b>Pakistan</b>	<b>Urban</b>	<b>Rural</b>
<b>Total</b>	<b>2.6</b>	<b>2.4</b>	<b>2.6</b>
1 <sup>st</sup> Quintile	3.3	3.6	3.2
2 <sup>nd</sup> Quintile	2.7	2.8	2.9
3 <sup>rd</sup> Quintile	2.9	3.0	2.9
4 <sup>th</sup> Quintile	2.7	3.0	2.5
5 <sup>th</sup> Quintile	2.1	2.0	2.1

**Source:** Federal Bureau of Statistics, Household Integrated Economic Survey, 2005-06

and rural areas are spending a higher proportion of their income on tobacco and tobacco products than the top income households. Pakistanis on the whole are spending as much a part of their income on tobacco products as most of developing world at comparable level of development.

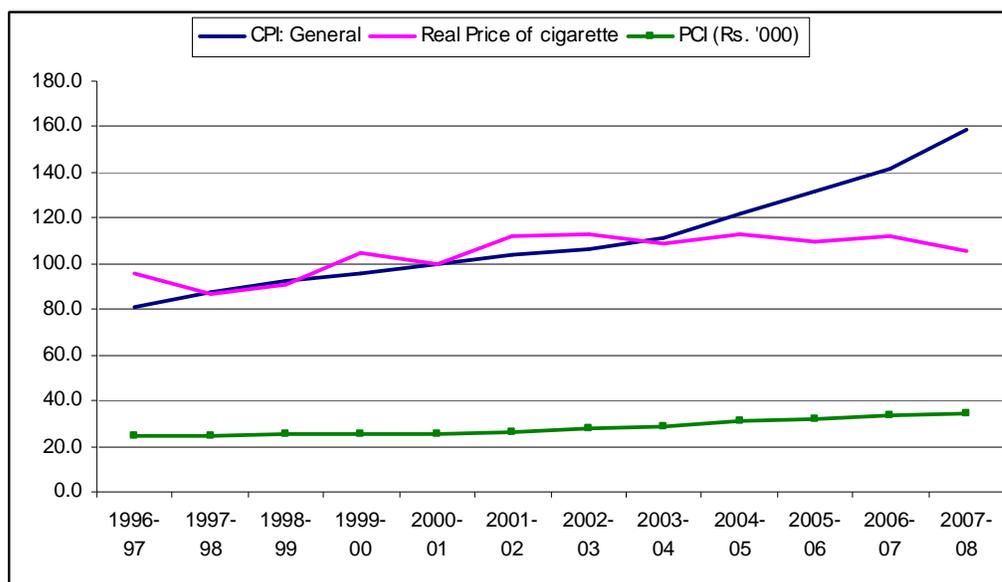
Tobacco can be used in ways ranging from cigarette, cigar and biri smoking, to chewing of 'smokeless' tobacco. This latter category includes tobacco with Paan/betel quid naswar, gutka, qiwam, minipuri, and other less popular products. Use of 'smokeless' tobacco is inherent in the culture of South Asia. Factors that continue to encourage smokeless tobacco include affordability and ease of purchase. Also, the government has focused on cigarettes rather than tobacco as a whole.

Cigarette affordability can be loosely defined as the percentage of per capita GDP required to buy 100 packs of cigarettes. It can also be called the 'Relative income price' (RIP) (Blecher & Walbeek, 2004). The higher the RIP, the less affordable cigarettes are, and vice versa. In a study of international comparison of cigarette affordability Blecher & Walbeek (2004) concluded that cigarettes are much less affordable in low income countries including Pakistan compared to high income countries. However, using data for the period 1990 to 2001, the authors concluded that the RIP for cigarettes has decreased more than five percent during this period in some developing countries including Pakistan. It means during the study period, cigarettes have become more affordable in Pakistan. A similar research for the same

time period by Guindon et al. (2002) indicate that the real prices of local brand cigarettes went down 1.22 percent while those of imported cigarettes increased by 6.4 percent in Pakistan.

Similar conclusions can be shown using a comparison of general consumer price index (CPI), real price of cigarettes (CPI of cigarettes deflated by general CPI) (base year 2000-01 for both), and the real per capita income (base year 1999-2000) during the period 1996-97 to 2007-08, as shown in figure 6.1. Both general CPI and cigarette indices have generally moved in the same direction until the early 2000s after which the real prices of cigarettes began to fall, implying that cigarette prices have not kept up with inflation in Pakistan. During the time period under study, the rate of growth in real per capita income was higher than the rate of growth in real price of cigarettes, implying that cigarettes have become more affordable, supporting the findings of previous studies using the 1990s data.

Figure 6.1: Trends in general CPI, real price of cigarettes and PCI in Pakistan



Source: Government of Pakistan (2008a) and authors' calculation. All values are in constant prices with the base year 2000-01. PCI is in 1999-00 prices. CPI: Consumer price index; PCI: Per capita income

Another interesting conclusion that emerges from the pattern of tobacco consumption is the substitution from other forms of tobacco to cigarettes (see Table 6.2). The share of expenditure on other tobacco products is lower in 2005-06 than in 2001-02 in both rural and urban areas, more so in the former.

