

The Economics of Tobacco and Tobacco Taxation in India

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“Raising bidi taxes to Rs 98 per 1000 sticks would add Rs 36.9 billion to tax revenues and prevent 15.5 million current and future smokers dying prematurely; increasing cigarette taxes to Rs 3691 per 1000 sticks would further add Rs 146.3 billion to tax revenues and prevent 3.4 million premature deaths.”



- Monitor** tobacco use and prevention policies
- Protect** people from tobacco smoke
- Offer** help to quit tobacco use
- Warn** about the dangers of tobacco
- Enforce** bans on tobacco advertising, promotion and sponsorship
- Raise** taxes on tobacco

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Abbreviations

| | |
|--------|---|
| BED: | Basic Excise Duties |
| CMIE: | Centre for Monitoring Indian Economy |
| COTPA: | Cigarettes and Other Tobacco Products Act |
| CPI: | Consumer Price Index |
| FCTC: | Framework Convention on Tobacco Control |
| GST: | Goods and Services Tax |
| GYTS: | Global Youth Tobacco Survey |
| HC: | Health Cess |
| NCCD: | National Calamity Contingency Duty |
| NFHS: | National Family Health Survey |
| NSSO: | National Sample Survey Organization |
| NTCC: | National Tobacco Control Cell |
| SED: | Special Excise Duty |
| VAT: | Value added tax |
| WPI: | Wholesale Price Index |

Executive Summary

India is unique in the range of tobacco products that are available at different price points, targeted at populations with substantial differences in socioeconomic and demographic profiles. Tobacco is consumed in a variety of forms, from smoking tobacco products like bidis* and cigarettes to several types of chewing tobacco. There are considerable differences in the taxes imposed on each of these product categories. Tobacco taxes are low overall in India, and are especially low for the products consumed most widely.

This report reviews current research on the economics of tobacco taxation in India and makes recommendations for tobacco tax policy. To summarize,

1. Tobacco use imposes a large burden of death and disability on the Indian subcontinent. Tobacco-related deaths are increasing in India, and account for approximately a sixth of the world's tobacco-related deaths. Smoking is expected to kill nearly 1 million Indians by the early 2010s, with the proximate causes running the gamut from heart disease and cancer to respiratory disease and tuberculosis.

**Smoking is expected to kill nearly
1 million Indians by the early 2010s.**

2. Tobacco demand in India is high and has shown no signs yet of declining. Roughly 10% of the world's tobacco smokers are in India, representing the second largest group of smokers in the world after China. With a rise in disposable incomes, consumption of tobacco is expected to rise in India.

**Tobacco taxes are low overall in India,
and are especially low for the products
consumed most widely.**

3. Tobacco control efforts in India are at a relatively early stage. The Cigarettes and Other Tobacco Products Act adopted by Parliament in 2003 bans tobacco advertising and smoking in public places, forbids the sale of tobacco products to children under the age of 18 and restricts sponsorship of sporting and cultural events by tobacco manufacturers. India has signed (in 2003) and ratified (in 2004) the global Framework Convention on Tobacco Control (FCTC) treaty adopted by the World Health Assembly in 2003. Compliance with these regulations and guidelines, however, remains less than optimal.
4. The tobacco economy in India is large compared to most other countries. It employed some 7 million people during 2004-05, accounting for 1.5% of overall employment. More than two-thirds of this employment is rural, though many of these jobs, particularly those in bidi manufacturing, are primarily part-time.
5. Taxes on cigarettes are low, while taxes on bidis have historically been close to zero in rupee terms. The result is that tobacco products have become increasingly affordable in India over the past decade. Significant and sustained increases in taxes across all tobacco products would dramatically reduce tobacco consumption, mortality, and morbidity while also raising substantial government revenues. Research shows

* Bidis are made by rolling a dried, rectangular piece of temburni or tendu leaf (*diospyros melanoxylon*) with an average of 0.33 g of sun-dried, flaked tobacco into a cone secured with thread.

that a 10% increase in cigarette prices would reduce cigarette consumption by 3.4% in rural India and 1.9% in urban India, while a 10% rise in bidi prices would reduce bidi consumption by 9.2% and 8.5% in rural and urban India, respectively. These price increases together translate into a 1.7% and 11.7% decrease in youth cigarette and bidi smoking prevalence.

6. The health impact of a bidi price increase of 52.8% through increased taxes would be 4.6 million averted premature deaths in current smokers, while a cigarette price increase of 176% through increased taxes would avert an additional 1.8 million premature deaths in current smokers. Given the low average prices of both bidis and cigarettes, neither of these percentage increases is a very large price change in rupee equivalents. The benefits of these price increases, however, are substantial. In addition to deaths averted among current smokers, by deterring the current cohort of Indian youth from initiating smoking, an additional 10.9 million premature deaths caused by bidi smoking and 1.6 million premature deaths caused by cigarette smoking could be prevented. Reassuringly, two broader economic trends – the fast-growing economy and the demand for non-tobacco goods when households shift away from tobacco consumption – make it unlikely that these higher taxes would threaten aggregate employment levels. At the same time, these cigarette and bidi price increases would generate Rs 146.3 billion (US\$ 3.1 billion) and Rs 36.9 billion (US\$ 0.8 billion) in new government revenues respectively.

Raising bidi taxes to Rs 98 per 1000 sticks ...would raise over Rs 36.9 billion in tax revenues ...and prevent 15.5 million deaths in current and future bidi smokers.

Recommendations

We make the following specific recommendations:

1. **Increase bidis taxes substantially.** Taxes on bidis should be raised multifold. Raising bidi taxes to Rs 98 per 1000 bidi sticks from the existing low level of Rs 14 per 1000 would raise over Rs 36.9 billion (US\$ 0.77 billion) in new tax revenues. By increasing prices up 52.8% from their current levels, the higher tax would also significantly reduce bidi consumption, and prevent 15.5 million premature deaths among current and future bidi smokers.
2. **Tighten policies regulating bidi production.** Effective tobacco taxation in India is hampered by regulatory distinctions between handmade and machine-made bidis, exemptions to small producers and the availability of unbranded bidis. Eliminating the small producer exemptions (or limiting it to truly small manufacturers), prohibiting the sale of unbranded bidis, and ensuring that all bidi tobacco raw material sales to manufacturers are reported to the excise department are all critical steps, especially in an environment where large bidi manufacturers own or effectively control smaller production units to take advantage of regulatory loopholes.
3. **Increase cigarette taxes substantially.** A significant increase in the existing tax on cigarettes will reduce cigarette smoking and the public health damage it causes, as well as generate higher cigarette tax revenues. Raising cigarette taxes to Rs 3691 per 1000 sticks from Rs 659 per

Raising cigarette taxes to Rs 3691 per 1000 sticks ...would increase tax revenues by over Rs 146 billion ...and prevent 3.4 million deaths in current and future cigarette smokers.

1000 would increase tax revenues by Rs 146.3 billion (US\$ 3.1 billion), significantly reduce cigarette consumption, and prevent 3.4 million premature deaths in current and future cigarette smokers.

4. **Simplify, extend, and strengthen tobacco taxation.** The current tobacco tax structure is complex — cigarettes are taxed based on their length; and differential taxes on hand- versus machine-rolled bidis make for a large market in very cheap tobacco products. Eliminating these differential taxes and simplifying tax administration will help convey the clear public health message that all bidis, cigarettes and chewed tobacco products are harmful. A higher specific tax which is regularly adjusted for inflation would ensure high relative prices of tobacco products. This calls for an increased

central government excise tax on bidis and cigarettes, and high taxes at the state level. India has recently begun to move towards the introduction of a goods and services tax. As the tax environment evolves, policy-oriented research to assist tax administration and ensure high taxes on tobacco products is especially critical.

5. **Explore earmarking as a means to support additional tobacco control efforts.** Experience from countries like Thailand and Australia suggests that raising taxes and dedicating some of the new revenues to comprehensive tobacco control and other social and public health programmes can be politically viable. When tobacco taxes are increased as part of a comprehensive approach to reducing tobacco use, improvements in health are greater than with a tax increase alone.