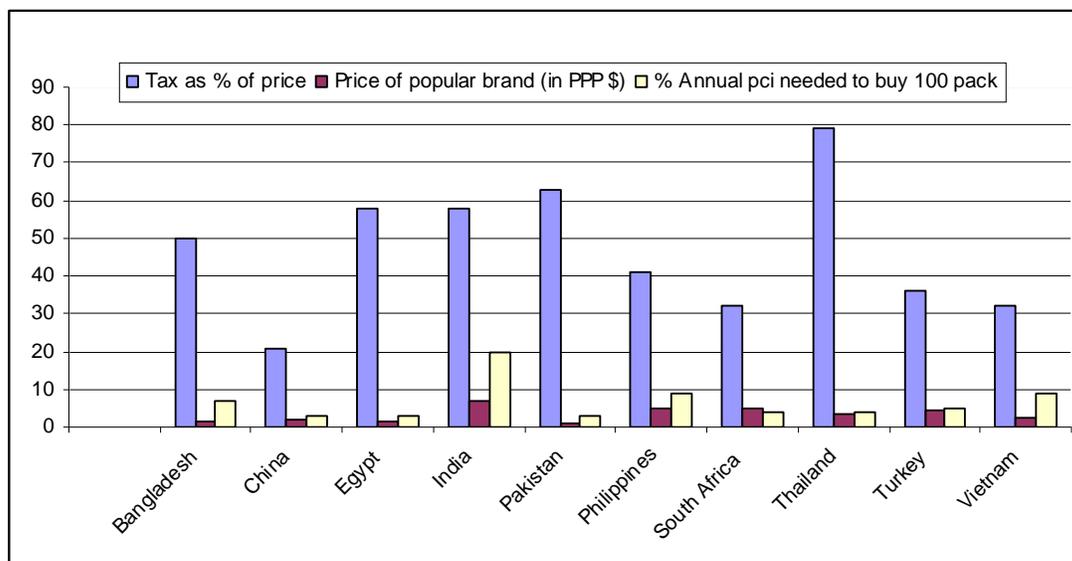
	Expenditure Share (%)			
	Rural		Urban	
	2001-02	2005-06	2001-02	2005-06
Tobacco and other Chewing Products	47	25	36	28
Cigarettes & Biris	53	75	64	72
Total	100	100	100	100

**Source:** Federal Bureau of Statistics, Household Integrated Economic Survey, 2001-02 and 2005-06

Figure 6.2 shows how Pakistan fares in comparison to a number of selected developing nations in terms of tobacco taxation, the price of 20 sticks of the most popular brand of cigarettes and the percentage of annual per capita income required to buy 100 packs of cigarettes. As can be seen, *ad valorem* tax rates in Pakistan are among the highest in developing countries, particularly for tier three cigarettes, yet the price of the most popular brand of cigarette in Pakistan is a mere \$0.8 in purchasing power parity terms, the lowest among all the developing nations

compared. Pakistanis spent almost three percent of their annual per capita income to buy 100 packs of cigarettes while their Indian counterparts spent as high as 20%. These figures clearly indicate that there is a great potential to increase the prices of cigarettes in Pakistan.

Figure 6.2: Taxation, price and affordability of cigarettes in selected developing countries



Source: World Health Organization (2008a). All figures are based on 2006 data except of Pakistan for which tax is for the highest taxed cigarette in year 2008.

## 6.2. The Demand for Cigarettes

### 6.2.1 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 (Chaloupka, et al., 2000; Ross and Chaloupka, 2006). Until recently, 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 the nearly all 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. As expected, 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 have 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 most, 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 John (2008) estimates price elasticities in the range from -0.86 to -0.92 for bidis and -0.18 to -0.34 for cigarettes in India. 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.

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/countries. For example, Adioetomo and colleagues (2005) find no impact of price on the prevalence of smoking in Indonesia, while estimating an elasticity for conditional cigarette demand of -0.62. In contrast, Kyaing (2003) estimates a prevalence price elasticity of -1.28 and a conditional demand elasticity of -0.34 in Myanmar.

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 (Chaloupka, 2008). Similarly, as predicted by economic theory, lower SES populations are more responsive to price than are higher SES populations. For example, Sayginsoy and colleagues (2002) estimate cigarette demand elasticities of -1.33, -1.00 and -0.52 for low, middle and high income populations in Bulgaria. 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.

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. 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.

### 6.2.2 Demand for Cigarettes in Pakistan

Even though the potential use of tax as an effective measure to regulate tobacco consumption is well documented, the extent to which the tax can be raised and the effect it would have on both consumption and revenues in Pakistan can be determined only by empirical examination of price responsiveness of tobacco products.

On the basis of econometric analysis of time series data, we have estimated the price elasticity of demand for cigarettes for the period, 1990-91 to 2007-08. The estimated regression equation for per capita demand for cigarettes is as follows:

$$\ln d = -2.075 + 0.785 \ln y - 0.577 \ln (PT/p)$$

$$(-1.414) \quad (5.461)^* \quad (-4.932)^*$$

$\bar{R}^2 = 0.814$ , Degrees of Freedom = 15, SEE = 0.074, D-W Stat = 2.046, F = 38.182

Where d = per capita consumption of cigarettes, y = real per capita income, PT = price index of cigarettes, p = overall consumer price index.

The estimated price elasticity of cigarette demand in Pakistan is -0.58. This is at the more elastic end of the range of international estimates, likely reflecting Pakistan's status as a low-income country. An important finding which emerges from the analysis is the high magnitude of income elasticity of demand for cigarettes of 0.78. This implies that as incomes rise, the price of cigarettes will have to be increased disproportionately if demand is to be curtailed. It needs to be emphasized that the estimated elasticities are subject to a margin of error because of limited number of observations, significant illicit production, etc.

## 7. THE PROPOSED TAX STRUCTURE

The objectives behind changing the excise duty structure on cigarettes are as follows:

- (i) Targeting a significant jump in effective tax rates and realizing substantial additional revenues.
- (ii) Eliminating the extent of regressivity as much as possible.
- (iii) Achieving price increases in cigarettes from the view point of curbing consumption of tobacco.
- (iv) Removing the distortions in the existing tax structure.

### 7.1. Tax Rates

The design of the new tax structure adheres to the new rules derived in the Technical Appendix, which ensure, first, that the tax incidence rises at all retail prices and, second, largely avoids the discontinuity in tax in the transition from tier II to tier III.