I. Introduction

This report examines the economic and policy dimensions of tobacco taxation as a mechanism for tobacco control in India, the country with the second largest population of tobacco users in the world. It is designed to assist policy makers interested in evidence-based guidelines on economic approaches to tobacco regulation, and researchers and others interested in the current state of knowledge on the economics of tobacco taxation in India.

Tobacco consumption is the single most important avoidable factor in the growth of non-communicable diseases in developing countries,¹ particularly in India. Tremendous economic growth has spurred a visible rise in disposable incomes and in the affordability of tobacco products in the country. As international and domestic tobacco companies apply

Tobacco consumption is the single most important avoidable factor in the growth of non-communicable diseases in developing countries, particularly in India.

ever more effective tobacco marketing strategies in this large and rapidly developing economy, the risk of an increase in tobacco consumption remains significant.

Tobacco use patterns in India are unique and reflect longstanding cultural practices. Two features stand out — bidis are more common than cigarettes; and chewing tobacco use is widely prevalent. The diversity in forms of tobacco consumption complicates any assessment of tobacco taxation in India. Tobacco is also fairly important as an economic activity in India — its production and sale directly or indirectly involve some 7 million workers, and tobacco contributes roughly 2% of central tax revenue. India also has a mosaic of taxation approaches, mirroring a diverse tobacco manufacturing and legislative environment.

Against this complex economic background, increases in tobacco consumption and in the prevalence of tobacco-related illnesses and mortality only underscore the urgency of using policy interventions, including tobacco taxation, to improve public health in India.

Research on the economics of tobacco taxation in India is fairly limited. This report addresses some of the gaps in knowledge, with the intent of suggesting meaningful economic and tax policy measures to counter tobacco use in the country.

Endnotes for Chapter I

¹ Jha P, Chaloupka FJ. Curbing the Epidemic Governments and the Economics of Tobacco Control. World Bank; 1999.

II. The Economics of Tobacco in India

Patterns in Consumption and Prevalence

Roughly 10% of the world's tobacco smokers live in India, representing the second largest group of smokers in the world after China.² India is also the third largest producer of tobacco leaf in the world. In contrast to most other countries, India's tobacco consumption pattern reflects heavy use of non-cigarette tobacco, primarily in the form of bidis, chewing tobacco and paan preparations. Bidis account for as much as 85% of total smoked tobacco. With a rise in disposable incomes, per capita consumption of cigarettes is expected to increase. Further, quitting is still uncommon, and less than 2% of adults identify themselves as ex-smokers.³

Bidis account for as much as 85% of total smoked tobacco.

...an estimated 120 million Indians smoke ...57% of men and 11% of women aged 15-49 consume some form of tobacco, smoked or non-smoked.

Prevalence estimates of the number of smokers in India have varied, in part due to difficulties in comparing questions posed in successive sample surveys. The most direct estimation uses the National Family Health Survey-3 (NFHS-3) of 2005-06.⁴ NFHS-3, however, does not represent all adults; it collected data for men aged 15-54 and women aged 15-49. Analysis of a combination of sources suggests that an estimated 120 million Indians smoke some form of tobacco, a figure that includes 115 million male smokers and 5-6 million female smokers.

Table 2.1 presents recent evidence from NFHS-3 suggesting that 57% of men and 11% of women aged 15-49 years consume some form of tobacco, smoked or non-smoked. Nearly a third of all men aged 15-54 years

Table 2.1: Prevalence of different forms of tobacco use (%), ages 15-49, 2005-06

| Tobacco use | Women | | | Men | | | Total | | |
|---------------------------------|--------|--------|---------|--------|--------|--------|--------|---------|---------|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Smokes cigarettes or bidis | 0.5 | 1.8 | 1.4 | 28.7 | 35 | 32.7 | 11.3 | 13.3 | 12.6 |
| Smokes cigars or pipe | 0 | 0.2 | 0.2 | 0.4 | 0.8 | 0.6 | 0.2 | 0.4 | 0.3 |
| Chewing: paan, gutka, etc. | 5.5 | 9.8 | 8.4 | 31.1 | 39.6 | 36.5 | 15.3 | 20.1 | 18.5 |
| Uses snuff | 0.5 | 0.9 | 0.8 | 0.3 | 0.9 | 0.7 | 0.4 | 0.9 | 0.8 |
| Others | 0.3 | 0.9 | 0.7 | 0.3 | 1.3 | 0.9 | 0.3 | 1.0 | 0.8 |
| Any use of tobacco ^a | 6.7 | 12.9 | 10.9 | 49.9 | 61.1 | 57 | 23.3 | 29.6 | 27.5 |
| No. of respondents ^b | 40,817 | 83,568 | 124,385 | 25,504 | 44,247 | 69,751 | 66,321 | 127,815 | 194,136 |

Source:

National Family and Health Survey, NFHS-3, 2007.

Notes:

^a The figures for any use of tobacco are not the total of the preceding rows since the categories overlap; several individuals consume more than one form of tobacco.

^b The NFHS includes a larger sample of women than men. To represent the underlying population, the estimates in the table are weighted to account for this and other sampling characteristics of the survey.

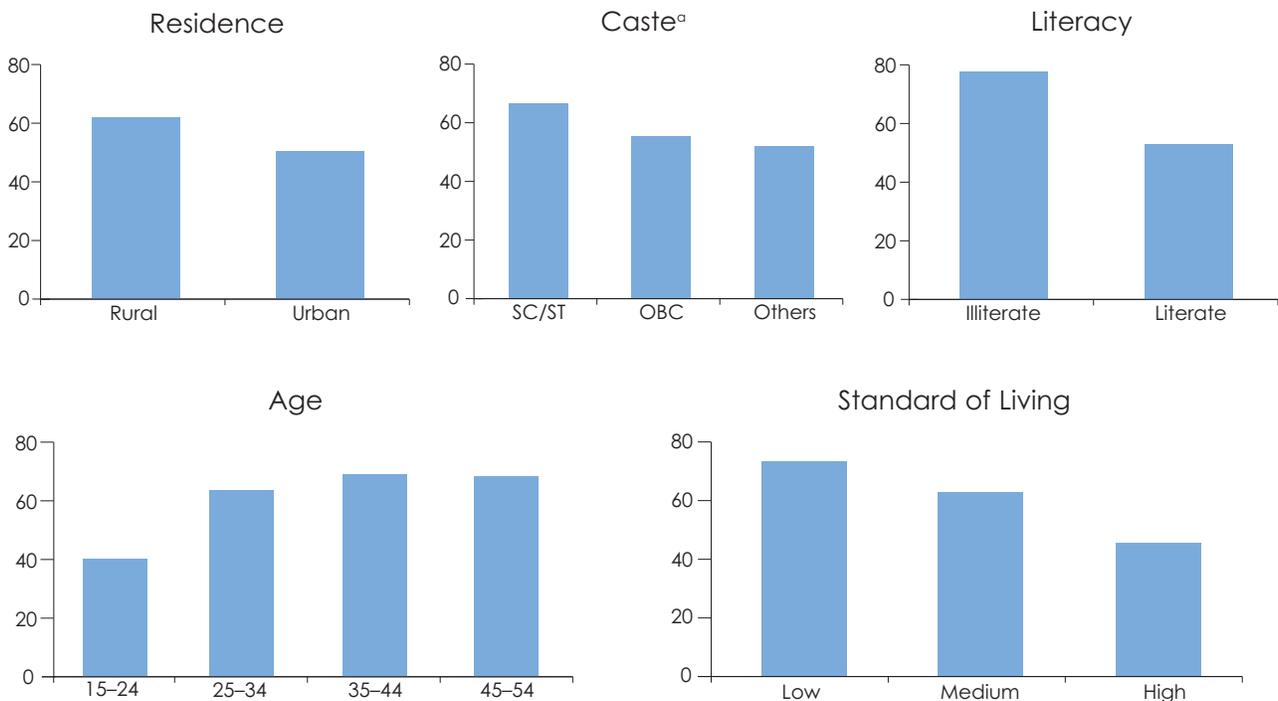
smoke either cigarettes or bidis or both, with variation in tobacco use by age, literacy and other socioeconomic characteristics (Graph 2.1). More than a third of Indian men and about 8% percent of Indian women aged 15-49 years chew tobacco in the form of paan masala and gutka.* Tobacco chewing is the most prevalent and popular form of tobacco consumption in India. Nearly 40% of rural men and 31% of urban men report chewing tobacco, as do about 10% of rural women and 5.5% of urban women in the reference age groups.