The proposed tax structure is as follows:

<b>Table 7.1 The Proposed Tax Structure</b>		
<b>Tier</b>	<b>Retail Price (excluding VAT)</b>	<b>Excise Duty</b>
I	$p \leq 15.00$	8.00
II	$15.00 < p \leq 35.00$	$8.00 + 73\%$ of price above 15
III	$35 < p$	65%
<b>Source:</b> Derived by Authors		

It is expected that companies will not be allowed to reduce their existing retail prices.

The following changes are proposed in relation to the existing structure:

- (i) The specific tax in tier I is raised from Rs.6.34 to Rs. 8.00 and the maximum price in this tier from Rs. 14.86 to Rs. 15.00.
- (ii) The marginal *ad valorem* rate in the second tier is increased from 69 percent to 73 percent and the maximum price in this tier from Rs. 32 to Rs. 35.
- (iii) The marginal *ad valorem* rate in the third tier is raised from 63 percent to 65 percent.

The response of manufacturers to the tax is likely to lie between the following two extremes:

- (i) The retail price of the cigarette is kept unchanged and the manufacturer absorbs the tax increase through a reduction in the ex-factory cost, presumably through largely a reduction in the profit margin. We designate this as Response I.
- (ii) The ex-factory cost remains unchanged and the higher tax is transferred forward in the form of higher retail price. This is designated as Response II.

The magnitude of change in tax revenue from a pack of the five most popular brands is given below in Table 7.2, along with the estimated overall tax incidence in Table 7.3.

<b>Table 7.2</b>						
<b>Responses To Change In Tax Structure</b>						
	<b>Response I</b>			<b>Response II</b>		
	<b>% change in ex-factory cost</b>	<b>% change in retail price</b>	<b>% change in Tax Payment</b>	<b>% change in ex-factory cost</b>	<b>% change in retail price</b>	<b>% change in Tax Payment</b>
EMBASSY	-19.5	0	19.0	0	38.8	76.7
MORVEN GOLD/ GOLD FLAKE	-18.2	0	16.7	0	37.3	71.7
CAPSTAN	-16.4	0	10.1	0	26.4	42.6
GOLD LEAF	-5.5	0	2.6	0	5.7	8.4

Source: Derived by Authors

<b>Table 7.3</b>		
<b>Tax Incidence In The New Tax Structure</b>		
	<b>(% of Price)</b>	
	<b>With Response I</b>	<b>With Response II</b>
EMBASSY	60.2	64.4
MORVEN GOLD/ GOLD LEAF	60.7	65.0
CAPSTAN	68.1	69.8
GOLD LEAF	69.8	69.8

Source: Derived by Authors

## 7.2. Tax Revenues

As shown in Table 7.3, the new tax structure leads to a significant increase in the overall tax as a percentage of price, from 57% currently to almost two thirds, depending upon the nature of the industry response. Also, the tax incidence becomes more progressive in nature. Simulations reveal that the increase in revenues could be up to 24 percent while the decline in quantity could be as much as 20 percent if manufacturers largely respond to the new tax structure by raising their retail prices. Overall, implementation of the tax enhancement on the tobacco sector could yield substantial additional revenues of up to Rs. 8 billion. In line with the agreement with the IMF, this increase will be implemented in the Budget of 2009-10.

The government of Pakistan has announced a big increase in tax rates in the Budget of 2009-10. The new tax structure is as follows:

Locally produced cigarettes if their retail price exceeds nineteen rupees and fifty paisa per ten cigarettes.	Sixty four per cent of the retail price.
Locally produced cigarettes if their retail price exceeds ten rupees per ten cigarettes but does not exceed nineteen rupees and fifty paisa per ten cigarettes	Four rupees and seventy five paisa per ten cigarettes plus seventy per cent per incremental rupee of part thereof
Locally produced cigarettes if their price does not exceed ten rupees per ten cigarettes	Four rupees and seventy five paisa per ten cigarettes.

This involves a major increase not only in the minimum tax but also in the tax rates. This will help in curbing consumption and raise additional revenues of Rs. 15 billion, over 30% above the present level. Analysis in this report has been very useful in achieving the tax increase.

## **8. TAX AVOIDANCE, COUNTERFEITING AND SUMUGGLING**

### **8.1. Illicit Trade**

Illicit trade in cigarettes and other tobacco products includes a variety of activities, from individual tax avoidance to large scale organized smuggling and counterfeiting of tobacco products (Joosens et al., 2000). Individual tax avoidance includes buying from duty free sources and from other jurisdictions where taxes are lower (e.g. other countries or through direct channels such as the Internet). Smuggling can take on different forms, from small-scale bootlegging where tobacco products are purchased in low tax jurisdictions and resold in higher tax jurisdictions to large-scale smuggling where all taxes are avoided. Counterfeiting involves producing and selling products bearing a well known trademark, but without the approval of the trademark owner.

Many factors contribute to illicit trade (Joosens, et al. 2000). While tax and price differentials may be important determinants of individual tax avoidance and small-scale bootlegging, they are less important in large scale smuggling and counterfeiting which avoid all taxes (Merriman, et al., 2000). As or more important are the availability of informal distribution channels, presence of criminal networks, and/or corruption (Merriman, et al., 2000; Joosens et al., 2000). In addition, weak tax administration, ineffective customs authorities, minimal enforcement of existing policies, and low penalties for those caught engaging in these activities can be important determinants of illicit trade (Merriman, et al., 2000; Joosens et al., 2000).