While overall tobacco use falls as education levels rise, there are important differences in cigarette and bidi smoking by education group. Among males, cigarette consumption rises with higher education, while bidi consumption falls with higher education

(Graph 2.2). No clear pattern, however, exists for women. A more recent study has corroborated the higher prevalence of cigarette use among more educated males.⁵ More generally, the fact that tobacco consumption preferences are segmented by demographic group suggests that raising taxes on cigarettes would reduce cigarette use, but would not necessarily result in “switching down” to bidis.

Available data make it difficult to identify recent trends in tobacco use in India with certainty. Comparisons of the second and third waves of the NFHS, conducted in 1998-99 and 2005-06 respectively, suggests that all forms of tobacco use among men in India increased. As Table 2.2 indicates, increases in smoking were particularly large among

Graph 2.1: Tobacco use prevalence (%) by population characteristics, males aged 15-54, year 2005-06

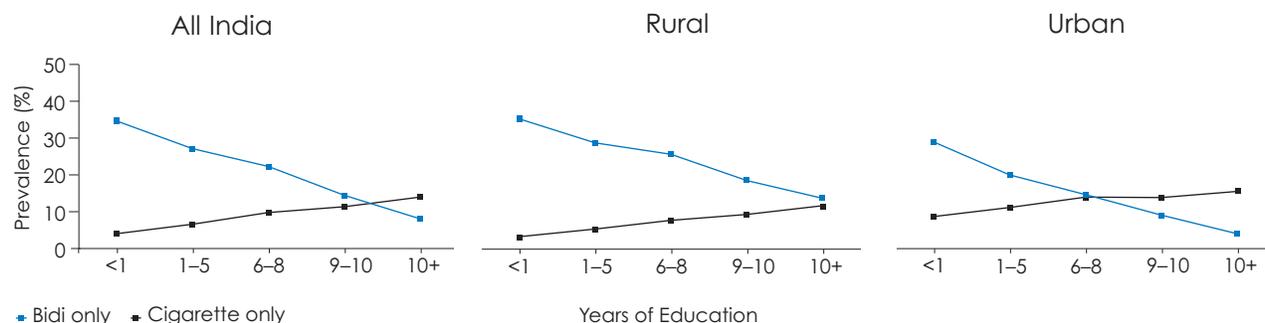


Source:
National Family Health Survey, NFHS-3, 2007.

Notes:

^a SC, ST, and OBC denote Scheduled Castes, Scheduled Tribes, and Other Backward Castes respectively.

* Paan masala is a betel-quin ingredient that may or may not contain tobacco. Gutka (also spelled gutkha, guttkha, guthka) is a preparation of crushed betel nut, tobacco, catechu, lime and sweet or savory flavorings.

Graph 2.2: Smoking prevalence by years of education in males, ages 25-69, 1998

Source:

Jha P, Gupta PC, Corson E, et al, Population based surveys of smoking trends in India, 1998-2006, under review.

Note:

Prevalence standardized for age using the population age distribution from the Special Fertility and Mortality Survey (SFMS), 1997 published by the Registrar General of India (2005).

Table 2.2: Male tobacco use prevalence, ages 15-54, 1998 and 2005

| Variables | Smoking | | | Smokeless tobacco | | | Any tobacco | | |
|---------------------------------------|----------------|------|-------------------------------|-------------------|------|-------------------------------|----------------|------|-------------------------------|
| | Prevalence (%) | | Prevalence ratio (2005 /1998) | Prevalence (%) | | Prevalence ratio (2005 /1998) | Prevalence (%) | | Prevalence ratio (2005 /1998) |
| | 1998 | 2005 | | 1998 | 2005 | | 1998 | 2005 | |
| Age | | | | | | | | | |
| 15-24 | 8.6 | 19.2 | 2.23 | 14.3 | 30.0 | 2.09 | 19.4 | 40.1 | 2.06 |
| 25-34 | 29.1 | 36.3 | 1.24 | 29.9 | 42.6 | 1.42 | 47.6 | 63.4 | 1.33 |
| 35-44 | 42.1 | 43.7 | 1.02 | 35.4 | 39.9 | 1.12 | 62.3 | 68.9 | 1.10 |
| 45-54 | 45.8 | 45.2 | 0.98 | 35.1 | 35.8 | 1.01 | 65.2 | 68.4 | 1.04 |
| Residence | | | | | | | | | |
| Rural | 30.3 | 36.2 | 1.19 | 28.9 | 39.9 | 1.38 | 47.4 | 61.8 | 1.30 |
| Urban | 19.8 | 29.3 | 1.47 | 20.1 | 31.3 | 1.55 | 33.6 | 50.3 | 1.49 |
| Education | | | | | | | | | |
| Illiterate | 44.9 | 51.3 | 1.14 | 37.1 | 45.6 | 1.22 | 64.0 | 77.8 | 1.21 |
| Literate | 22.2 | 29.5 | 1.33 | 23.3 | 34.6 | 1.48 | 37.5 | 52.9 | 1.40 |
| Caste ^a | | | | | | | | | |
| SC/ST | 32.6 | 39.4 | 1.21 | 32.1 | 43.2 | 1.35 | 51.3 | 66.6 | 1.29 |
| OBC | 26.0 | 32.2 | 1.23 | 26.0 | 35.8 | 1.38 | 41.7 | 55.4 | 1.32 |
| Others | 23.7 | 29.8 | 1.25 | 22.8 | 32.7 | 1.43 | 38.8 | 52.2 | 1.34 |
| Standard of Living Index ^b | | | | | | | | | |
| Low | 37.7 | 44.0 | 1.16 | 35.7 | 48.2 | 1.35 | 57.4 | 73.3 | 1.27 |
| Medium | 26.6 | 37.5 | 1.40 | 25.4 | 39.7 | 1.56 | 42.6 | 63.0 | 1.47 |
| High | 14.9 | 25.7 | 1.72 | 16.0 | 28.1 | 1.76 | 26.6 | 45.6 | 1.71 |

Source:

National Family Health Surveys, NFHS-2 and -3.

Notes:

^a SC, ST, and OBC denote Scheduled Castes, Scheduled Tribes, and Other Backward Castes respectively. The Scheduled Castes were historically marginalized as untouchables. The term Other Backward Classes refers to a diverse collection of "intermediate" castes that were placed low in the traditional caste hierarchy, but above the groups labeled as Scheduled Castes. The "Other" caste category is thus a default residual group, accounting for a third of the population.

^b The Standard of Living Index is constructed based on data on 33 items of household asset ownership and housing characteristics (see Chapter II, Vol. I, NFHS-3).

males aged 15-24 years, higher income individuals, and residents of urban areas.

Table 2.3 highlights the association between tobacco use patterns and socioeconomic profile. Prevalence is 20 to 40 percent higher among the scheduled castes and tribes (historically marginalized,

and often poorer) than among other castes higher up in the traditional social order. The scheduled castes and tribes together comprise nearly a quarter of the Indian population, and the considerably higher prevalence in the most disadvantaged sub-populations is of particular concern.

Table 2.3: Tobacco consumption by socioeconomic characteristics, ages 15-49, year 2005-06^a

| Socioeconomic characteristics | Percentage who use any kind of tobacco | | Percentage who smoke cigarettes or bidis | |
|-------------------------------|--|------|--|------|
| | Women | Men | Women | Men |
| Caste | | | | |
| Scheduled caste | 13.7 | 63.8 | 2.3 | 38.9 |
| Scheduled tribes | 26.3 | 71.2 | 2.1 | 36.7 |
| Other backward castes | 8.2 | 54.5 | 1.2 | 31.3 |
| Others | 8.4 | 52.4 | 0.8 | 29.8 |
| Religion^b | | | | |
| Hindu | 10.9 | 57.5 | 1.4 | 32.8 |
| Muslims | 11.2 | 60.5 | 1.6 | 36.2 |
| Christian | 11.4 | 49.4 | 1.2 | 32.9 |
| Sikh | 0.1 | 20.8 | 0.0 | 9.4 |
| Others | 29.8 | 66.1 | 1.5 | 31.2 |
| Education | | | | |
| No education | 18.1 | 77.5 | 3.0 | 50.1 |
| <5 years | 14.5 | 72.7 | 0.9 | 44.0 |
| 5-7 years | 8.2 | 64.3 | 0.3 | 37.7 |
| 8-9 years | 4.9 | 55.0 | 0.1 | 28.5 |
| 10-11 years | 2.1 | 40.8 | 0.0 | 20.8 |
| 12 or more years | 1.4 | 38.2 | 0.1 | 20.1 |
| Wealth Index | | | | |
| Lowest | 21.6 | 74.0 | 3.3 | 42.9 |
| Second lowest | 14.9 | 68.3 | 2.1 | 39.5 |
| Middle | 10.3 | 60.0 | 1.2 | 35.1 |
| Fourth | 6.7 | 52.0 | 0.5 | 29.1 |
| Highest | 3.3 | 38.6 | 0.2 | 21.7 |

Source:
National Family Health Survey, NFHS-3, 2007.

Notes:

^a Estimates are computed using weights that account for the sampling scheme of the NFHS, including the fact that more women are sampled than men.

^b For ease of exposition, two categories of religion (Buddhist/Neo-Buddhist and Jain) are omitted. The category "Others" does not include these two omitted religions.

Health Consequences of Tobacco Consumption

There is a body of evidence in India and worldwide on the adverse health effects of tobacco consumption. Globally, 5.4 million deaths annually are caused by tobacco use, and it is expected that by the year 2030 about 80% of these deaths will be in developing countries.² The leading causes of death from smoking are cardiovascular diseases, chronic obstructive pulmonary disease, and lung cancer. About one-half of deaths due to tobacco consumption occur in people aged 35 to 69,⁶ the period of life when individuals are most economically productive.

Health care costs from tobacco use impose burdens on annual health budgets, especially in poor countries like India. By one estimate, India spent approximately Rs 300 billion (US\$ 6.2 billion)* in 2002-03 in public and private spending on the treatment of tobacco-related illnesses.⁷ If accurate, this would amount to roughly one-fourth of all health spending in the country — as a point of comparison, tobacco-related health spending tends to amount to 6-15% of health spending in other developing countries.⁸ Another study using nationally representative health care expenditure data found that the direct cost of treating four major tobacco related diseases (respiratory, tuberculosis, cardiovascular, and neoplasms) in India amounted to Rs 54 billion (US\$ 1.2 billion) in 2004, or 4.7% of India's national health care expenditure that year.^{† 9}

Tobacco-Related Mortality in India

Tobacco-related deaths are on the rise in India and account for approximately a sixth of the world's tobacco-related deaths. Jha et al. (2008) estimate that around one million deaths a year in India will be attributable to smoking by the early 2010s.³ Tobacco use is already a leading cause of death among Indians aged 30-69; 20% of all male deaths in this age group

Tobacco use is a leading cause of death among Indians aged 30-69; 20% of all male deaths in this age group are caused by smoking alone.

are caused by smoking alone (Table 2.4). In a comparison of smokers and nonsmokers in India, the study found that, while the relative risk of death from any medical cause does not depend on educational level, it does depend on whether bidis or cigarettes are smoked, and on the amount smoked.

As Graph 2.3 illustrates, the risk ratio for a given number of sticks smoked is greater for cigarettes than for bidis — a larger fraction of those smoking 1-7 cigarettes a day died than did those smoking the same number of bidis a day, with either of these habits resulting in a higher occurrence of deaths among smokers overall in comparison to non-smokers. Further, a dose-response relationship is observed between smoking and mortality, both among men who smoke only bidis and among men who smoked only cigarettes ($P < 0.0001$ for both trends). Smoking more results in an even higher risk of death, with particularly elevated risk ratios for cigarette smoking.

... male bidi smokers die 6 years earlier than their non-smoking counterparts...

The study also revealed that, on average, male bidi smokers die roughly 6 years earlier than their non-smoking counterparts. Female bidi smokers die about 8 years earlier, and male cigarette smokers die about 10 years earlier than their non-smoking counterparts. More than half of deaths due to tobacco smoking occur among the illiterate sub-population and roughly 80% of deaths are in rural areas.

Other research in India has found that tobacco chewing, like smoking, carries a higher risk of mortality. In rural India, cohort studies have found

* Based on an exchange rate of Rs 48.4 per US\$ in the financial year 2002-03.

† Based on an exchange rate of Rs 45.3 per US\$ in the calendar year 2004.

Table 2.4: Estimated adult mortality from smoking versus other causes, 2010

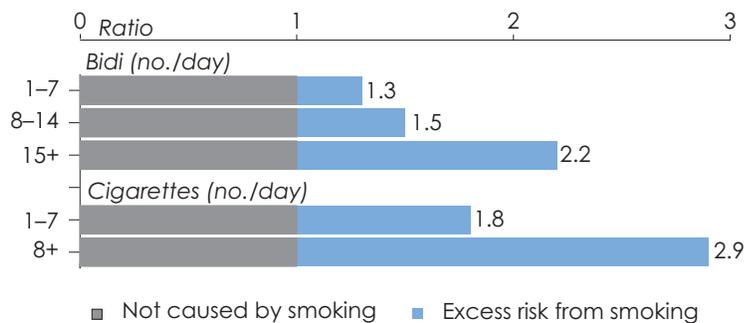
| Age range and disease group | Women | | Men | |
|-----------------------------------|---|-------------------------|---|-------------------------|
| | '000s of deaths attributed to smoking/ '000 of total deaths | % attributed to smoking | '000s of deaths attributed to smoking/ '000 of total deaths | % attributed to smoking |
| Ages 20–29 | 2/280 | 1 | 9/319 | 3 |
| Ages 30–69, by cause | | | | |
| Tuberculosis | 14/155 | 9 | 120/315 | 38 |
| Respiratory disease | 26/259 | 10 | 109/353 | 31 |
| Stroke | 5/182 | 3 | 42/223 | 19 |
| Heart disease, etc. | 8/281 | 3 | 110/548 | 20 |
| Neoplasms | 9/228 | 4 | 67/211 | 32 |
| Peptic ulcer | 2/27 | 8 | 11/40 | 28 |
| Other medical causes ^a | 28/730 | 4 | 119/851 | 14 |
| Injuries ^b | 0/141 | – | 0/341 | – |
| Subtotal: ages 30–69 | 93/2002 | 5 | 579/2882 | 20 |
| Ages 70+ | 33/1735 | 2 | 219/1628 | 13 |
| Total ages 20+ | 128/4017 | 3 | 807/4829 | 17 |

Source:
Jha et al. (2008)

Notes:

^a The model did not attribute any maternal deaths to smoking.

^b Any deaths from fires or accidents caused by smoking are ignored.

Graph 2.3: Risk of death by amount and type of smoked tobacco product, men ages 30–69

Source:
Jha et al (2008)

Note:

Risks adjusted for alcohol use, education and age.

that the relative risk of death due to tobacco chewing is 15% higher in men and 30% higher in women. Research for Mumbai has found that smokeless tobacco users had a 15% higher risk of death.¹⁰

Tobacco Control Environment in India

Scientific evidence on tobacco being a major cause of morbidity and mortality in the world and a growing awareness of the adverse health effects of tobacco use in India led to legislation for tobacco control in India in the mid 1970s, specifically the enactment of the Cigarettes Act of 1975.⁷ Since then, the Indian government and civil society have made progress on tobacco control, although implementation lags far behind the introduction of interventions. Tobacco control advocates in recent years have stressed the need to focus on increased taxation of tobacco products in addition to bans on tobacco advertising and the de-glamorization of smoking in visual media.