### **8.2 Illicit Trade in Pakistan**

Given its illegality, accurate measures of the extent of illicit trade are difficult to obtain; given this, current estimates of the size of the duty evaded cigarette market in Pakistan vary. Estimates by Euromonitor International (2008) put the percentage penetration of contraband cigarettes in Pakistan in the year 2006 to be 16.4 percent. According to this report, the proportion of contraband cigarettes remained around 16 percent every year for the period from 2001 to 2006. Another report from ERC Statistics International plc, 2007 indicates that tax evaded cigarettes as a percentage of total cigarettes sold in Pakistan have remained between 15 percent and 18 percent during the period from 1994 to 2004. During this same period the sale of

smuggled cigarettes increased from two percent to five percent of the market. Together, tax evaded cigarettes constituted around 20 percent of the total market for cigarettes in Pakistan in the year 2004 as per the ERC estimates.

According to this report the long and porous border with Afghanistan is believed to be the major source of smuggled cigarettes in Pakistan. In addition, there is considerable underreporting of local production and sales and significant local counterfeit cigarette production. The share of the market accounted for by illicit trade in cigarettes remained steady over the past decade in Pakistan despite the price changes in the same period. This indicates that increasing taxation on cigarettes in Pakistan is something that can be done without fear of losing a big portion of the duty-paid market to the duty evaded market.

### **8.3 Measures taken by the Government**

The Government of Pakistan has taken steps to curb illicit trade in cigarettes. One key measure is the minimum price law. In addition to this, the government has mandated the following:

- Printing of manufacturer's name and retail price
- Third party audits
- Destruction of machinery and Confiscation of Conveyance used for counterfeit cigarettes
- Disclosure of bank accounts
- Submission of audited bank accounts to FBR
- Scaling of excess capacity
- Installation of CCTV Cameras (Under Implementation stage)

However, due to weak enforcement levels these measures law have not been able to create any substantial deterrence to the duty-non-paid sector. One critical factor in this is the nature of the retail sector in Pakistan. There are over 450,000 retail outlets selling cigarettes, and it is not easy to control all these outlets. These retail outlets can also be seen selling cigarettes packs without the mandatory health warning. In addition, there are many known international brands selling in the market openly, largely catering to the demand of high quality cigarettes by upper income smokers.

Some estimates are that smuggling leads to revenue losses from cigarettes of between Rs. 3 billion and Rs. 6 billion. Clearly what is required is not just laws but their effective enforcement to deter illicit trade: it is the certainty and not just the existence of punishment that will ultimately deter these activities.

#### **8.4. Tax Administration**

The Excise Duty Act of 2005 grants enormous powers to tax officials of Federal Board of Revenue. This includes physical presence of tax inspectors in registered factories to monitor the movement of consignments. Special provisions in the Act include the following:

- (i) Requiring that unmanufactured tobacco received by a factory must have a legible marking of weight and serial numbering to enable proper identification in the records maintained.
- (ii) Exciseable products will only be sold after packaging them into separate packets of distinct specifications, sizes and weights, and the payment of duty at rates applicable in the Act.

The following provisions were inserted by SRO 561(1) in 2006:

- a) No packet of cigarettes for consumption in domestic market shall be cleared from the manufacturing premises without printing thereon the retail price, health warning and the name of the manufacturer. All cigarettes now have the following standard health warning:

WARNING: SMOKING CAUSES CANCER AND HEART DISEASES –  
MINISTRY OF HEALTH

- b) For the purposes of payment of federal excise duty, the minimum retail price (excluding sales tax) of cigarettes shall not less than 84 percent of the maximum price in Tier I of the excise duty structure.

There are other provisions in the Act which have not yet been activated such as that from a date as may be prescribed by the Federal Board of Revenue, no pack of cigarettes shall be sold by a manufacturer without affixing an excise stamp and/or banderole in such style and detail as may be prescribed the Board.

It is important that this requirement be made operative to check counterfeiting and illicit production of cigarettes in the country, especially at the time when the proposed new tax structure described above is implemented.

## 9. POLICY RECOMMENDATIONS

The analysis in this report of the situation concerning the use of tobacco and its products in Pakistan has led to a number of conclusions documented in this section. Five key recommendations are as follows:

- First, public policy in the area of tobacco has not adequately discouraged its use. It has instead used tobacco primarily as an important source of public revenue. Changing the direction of public policy would require concentrated analytical work and its dissemination, to persuade policy makers that they should view the long-term costs to the economy that result from tobacco use.
- Second, there are opportunities for refining and rationalizing the fiscal structure in order to make tobacco expensive for its users. There is a case, in particular, for increasing the tax on lower quality cigarettes. There is also a case for introducing in other provinces an assessment on tobacco production similar to the one already in place in the Northwestern Frontier Province, and enhancing generally the rate of tobacco assessments to discourage other forms of tobacco consumption besides cigarettes.
- Third, there is an opportunity for involving the newly created local government institutions in the design of tobacco policy, and we propose that a portion of local tobacco taxes be earmarked for strong tobacco control measures. For example, the assessment levied by the NWFP is a local government tax and its proceeds accrue to the local bodies. The returns from it can be earmarked for the development of the health network that needs to be put in place in order to deal with the consequences of tobacco use.

Earmarking tobacco taxes may also make sense at a national level; even though tobacco excise contribute 40 percent of excise collected in Pakistan, the government of Pakistan only spends a small amount of money on tobacco control efforts. Experience from other parts of the world such as

Australia suggests that earmarking by raising taxes and dedicating some of the new revenues for comprehensive tobacco control and other social and public health programs is politically viable. When tobacco taxes are raised as part of a comprehensive approach to reducing tobacco use, the reductions in use and improvements in health are greater than from the tax increase alone.

- Fourth, while taxation at the local level makes sense for Pakistan, it is important to further rationalize its structure that has given rise to smuggling of cigarettes. The lax tax regime being followed in Azad Kashmir - the part of the state of Kashmir controlled by Pakistan - and some parts of the Federally Administered Tribal Areas have led to the manufacture of low quality cigarettes in these administrative entities that are smuggled to the areas where taxes are high. Specific proposals like the use of excise stamps, use of cameras in factories and important border posts need to be implemented to discourage illicit production.
- Fifth, it is important to seriously consider non-tax and non-price disincentives as parts of broad public policy. Pakistan is a signatory to the FCTC treaty of the United Nations, but has yet to effectively enforce some important tobacco control measures. These include the enforcement of smoke-free environments, the introduction of cessation programs, bans on advertising, promotion and sponsorship, health warnings on cigarette packets, and indications of nicotine and tar content.