The Cigarettes and Other Tobacco Products Act (COTPA), adopted by Parliament in 2003, bans tobacco advertising and smoking in public places, forbids the sale of tobacco products to children under the age of 18, and restricts sponsorship of sports and cultural events by tobacco manufacturers. This Act superseded the 1975 Regulation of Production, Supply and Distribution Act, called The Cigarettes Act, which mandated the display of statutory warnings on cigarette packages and advertising. The 2003 Act prohibits the sale of tobacco products within a 100-yard radius of educational institutions, imposes a fine of up to Rs 200 (US\$ 4.55) for smoking in public places and for the sale of tobacco products to minors, and requires hotels and restaurants with a capacity of more than 30 rooms or 30 seats respectively to have separate smoking and non-smoking areas. The Act also prohibits smoking in public

places such as health care facilities, educational facilities, government facilities, and indoor offices. Even though the 2003 Act was comprehensive, its implementation has been largely ineffective for many years.¹¹ Public smokefree provisions in the law have since been expanded and their enforcement has been stepped up beginning October 2008.

In 2004, India ratified the Framework Convention on Tobacco Control (FCTC), the global treaty adopted by the World Health Assembly in 2003. This treaty aims to curb tobacco use and reduce tobacco-attributable morbidity and mortality. In 2001, The Ministry of Health and WHO jointly established the National Tobacco Control Cell (NTCC) as a nodal agency to coordinate activities to curb tobacco consumption.

The Tobacco Economy in India*

Tobacco is a labour-intensive crop in India. Growing, harvesting and processing tobacco represent the means of livelihood of a large number of agricultural labourers.¹² National employment surveys by the National Sample Survey Organization (NSSO) place the direct and indirect tobacco workforce in India at approximately 7 million during 2004-05, representing approximately 1.5% of overall employment in the formal sector. This includes workers engaged in tobacco farming, manufacturing and the wholesale/retail trade, either full or part time.

The vast majority of these jobs, perhaps more than 4 million, are in bidi manufacture,¹³ with women making up half of the tobacco-related workforce. The number of workers directly or indirectly engaged in the tobacco sector has more than doubled over the past 20 years, from 2.88 million in 1983 to roughly 7.0 million in 2004-05, against an increase of approximately 50% in employment in general over the same period.[†] Many of

* Appendix I has a more extensive analysis of the economics of tobacco cultivation, manufacturing and employment in India.

† Employment figures presented here from various rounds of the NSSO survey are estimates of the overall number of workers rather than the number of person-days. The number of workers typically takes into account both principal and subsidiary workers (Usual Principal and Subsidiary Status - UPSS) involved in all forms of tobacco-related jobs. The Usual Principal Activity Status refers to survey respondents who worked for a relatively longer time span in a particular activity — tobacco cultivation, for instance — in the period immediately preceding one year (365 days) prior to the date of the NSSO survey. The Usual Subsidiary Activity Status refers to survey respondents who worked a relatively shorter time in the particular occupation in the period preceding one year (365 days) prior to the date of the NSSO Survey (Bhattacharya and Sakthivel, 2003).

these workers, however, are employed part-time, so that the figures tend to overstate the importance of tobacco as a source of full-time employment in the country.

Analysis of successive rounds of the National Sample Survey shows that there has been a gradual shift in the tobacco workforce from manufacturing to trade (wholesale and retail) over the past 20 years. The proportion of the tobacco workforce engaged in trade has increased from roughly 5% in 1983 to 21% in 2004-05. The share of the tobacco manufacturing workforce decreased proportionally from around 85% to roughly 64% of the total tobacco workforce over the same period. Most of the remainder of tobacco-related workforce, less than 10% of the total, is engaged in tobacco growing.

India is the world's third largest tobacco-producing country after China and Brazil and produced more than 10% of the world's raw tobacco during 2003-04, but ranked only ninth globally as an exporter of tobacco and tobacco products. Tobacco production in India is geared towards consumption within the country. A large proportion of raw tobacco is used to manufacture chewing tobacco, bidis and other

products. Cigarette tobacco accounted for less than a third of the total tobacco production in 2004.⁷

Four multinational companies — the ITC Group, Godfrey Philips India Ltd, VST Industries Ltd and GTC Industries Ltd. — account for almost all of India's cigarette manufacturing sector and together account for Rs 150 billion (US\$ 3.4 billion) in annual revenue. Of these four, the ITC Group dominates cigarette production and controls about 70% of market volume.

In contrast, none of the more than 300 brands of bidis commands even a 5% market share within India.¹³ The bidi industry is composed of a large number of small-scale manufacturers,¹⁴ with more than 98% of bidis being handmade. The number of small-scale manufacturers has fallen by more than half since producers increasingly outsource to households to circumvent tax rules. Despite this, there were still some 3000 bidi producers as of 2004. Interestingly, while these are nominally small-scale industries, many are owned by, or under the control of larger manufacturers. Accurately determining the actual scale of co-ownership has been difficult,¹⁵ but will be central to enforcing legislation.

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III. Taxation of Tobacco in India

Economic Rationale for Tobacco Taxation

India presents a mixed landscape for tobacco taxation. Most tobacco products are taxed in India, but taxes tend to be very low for the forms of tobacco that are most commonly used — bidis are a particularly notable instance of undertaxed tobacco products. Tobacco taxation thus remains a promising and underutilized policy intervention for tobacco control in India.

The tobacco industry worldwide has held that increased taxation on tobacco is inefficient and unwarranted. The basis for such a position rests not only in a resistance to regulation, but also in the belief that smokers consume tobacco with full information about its health consequences, and that they take into account the costs and benefits associated with its consumption. In practice, however, the market for tobacco products is characterized by market failures.¹⁶ There is an “information failure” about the health risk associated with tobacco consumption — some consumers do not have full knowledge of risks while yet others might be aware of the health consequences, but underestimate the risk of addiction to tobacco. Smoking also imposes external costs on non-smokers and society more broadly. A variety of diseases, including cancer, are known to be caused by second-hand smoke. External costs of tobacco use can also take other forms such as deforestation resulting from the extensive use of wood in flue-curing tobacco, fire hazards from discarded cigarette and bidi ends, and the costs of cleaning cigarette and bidi litter and chewed tobacco spittle from public places.

The consumption of tobacco thus entails a variety of costs that are often beyond the perception of smokers. Research on households in India has also uncovered evidence that spending on tobacco crowds

Taxation is one of the most effective ways to counter tobacco consumption.

out expenditures on food and education.¹⁷ Economic theory suggests that all these circumstances make it appropriate for governments to intervene in the tobacco market. Taxation is one of the most effective ways to counter tobacco consumption.¹

Structure and Trends of Tobacco Taxation in India

Excise tax regimes are typically the focus of tobacco control efforts, since they fundamentally determine the relative price of tobacco products in comparison to other consumption goods. Tobacco products in India are subject to a complex schedule of taxes imposed by both the Central and State governments. Most smoked tobacco products in India are subject to specific excise taxes that are levied as rupee amounts per 1000 sticks. The specific taxes on smoked tobacco products vary by product category and tier, and are particularly low for bidis. Most non-smoking tobacco products, in contrast, are subject to *ad valorem* excise taxes, levied as a percent of the retail price.

The taxation of tobacco products in India is complicated by a myriad of tax structures, loopholes, exemptions, different collection systems and other challenges of tax administration. The structure of central government excise taxes, and the current plans to replace a variety of state-level taxes with a consolidated goods and service tax (GST) are discussed

The specific taxes on smoked tobacco products vary by product category and tier, and are particularly low for bidis.

here, as a precursor to the analysis of how higher taxation of tobacco products can bring about significant public health and revenue gains.

Central Government Excise Taxes

The central government imposes excise taxes that are collected at the manufacturers' level. These taxes typically take the form of value added taxes (i.e., producers receive a credit for excise taxes paid on inputs). The amount of each type of tax imposed in turn depends on the type of tobacco product. Table 3.1 summarizes the Central Government levies on tobacco products since 2006-07. Two aspects of these taxes are noteworthy — the categories under which excises are imposed, and the form (specific or *ad valorem*) that these excises take. The composition and structure of excise duty of other tobacco products is examined in greater detail in Table AII.1 in Appendix II.