Other ideas for reducing tobacco use in Pakistan include exploring alternatives to tobacco sector employment, public education, and a database for monitoring tobacco use. All this requires resources, both human and financial, but we believe they will only represent a minor share of the revenues the government of Pakistan will collect from this sector.

In conclusion, the government must give a high priority to curbing the use of tobacco through a multi-pronged strategy such as the one described above as part

of an overall health policy for Pakistan. Increases in tobacco taxes in particular have been shown to be highly effective in reducing the use of tobacco in many developed and developing countries. Given that prices of cigarettes are very low and have become much more affordable in Pakistan over the past decade, there is a huge potential for increasing taxes, reducing the use of tobacco, and enforcing strong tobacco control measures in compliance with the Framework Convention on Tobacco Control. A tobacco free Pakistan will not only yield health benefits to its population, but will ultimately benefit its government in the form of money saved from the health and labor productivity of its population.

## APPENDIX 1 Technical Appendix

### MODELLING THE EXCISE TAXATION OF CIGARETTES

The objective of this technical note is to identify the behavioral consequences of the three-tier excise duty structure on cigarettes and to derive some implications for future changes in the structure.

#### First Tier

We designate the following:

$P_o$  = retail price excluding VAT,  $c$  = ex-factory cost (including profit),  $\bar{t}_o$  = specific excise duty rate,  $p^*$  = maximum price in first tier,

We have that

$$c + \bar{t}_o = P_o \quad \dots\dots\dots (1)$$

The excise duty,  $T$ , is given by

$$T = \bar{t}_o \quad \dots\dots\dots (2)$$

Therefore,

$$\frac{\partial T}{\partial c} = 0 \quad \dots\dots\dots(3)$$

This implies that a rise in cost or profit does not lead to an enhancement in the excise duty liability. Therefore, manufacturers have an incentive to raise the retail price upto  $p^*$ . The limiting factor is the price elasticity of demand at the lower end of the market.

#### Second Tier

We designate  $p^{**}$  as the maximum price in the second tier.

In this case, the price determination equation is given by

$$c + t_o + x_1 (P_o - p^*) = P_o \quad \dots\dots\dots(4)$$

Simplifying we obtain

$$P_o = \frac{c + t_o - x_1 p^*}{1 - x_1} \dots\dots\dots(5)$$

And the excise duty is given by

$$T = \frac{cx_1 + t_o - x_1 p^*}{1 - x_1} \dots\dots\dots(6)$$

This indicates that

$$\frac{\partial T}{\partial c} = \frac{x_1}{1 - x_1} \dots\dots\dots(7)$$

In the particular case, where  $x_1 = 0.69$ ,  $\frac{\partial T}{\partial c} = 2.23$ . A one rupee increase in factory cost or profit implies an increase in tax liability of as much as 2.23 Rs. This is a factor that will reduce the incentive for transferring higher costs or raising profit margins by manufacturers.

Equation (6) also has an important implication for tax design. If the specific rate,  $t_o$ , is being enhanced along with a rise in  $p^*$  then for the excise duty to rise throughout the second tier.

$$dT = \frac{1}{(1 - x_1)} [\partial t_o - x_1 \partial p^*] > 0$$

That is

$$\partial t_o > x_1 \partial p^* \dots\dots\dots(8)$$

Where  $\partial t_o$  is the change in the specific tax,  $t_o$ , and  $\partial p^*$  is the increase in the price range in the first tier. It can be seen from Table 7.2 that in the actual changes in the tax structure FBR has not followed this rule.

### Third Tier

At the maximum price in the second tier of  $p^{**}$ , the excise duty is given by

$$T = cx_1 + t_o - x_1p^*$$

$$p^{**}(1 - x_1) = c^{**} + t_o - x_1p^*$$

$$c^{**} - p^{**}(1 - x_1) - t_o + x_1p^*$$

Now in the third tier we have that

$$P_o = \frac{c}{1 - x_2}$$

Therefore at  $c^{**}$  we have

$$P_o = \frac{p^{**}(1 - x_1) - t_o + x_1p^*}{1 - x_2}$$

Discontinuity if  $P_o \neq p^{**}$

For  $P_o = p^{**}$

$$p^{**}(1 - x_2) = p^{**}(1 - x_1) - t_o + x_1p^*$$

$$p^{**}(x_1 - x_2) = x_1p^* - t_o \quad \dots\dots\dots(9)$$

If  $p^{**}$  and  $p^*$  are specified exogenously then (9) gives the relationship between the magnitudes of  $x_1$  and  $x_2$ , the marginal excise duty rates in the second and third tiers, which ensure that there is no discontinuity. Otherwise if  $P_o > p^{**}$  then manufacturers will be reluctant to move from tier II to Tier III because of the large jump in the excise duty liability. Beyond  $p^{**}$

We have

$$P_o = \frac{c}{1 - x_2}$$

$$T = \frac{cx_2}{1 - x_2} \text{ with } \frac{\partial T}{\partial c} = \frac{x_2}{1 - x_2} \quad \dots\dots\dots(10)$$