Categories of excise duties

- Basic Excise Duties (BED) are levied on all manufactured products. In contrast to many other countries, there is no uniform value added tax (VAT) rate. This complicates the assessment of the tobacco tax as an excise relative to other non-tobacco taxes, since some form of averaging of the excise tax on other goods is needed to assess to what extent tobacco excises effectively raise prices in comparison to non-tobacco products.
- The National Calamity Contingency Duty (NCCD) was introduced in 2001, in the wake of the earthquake in the state of Gujarat, and was institutionalized as an earmarked levy for providing calamity relief.*

- Health Cess (HC): Since 2005-06, additional duties are levied on cigarettes, bidis, paan masala and other tobacco products as a part of an initiative to finance the National Rural Health Mission.† Notably, bidis are exempt from this cess, though, a surcharge known as the Bidi Workers Welfare Assessment is levied only on bidis, currently at the rate of Rs 5 per 1000 sticks.§
- The Special Excise Duty (SED) was put in place in its present form in 2000-01, and covers tobacco products other than bidis and cigarettes.

Specific and *ad valorem* excises

Cigarettes of various lengths and filter type are taxed by the Central government at different specific rates, as are bidis. Tobacco products other than cigarettes and bidis are taxed on an *ad valorem* basis, i.e. at a percentage rate based on retail price.

Specific excise taxes yield predictable revenues, are easily administered, and tax the specific health threat that tobacco poses.

Specific excise taxes yield predictable revenues, are easily administered, and, from a public health standpoint, tax the specific health threat that tobacco poses.¹³ This leads to specific taxes being typically preferred to *ad valorem* taxes for reducing tobacco consumption. In the Indian instance, while specific taxes dominate the majority of tobacco products, the multiple tiers and the very low tax on bidis act as barriers to a more effective tax system. One step to

* Taxes collected from the NCCD are transferred to a fund maintained by the central government. Transfers to the states to meet calamity relief expenditure are made on the recommendations of the National Centre for Calamity Management established for the purpose. In addition to tobacco, petroleum products, high tenacity yarn of polyesters and motor vehicles attract this particular levy.

† While the Health Cess, formally the Additional Excise Duty on Pan Masala and Tobacco, or AED (PMT) was introduced to finance the National Rural Health Mission, revenues collected continue to be a part of the consolidated fund of India, i.e., in the general pool of resources rather than a specifically earmarked health-related fund.

§ Tax receipts from this levy are transferred to the Bidi Workers Welfare Fund, administered as a part of the Central government's reserve funds. Expenditures from the fund are governed by the Bidi Worker's Welfare Fund Act, 1976. Under the Bidi Welfare Fund Act, bidi workers are entitled to scholarships and school uniforms for their children, maternity benefits, free health services, housing and life insurance along with sports and recreation services. These benefits are available to bidi workers who have an identity card; the Act requires employers to provide workers with such a card, but the government has had to step in to issue these cards.

Table 3.1: Structure of central government excise duties on tobacco products in India (2006-09)

| Tobacco Product | 2006-07 | | | | 2007-08 | | | | 2008-09 | | | | | | |
|--|------------------|-------------------|-----------------|-------|---------|------|-----|-------|---------|-------|-----|-------|------|----|-------|
| | BED ^a | NCCD ^b | HC ^c | Total | BED | NCCD | HC | Total | BED | NCCD | HC | Total | | | |
| I. Smoked tobacco products: specific taxes (Rupees per 1000 sticks) | | | | | | | | | | | | | | | |
| Product tiers | | | | | | | | | | | | | | | |
| Unfiltered Cigarettes (Rs Per 1000 sticks) | 125 | 20 | 15 | 160 | 133 | 20 | 15 | 168 | 659 | 90 | 70 | 819 | | | |
| Filtered Cigarettes (Rs Per 1000 sticks) | 415 | 60 | 45 | 520 | 441 | 60 | 45 | 546 | 1068 | 145 | 110 | 1323 | | | |
| length ≤70 mm | 620 | 90 | 70 | 780 | 659 | 90 | 70 | 819 | 659 | 90 | 70 | 819 | | | |
| length 70-75 mm | 1005 | 145 | 110 | 1260 | 1068 | 145 | 110 | 1323 | 1068 | 145 | 110 | 1323 | | | |
| length 75-85 mm | 1340 | 190 | 145 | 1675 | 1424 | 190 | 145 | 1759 | 1424 | 190 | 145 | 1759 | | | |
| length >85 mm | 1645 | 235 | 180 | 2060 | 1748 | 235 | 180 | 2163 | 1748 | 235 | 180 | 2163 | | | |
| Cigarettes of tobacco substitutes (Rs per 1000) | 1000 | 150 | 0 | 1150 | 1058 | 150 | 0 | 1208 | 1058 | 150 | 0 | 1208 | | | |
| Bidis other than paper rolled, manufactured without machines (Rs per 1000) | 12 | 1 | 0 | 13 | 12 | 1 | 0 | 13 | 12 | 0 | 0 | 12 | | | |
| All Other Bidis (Rs per 1000) | 30 | 2 | 0 | 32 | 30 | 2 | 0 | 32 | 30 | 0 | 0 | 30 | | | |
| II. Smokeless tobacco products: ad valorem taxes (percentage of retail price) | | | | | | | | | | | | | | | |
| Tobacco Product | 2006-07 | | | | 2007-08 | | | | 2008-09 | | | | | | |
| | BED | SED ^d | NCCD | HC | Total | BED | SED | NCCD | HC | Total | BED | SED | NCCD | HC | Total |
| Hookah or Gutka tobacco (% of retail price) | 50 | 16 | 10 | 10 | 86 | 50 | 16 | 10 | 10 | 86 | 50 | 16 | 10 | 10 | 86 |
| Preparations containing Chewing Tobacco (% of retail price) | 50 | 16 | 10 | 10 | 86 | 50 | 16 | 10 | 10 | 86 | 50 | 16 | 10 | 10 | 86 |

Source:

Central Excise Tariff, various issues, published by CENTAX Publications Pvt. Ltd.

Notes:

Central excise taxes on bidis and cigarettes (Panel I) are levied as specific taxes (rupee amounts per 1000 sticks). Taxes on smokeless tobacco products (Panel II) are levied ad valorem, as a percentage of retail price.

a BED: Basic Excise Duty.

b NCCD: National Calamity Contingency Duty.

c HC: Health Cess formally collected under the title AED (PMT), or the Additional Excise Duty on paan masala and other tobacco products for the National Rural Health Mission.

d SED: Special Excise Duty.

Without an annual inflation-adjusted increase in specific taxes some or all tobacco products will become relatively cheaper...

remedy this was the 2008-09 decision to merge the Basic Excise Duty on unfiltered cigarettes and the first two tiers of filtered cigarettes, thereby resulting in a long-overdue upward adjustment of the rates applicable on non-filtered cigarettes. The considerable leeway given to bidis, however, remains.

A second concern with the Indian system is that while both specific and *ad valorem* taxes have been periodically raised, there is no annual systematic inflation-adjusted increase built into the process. Without an annual inflation-adjusted increase to specific tobacco taxes, some or all tobacco products will become relatively cheaper from one year to the next.

Tax receipts

The importance of a particular commodity in the total tax receipts influences the mix of measures a

government has at its disposal to raise revenues and, in the case of harmful products, restrict consumption. Table 3.2 summarizes recent trends in the share of tobacco taxes in the Central government's revenues. Tobacco taxes account for about 2% of total tax revenue, more than 7% of Central government excise revenue, and about 0.2% of GDP. The share of revenue from tobacco products has fallen from 3.3% in 1999-2000 to 2% in 2006-07, and as a share of total revenue from Central excise declined from 9.1% to 7.9% during this period. Cigarettes are the primary contributor to the total tax collected on tobacco products with comparatively small contributions by bidis and other products. This pattern of revenue contribution is quite different from the consumption patterns discussed earlier in that the majority of tobacco consumption consists of non-cigarette tobacco products. This suggests potential avenues to enhance revenues while saving more lives.