## APPENDIX 2 STATISTICAL APPENDIX

### Production of Tobacco

<b>APPENDIX TABLE 1</b>					
<b>Area of Cigarette Type Tobacco in Pakistan 1996-97 to 2005-06</b>					
Year	Area (Hectare)				
	FCV	DAC	WP	Burley	Total
1966-97	18633	858	8968	355	28814
1997-98	22129	998	9105	305	32537
1998-99	24661	1190	9468	380	35699
1999-00	27376	902	8069	237	36584
2000-01	21301	571	4990	257	27119
2001-02	24570	751	4749	432	30502
2002-03	20748	459	5469	933	27639
2003-04	20660	355	5472	878	27365
2004-05	26312	367	4929	943	32551
2005-06	29227	535	6593	637	36992

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

<b>APPENDIX TABLE 2</b>					
<b>Yield of Cigarette Type Tobacco in Pakistan 1996-97 to 2005-06</b>					
Year	Yield (Kg/Hectare)				
	FCV	DAC	WP	Burley	Total
1966-97	2520	3044	1899	1592	2331
1997-98	2372	2976	1812	2200	2233
1998-99	442	3076	1877	2150	2313
1999-00	2372	2705	1872	1272	2263
2000-01	2392	2044	1934	2249	2299
2001-02	2426	2583	1977	2168	2357
2002-03	2473	2904	1980	2304	2377
2003-04	2434	1938	2006	1822	2323
2004-05	2500	2343	2009	1739	2402
2005-06	2523	2991	2002	1444	2415

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

## Industrial Structure

<b>APPENDIX TABLE 3</b>		
<b>Share of key Tobacco manufacturing companies in federal taxes, 2004-05</b>		
Companies	Rs. In million	Share %
Pakistan Tobacco Company Limited	14115.412	54.91%
Lakson Tobacco Company Limited	11391.993	44.32%
Premier Tobacco Industries Limited	-	-
Souvenir Tobacco Company Limited	150.290	0.58%
Khyber Tobacco Company	-	-
Universal Tobacco Company	5.275	0.02%
United Tobacco Industry	-	-
Saleem cigarette industries limited	6.373	0.025%
Sarhad cigarette industries limites	35.362	0.14%
Paramount tobacco company limited	-	-
Imperial Cigarette Industry	-	-
Allied Tobacco Company	-	-
<b>Total</b>	<b>25704.705</b>	<b>100%</b>

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

<b>APPENDIX TABLE 4</b>										
<b>Grade Wise Purchase of WP Tobacco by Tobacco Companies During 2002-2006</b>										
	<i>Q: Metric Tons V : Paisa/Kg.</i>									
Grade	2002		2003		2004		2005		2006	
	Q	V	Q	V	Q	V	Q	V	Q	V
<b>1. Pakistan Tobacco Company</b>										
WP -3	-	-	-	-	-	-	-	-	-	-
WP -4	489	2676	215	2725	49	2344	150	3050	725	2857
WP -5	291	2338	177	2340	73	2703	9	2608	225	2602
<b>Sub Total: -</b>	<b>780</b>	<b>2550</b>	<b>392</b>	<b>2551</b>	<b>122</b>	<b>2560</b>	<b>159</b>	<b>3025</b>	<b>950</b>	<b>2797</b>
<b>2. Lakson Tobacco Company</b>										
WP -3	-	-	-	-	-	-	-	-	-	-
WP -4	220	2541	297	2548	428	2560	151	2885	341	2803
WP -5	-	-	-	-	10	2122	85	2342	-	-
<b>Sub Total: -</b>	<b>220</b>	<b>2541</b>	<b>297</b>	<b>2548</b>	<b>438</b>	<b>2550</b>	<b>236</b>	<b>2691</b>	<b>341</b>	<b>2803</b>
<b>3. Khyber Tobacco Company</b>										
WP -3	-	-	-	-	2	2815	-	-	-	-
WP -4	-	-	-	-	19	2675	-	-	35	2939
WP -5	-	-	-	-	19	2589	-	-	15	2578
<b>Sub Total: -</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>40</b>	<b>2639</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>2831</b>
<b>4. Sarhad Cigarette Industries</b>										
WP -3	-	-	-	-	-	-	8	2759	6	2694
WP -4	-	-	-	-	-	-	5	2520	8	2586
WP -5	-	-	-	-	-	-	7	2402	6	2466
<b>Sub Total: -</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>20</b>	<b>2572</b>	<b>20</b>	<b>2579</b>
<b>5. Walton Tobacco Company</b>										
WP -3	-	-	-	-	-	-	-	-	-	-
WP -4	-	-	-	-	-	-	-	-	32	2805
WP -5	-	-	-	-	-	-	46	2703	-	-
<b>Sub Total: -</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>46</b>	<b>2703</b>	<b>32</b>	<b>2805</b>

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

<b>APPENDIX TABLE 5</b>																				
<b>Tobacco Utilization of Different Types for Cigarette Manufacture</b>																				
<b>By All Tobacco Companies During 2001-02 to 2005-06</b>																				
<i>(Metric Tons = Net Et.)</i>																				
Tobacco Company	2001-02				2002-03				2003-04				2004-05				2005-06			
	FCV	DAC	WP/ Others	Total	FCV	DAC	WP/ Others	Total	FCV	DAC	WP/ Others	Total	FCV	DAC	WP/ Others	Total	FCV	DAC	WP/ Others	Total
Lakson Tobacco Co.	24858	614	1935	27407	22068	274	1276	23618	23643	483	1367	25493	25462	180	134	26976	25488	285	1395	27168
Pakistan Tobacco Co.	13769	702	5741	12272	12272	611	5250	18133	17502	682	1999	20183	20251	519	2362	23132	18586	313	2027	20926
Khyber Tobacco Co.	-	-	-	-	430	40	251	721	-	-	-	-	-	-	-	-	-	-	-	-
Souvenir Tobacco Co.	446	-	4	450	444	-	-	444	435	-	-	435	568	-	-	568	-	-	-	-
Sarhad Cigarette Ind.	103	-	20	123	70	-	9	79	73	-	10	83	96	-	14	110	85	-	13	98
Saleem Cigarette Ind.	29	-	3	32	38	-	5	43	158	-	23	181	127	-	15	142	82	-	10	92
Universal Tobacco Co.	33	-	10	43	17	-	4	21	32	-	17	49	4	3	2	9	36	-	11	47
Shaheen Tobacco Co.	25	-	6	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paramount Tobacco Co.	127	15	52	194	100	83	53	236	158	41	57	256	-	-	-	-	-	-	-	-
T.S Tobacco Company	-	-	-	402	6	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
International Cig. Ind.	7	-	18	25	5	-	10	15	9	-	15	24	6	-	16	22	135	-	13	148
Imperial Cig. Ind.	29	-	8	37	51	-	7	58	60	-	9	69	80	-	21	101	73	-	21	94
Central Tobacco Co.	-	-	-	-	28	-	4	32	-	-	-	-	-	-	-	-	-	-	-	-
Burley Tobacco Co.	28	-	3	31	-	-	-	-	8	-	1	9	-	-	-	-	-	-	-	-
Total	39456	1331	7800	48987	35529	1008	6869	43406	42130	1206	3502	46838	46594	802	3664	51060	44485	598	3490	48573