State Government Taxes

States' willingness and ability to tax tobacco has increased in recent years. In the past, as part of a tax rental agreement, states had transferred their power to

Table 3.2: Contribution of tobacco products to central excise revenues

| Year | Share of total tobacco central excise revenue by product (%) | | | Share of tobacco in central excise revenue (%) | Share of tobacco in gross tax revenue (%) |
|---------|--|------------|-------|--|---|
| | Bidis | Cigarettes | Other | | |
| 1999-00 | 86.85 | 4.97 | 8.18 | 9.11 | 3.29 |
| 2000-01 | 85.9 | 4.51 | 9.59 | 8.92 | 3.24 |
| 2001-02 | 79.44 | 4.43 | 16.13 | 8.88 | 3.44 |
| 2002-03 | 80.91 | 4.54 | 14.55 | 7.81 | 2.97 |
| 2003-04 | 83.61 | 4.15 | 12.23 | 7.31 | 2.61 |
| 2004-05 | 84.41 | 3.93 | 11.66 | 7.23 | 2.35 |
| 2005-06 | 86.1 | 2.87 | 11.03 | 7.54 | 2.29 |
| 2006-07 | 78.36 | 2.89 | 18.75 | 7.85 | 1.97 |

Source:
Department of Revenue, Ministry of Finance, Government of India.

tax tobacco to the Central government. From 1957 to 2005, the Central government collected additional excise duties in lieu of sales tax levied by the states, and then transferred these revenues to the states.* With the subsequent initiative to ease the transition to a state-level VAT and to facilitate a more comprehensive tax base, the additional excise duty in lieu of sales tax was abolished beginning March 1, 2006, and the power to tax these commodities has been returned to the states. The states now levy a 12.5% *ad valorem* VAT on cigarettes.

In recent years, a number of state and local governments have sought to further tap the tax base represented by tobacco, particularly cigarettes, by introducing levies such as a luxury tax, entry tax and octroi on cigarettes.† Luxury taxes ranging between 4% and 20% were imposed in Haryana, Uttar Pradesh, West Bengal and Andhra Pradesh. The Supreme Court of India struck down on this type of tax in 2005 on the grounds that states had no legislative authority to levy them on cigarettes and related products.§ States, however, continue to explore taxing the products through levies such as entry taxes and octroi.

Recent Developments: the Goods and Service Tax

In his 2005-06 budget speech, the Union Finance Minister suggested that the Central and State governments should move to a unified goods and services tax (GST) by 2010. While the states have agreed to rationalize and harmonize the tax system and move toward a unified GST, they also recommended the introduction of a dual GST to replace the existing combination of Central excise and State VAT. The exact architecture of the tax system is yet to be decided through negotiations between the Central and State governments.

In thinking of how tobacco taxation might fit into the GST structure, two principles of taxation are worth emphasizing. The philosophy underlying a unified tax structure is the need to have a simple tax system that does not distort consumer choices at the margin. At the same time, the philosophy of an excise tax, whether on tobacco, on petroleum products or on alcohol is to enable the regulation of consumption for the larger benefit of society. One approach to reconciling tobacco taxes with a dual-structure GST would be to mirror this economic philosophy. To the extent that tobacco products are like other commodities, they would be taxed within the ambit of a state-administered goods and services tax — significantly, currently undertaxed products like bidis would be brought on par with other tobacco products. But to the extent that tobacco products as a group impose a public health burden and are to be regulated, they would be subject to high specific Central Government excise taxes adjusted to exceed the pace of inflation, and supplementary excises within the proposed GST regime.

To achieve the broader objective of restricting consumption through tax policy, extending excise duty on tobacco products to those manufactured and sold in the unorganized sector while keeping the tax system simple and administrable is paramount. There are three sets of challenges in this regard — first, ensuring that excises across tobacco products are consistent and do not encourage substitution; second, ensuring that tobacco products as a group are taxed higher relative to other consumption goods, and third, setting up a simple and enforceable system to tax and to minimize revenue leakages from the large, often unorganized industry that produces other tobacco products.

An additional set of concerns surrounds the low taxation of bidis. Sunley highlights the gap between the

* These Additional Excise Duties on Goods of Special Importance, or AED (GSI) were also levied on sugar and textiles. The Tenth Finance Commission (1995-2000) set revenue transferred to the states from receipts from this additional excise duty at 1.5% of all shareable taxes and duties of the Central government.

† Entry Tax and Octroi are imposed as taxes on the entry of goods into a prescribed jurisdiction. In the case of an entry tax the jurisdiction is the state while in the case of Octroi it is the urban local body.

§ The legal ruling forbade singling out these items for a luxury tax, a levy usually reserved for specifically designated categories such as hotel accommodations where a luxury service is provided.

**...improved bidi taxation (requires)
eliminating the distinction between taxes
on handmade and machine-made bidis,
re-thinking the exemptions for small
producers (and) prohibiting the sale of
unbranded bidis...**

current state of regulation of the bidi sector, and the potential for a well-implemented tax administration policy.¹³ His specific recommendations for improving bidi taxation include eliminating the distinction between taxes on handmade and machine-made bidis; re-thinking the specific exemptions for small producers that distort production decisions (and that may be part of the reason for the marked growth reported in numbers of people employed in the bidi sector); prohibiting the sale of unbranded (and consequently difficult to tax) bidis; and implementing mandatory reporting of the sales and purchases of bidi tobacco by manufacturers to the excise department.

With a still-evolving tax environment, the challenges of tax administration, enforcement and regulation are issues that are difficult to gauge, but fundamental to the future success of tobacco control policy, public health and revenue management.

Trends in Prices, Affordability and Demand for Tobacco Products

Effective tobacco tax policy requires continuously monitoring trends in tobacco product prices as they compare to prices of other products. At present, aggregate tobacco price information is readily available in at least three different sources — as a part of the Wholesale Price Index (WPI), as a part of the Consumer Price Index (CPI) for rural workers, and as part of the database on the corporate sector in India generated by

the Centre for Monitoring Indian Economy (CMIE). Since prices by themselves are difficult to analyze, especially in an environment of consistent overall inflation, Table 3.3 presents information on the ratio of tobacco prices to overall prices using the WPI (also plotted in Graph 3.1) and the CPI.

The trend in the relative price of cigarettes is not uniform when using different indices. Movements of the WPI relative price tend to be much less pronounced than movements of the CPI. This might, in part, reflect changes in the taxation of tobacco over time that affect retail prices but do not change wholesale prices. Looked at in another way, the flatter rise of the WPI points to how critical the excise tax system will continue to be, especially if cigarette and bidi manufacturers are able to use increased productivity to keep tobacco product pre-tax prices relatively low.

While relative prices represent one dimension of demand — in which relatively cheaper products are demanded more than expensive products — they do not capture the full scope of responsiveness with respect to income. An alternative indicator, calculated by dividing the relative prices of tobacco products by per capita gross domestic product, captures the affordability of tobacco products. Even with the increase in relative prices, if incomes rise relatively faster, this affordability index would capture the increased capacity of individuals to consume tobacco products. Graph 3.2 presents trends in the affordability index using the price series constructed using the WPI, the CPI, and prices from CMIE. Since the price series are different, all the indices are set to equal 1 in the base period 2000-01 to allow for a degree of comparability.*

The trends in affordability of tobacco products show two phases. In the first phase — until 2000-01 — the affordability index for all three tobacco products

* Since the index on the basis of retail prices could not be constructed, all the indices are set to 1 for the first common year available, i.e., 2000-01.