Source: Tobacco Companies

## Taxation of Tobacco

<b>APPENDIX TABLE 6</b>						
<b>Tobacco Cess Realization by Pakistan Tobacco Board During the Last Five Years</b>						
<i>('000' Rs.)</i>						
<b>S. No</b>	<b>Tobacco Company</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
1.	Pakistan Tobacco Company	22632	20353	23169	26544	24063
2.	Lakson Tobacco Company	31243	27415	30018	32316	31561
3.	Walton Tobacco Company	344	406	414	499	575
4.	Souvenir Tobacco Company	509	532	521	679	680
5.	Sarhad Cigarette Industries	132	82	95	133	106
6.	Pearl Tobacco Industry	-	-	-	-	13
7.	Saleem Cigarette Industries	-	-	51	-	-
8.	Atlas Tobacco Company	-	-	1	-	-
9.	Ambar Tobacco Company	102	114	-	-	-
10.	Central Tobacco Company	39	36	65	42	-
11.	Sultan Tobacco Company	11	13	7	8	-
12.	Western Tobacco Company	36	20	-	-	-
13.	Paramount Tobacco Company	210	257	346	165	-
14.	Imperial Cigarette Industry	88	59	78	111	103
15.	Khyber Tobacco Company	-	3	-	-	-
16.	Universal Tobacco Company	46	26	34	29	33
17.	National Tobacco Company	19	12	21	55	309
18.	Asia Tobacco Company.	-	12	-	-	-
19.	Kashmir Tobacco Company	45	46	-	-	-
20.	International Cigarette Ind.	21	13	21	18	26
21.	Burley Tobacco Company.	22	31	11	-	-
22.	New Kashmir Tobacco Company	49	48	47	44	43
23.	Bilal Tobacco Company	12	17	24	21	110
24.	Delta Tobacco Company	526	-	-	-	-
25.	Excel Tobacco Company	-	17	-	-	-
26.	Virginia Tobacco Company	9	4	-	-	-
27.	Civic Tobacco Company	14	18	22	17	20
28.	Helton Tobacco Company	9	35	18	8	-
29.	Watton Tobacco Company	22	21	24	29	54
30.	Heltop Tobacco Company	9 30	-	-	-	-
31.	Bara Cigarette Industry	-	-	-	-	1
	<b>Total</b>	<b>56170</b>	<b>49560</b>	<b>54987</b>	<b>60718</b>	<b>57697</b>

**Source:** Tobacco Companies

<b>APPENDIX TABLE 7</b>					
<b>Central Excise Duty Realized from Different Tobacco Companies 2001-02 to 2005-06</b>					
<i>(Million Rs.)</i>					
<b>Tobacco Companies</b>	<b>2001-02*</b>	<b>2002-03*</b>	<b>2003-04*</b>	<b>2004-05*</b>	<b>2005-06*</b>
Pakistan Tobacco Company	11986.3	12787.2	14124.7	17146.0	17715.9
Lakson Tobacco Company	8973.0	8754.2	9264.5	10982.9	11156.7
F.S. Tobacco Company	110.9	1773.7	-	-	-
Souvenir Tobacco Company	98.9	104.4	105.4	141.9	149.4
Khyber Tobacco Company	-	2.3	-	-	-
Sarhad Cigarette Industries	18.0	24.6	26.2	34.3	32.1
Saleem Cigarette Industries	6.8	7.2	7.7	6.3	-
Central Tobacco Company	-	7.4	16.5	-	-
Shaheen Tobacco Company	5.2	-	-	-	-
Universal Tobacco Company	6.3	6.1	5.9	5.3	12.9
Paramount Tobacco Company	54.2	65.6	75.2	-	-
Imperial Cigarette Industry	20.2	19.6	19.1	25.0	29.5
International Tobacco Company	3.5	4.7	5.2	5.9	6.1
Delta Tobacco Company	3.5	-	-	-	-
<b>Total</b>	<b>21286.8</b>	<b>23557.0</b>	<b>23650.5</b>	<b>28347.6</b>	<b>29102.6</b>
*Including Sales Tax					
Source: Tobacco Companies					

## International Trade

<b>APPENDIX TABLE 8</b>					
<b>Export of Tobacco and Tobacco Products by two large tobacco companies during the last five years</b>					
Period	Quantity Exported				Total Value (M.Rs)
	Tobacco		Cigarettes		
	Quantity (M. Kgs)	Value (M.Rs)	Quantity (M. Nos)	Value (M.Rs)	
<b>A: Lakson Tobacco Company:</b>					
2001-02	0.945	119.205	141.625	38.024	157.229
2002-03	2.377	154.890	96.311	24.110	179.000
2003-04	3.860	211.660	108.450	26.350	238.010
2004-05	4.940	345.290	28.960	7.600	356.890
2005-06	3.340	288.000	21.000	6.670	294.670
<b>B: Pakistan Tobacco Company:</b>					
2001-02	0.885	95.792	-	-	95.792
2002-03	1.43	13.700	-	-	13.700
2003-04	3.989	399.500	-	-	399.500
2004-05	1.965	259.932	-	-	259.932
2005-06	0.490	44.800	-	-	44.800
Source: Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues					

<b>APPENDIX TABLE 9</b>										
<b>Increase/Decrease in Export of Tobacco and Cigarettes 2001-02 To 2005-06</b>										
Year	TOBACCO				CIGARETTES				TOTAL VALUE	
	Quantity		Value		Quantity		Value		(M. Rs)	X Variation
	(M. Kg)	X Variation	(M. No)	X Variation	(M. No)	X Variation	(M. Rs)	X Variation		
2001-02	3.21	(-) 46	231.11	(-) 60	84.19	(+) 615	46.20	(+) 643	*286.41	(-) 51
2002-03	5.49	(+) 71	316.75	(+) 37	74.03	(-) 12	45.21	(-) 2	*362.37	(+) 27
2003-04	8.27	(+) 51	642.74	(+) 103	160.37	(+) 117	120.58	(+) 167	*767.09	(+) 112
2004-05	7.17	(-) 13	626.67	(-) 2	38.93	(-) 312	34.15	(-) 253	*673.61	(-) 12
2005-06	4.83	(-) 33	365.10	(-) 42	21.16	(-) 46	17.936	(-) 43	*386.32	(-) 43

\*Including Rs. 91,05,000 as the value of cigars during 2001-02  
 \*Including Rs. 4,16,000 as the value of cigars during 2002-2003  
 \*Including Rs. 3,77,000 as the value of cigars during 2003-04  
 \*Including Rs. 12,79,000 as the value of cigars during 2004-05  
 \*Including Rs. 3,29,000 as the value of cigars during 2005-06

**Source:** Federal Bureau of Statistics

<b>APPENDIX TABLE 10</b>							
<b>Government Revenues Paid by Pakistan Tobacco Company Limited</b>							
<i>(Rs. In Million)</i>							
Year	Taxes on Imports	Taxes on Tobacco and Cigarettes					Grand Total
		C.E.D. on Tobacco	C.E.D. on Cigarettes	Sales Tax	Income Tax	Local Tax	
1990-91	120.191	32.696	5219.219	833.696	83.499	-	6289.301
1991-92	138.058	30.306	5585.678	934.301	20.949	-	6709.294
1992-93	194.135	38.661	5272.404	1036.211	29.422	14.882	6585.715
1993-94	185.413	32.479	4792.587	1130.115	52.385	19.665	6212.644
1994-95	247.228	48.048	5445.544	1441.709	-	2.432	7184.961
1995-96	285.189	93.877	6054.049	1270.188	-	8.847	7711.950
1996-97	344.609	112.670	6490.486	2308.999	-	9.394	9266.158
1997-98	301.000	107.000	6605.000	1424.000	25.000	52.000	8514.000
1998-99	349.000	118.000	7693.000	1825.000	29.000	73.000	10087.000
1999-00	2205.375	108.695	7152.765	-	27.802	92.486	9587.123
2000-01	502.273	20.3758	9295.399	2615.542	-	80.394	12697.366
2001-02	346.800	136.370	9583.017	2713.486	-	78.157	12857.839
2002-03	355.417	94.736	9923.815	2766.028	-	16.519	13156.515
2003-04	308.793	142.292	11676.241	3242.709	-	24.388	15394.423
2004-05	235.625	242.004	13536.786	3.392	49.911	47.587	14115.412

**Source:** Tobacco Statistical Bulletin, Pakistan Tobacco Board, 2006

**APPENDIX TABLE 11**  
**LAKSON Tobacco Company Limited**

Year	Taxes on Imports			Taxes on Tobacco and Cigarettes					Grand Total
	Custom Duty	Sales Tax	Iqra Sur-Charoe	C.E.D. on Tobacco	C.E.D. on Cigarette	Sales Tax	Income Tax	Local Tax	
1990-91	24.658	11.885	3.559	18.950	1788.326	306.178	2.390	0.051	2156.037
1991-92	30.795	14.478	12.011	19.399	1512.938	264.726	3.191	1.800	1859.338
1992-93	42.294	17.366	5.770	20.473	1270.745	265.633	-	2.373	1624.654
1993-94	37.487	28.499	5.241	20.187	1250.751	306.210	19.605	3.502	1671.482
1994-95	48.818	20.632	-	17.197	1412.236	326.457	37.209	6.815	1869.364
1995-96	55.622	26.631	4.055	49.213	1334.217	343.692	25.043	12.615	1851.088
1996-97	199.268	114.030	80.550	88.386	3317.150	914.057	69.954	32.984	4422.530
1997-98	260.546	166.266	1.879	153.892	6057.338	1380.835	-	61.922	8082.678
1998-99	292.129	210.931	0.747	164.500	6297.904	1550.455	-	75.582	8714.228
1999-00	262.746	206.378	9.867	160.648	6589.084	1974.309	-	-	9203.032
2000-01	341.506	269.133	17.013	192.369	6412.085	2076.586	-	-	9308.692
2001-02	259.428	221.269	13.459	179.484	6609.678	2183.810	-	-	9407.128
2002-03	214.020	196.007	5.688	151.599	6489.862	2112.712	-	-	9169.887
2003-04	281.185	223.076	8.068	167.137	6781.323	2316.065	-	-	9776.854
2004-05	293.046	243.684	12.362	*	8066.861	2736.040	-	-	11391.993

Source: Tobacco Statistical Bulletin, Pakistan Tobacco Board, various issues

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