Table 3.3: Relative price of tobacco products on the basis of wholesale and consumer price indices

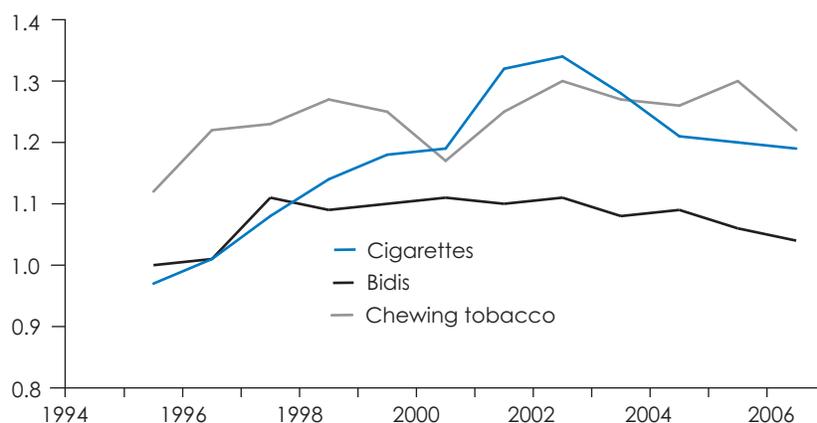
| Year | WPI ^a | | | CPI for Agricultural Workers ^a | |
|------|------------------|-------|-----------------|---|-------|
| | Cigarettes | Bidis | Chewing tobacco | Cigarettes | Bidis |
| 1996 | 0.97 | 1 | 1.12 | 2.68 | 0.83 |
| 1997 | 1.01 | 1.01 | 1.22 | 2.93 | 0.91 |
| 1998 | 1.08 | 1.11 | 1.23 | 2.93 | 0.89 |
| 1999 | 1.14 | 1.09 | 1.27 | 2.99 | 0.91 |
| 2000 | 1.18 | 1.1 | 1.25 | 3.79 | 1.13 |
| 2001 | 1.19 | 1.11 | 1.17 | 3.82 | 1.13 |
| 2002 | 1.32 | 1.1 | 1.25 | 4.01 | 1.15 |
| 2003 | 1.34 | 1.11 | 1.3 | 4.35 | 1.21 |
| 2004 | 1.28 | 1.08 | 1.27 | 4.35 | 1.23 |
| 2005 | 1.21 | 1.09 | 1.26 | | |
| 2006 | 1.2 | 1.06 | 1.3 | | |
| 2007 | 1.19 | 1.04 | 1.22 | | |

Source:

Authors' computations using data on the Wholesale Price Index (WPI), Consumer Price Index (CPI) for Agricultural Workers.

Notes:

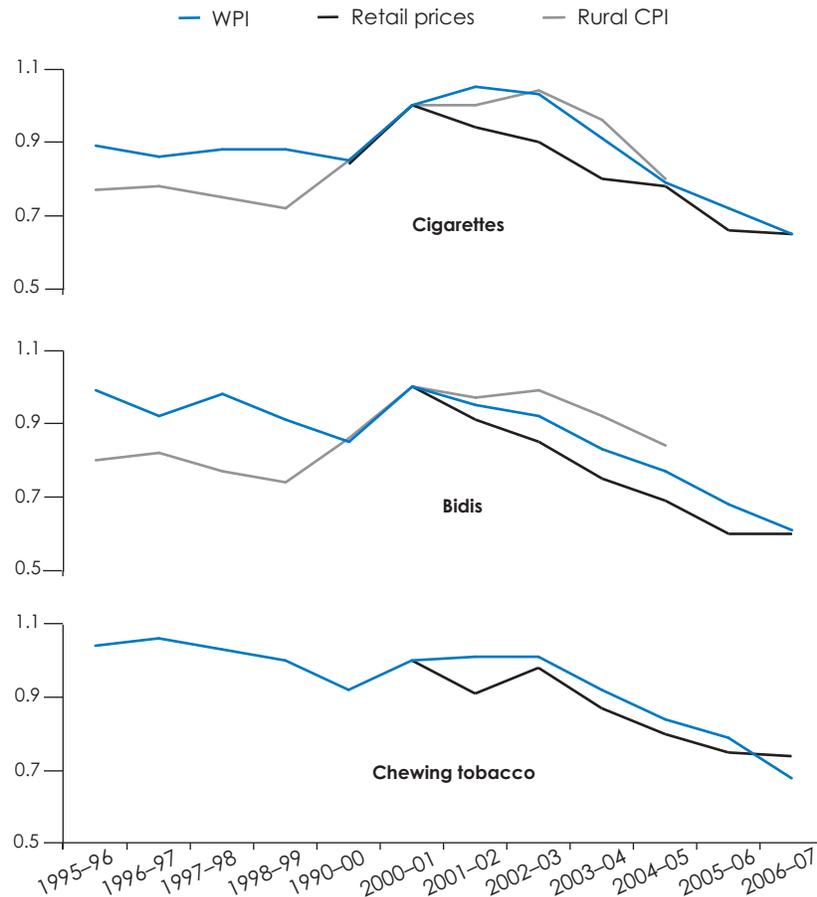
^a The relative prices for the WPI and for the CPI were obtained by dividing the tobacco-specific component of the index (for instance, the tobacco WPI) by the overall index (WPI in the example).

Graph 3.1: Trends in relative wholesale prices of tobacco products, 1996-2007

Note:

The plots correspond to the Wholesale Price Index (WPI) columns in Table 3.3. Relative wholesale prices are obtained by dividing the tobacco product's WPI in any given year by the corresponding year's WPI for all goods and services. The WPI series for Agricultural Workers is used for both tobacco and all-goods prices.

Graph 3.2: Affordability of tobacco products in India: wholesale, retail and rural consumer price index relative to per capita GDP



Source:

Authors' computations using the Wholesale Price Index, Consumer Price Index for Agricultural Workers, and retail price data from the CMIE. Per capita GDP figures were taken from Economic Survey, 2007-08.

Notes:

Affordability is computed as the ratio of the tobacco-specific price index to per capita GDP; all indices are normalized to 1 in the year 2000-01.

The CPI series used was available for years 1995-96 through 2003-04 for cigarettes and bidis only. The CMIE retail price index series used begins in 2000-01.

(cigarettes, bidis and chewing tobacco) shows fluctuations. Subsequently, there appears to have been a systematic decline in the index, indicating increases in affordability.

An alternative measure of affordability suggested by Blecher & Walbeek is calculated as the percentage of per capita GDP required to consume 100 packs of

cigarettes (and, analogously, packs of bidis and chewing tobacco).¹⁸ The results, compiled in Table 3.4, suggest that the average Indian has needed to spend a smaller fraction of income over time to consume each of these tobacco products.

Graph 3.2 and Table 3.4 indicate that cigarettes, bidis and chewing tobacco have all become

**Table 3.4: Affordability of tobacco products in India:
Percentage of per capita GDP required to purchase 100 packs**

| Year | Cigarette | Bidis | Chewing tobacco |
|------|-----------|-------|-----------------|
| 2001 | 11.44 | 1.95 | 0.64 |
| 2002 | 10.85 | 1.80 | 0.58 |
| 2003 | 10.46 | 1.67 | 0.63 |
| 2004 | 9.32 | 1.49 | 0.56 |
| 2005 | 8.91 | 1.36 | 0.51 |
| 2006 | 7.74 | 1.20 | 0.49 |
| 2007 | 7.60 | 1.20 | 0.48 |

Notes:

Figures are computed by dividing the expenditure required to purchase 100 packs of a given tobacco product in a given year by per capita GDP in that year following Blecher and Walbeek (2004).

Tobacco product prices used are representative retail prices from CMIE data.

Lower values indicate greater affordability, with a smaller fraction of income being needed to purchase a given product.

increasingly affordable since 2000-01 when per capita income growth is taken into account. There is, quite clearly, no case for a reduction in prices — relative or absolute — in an environment where the stated objective is to reduce tobacco consumption.

...cigarettes, bidis and chewing tobacco have all become increasingly affordable since 2000-01.

Tobacco Excise Burden by Type of Product

A priority for effective policy is the structure of taxes across different tobacco products, and the extent to which the different excise taxes across the categories of tobacco products are internally consistent.

One test of how taxes on different tobacco products compare involves computing the ratio of the excise duty as a percent of price, often termed the excise burden. A meaningful application of this measure to the three broad product categories in India (bidis, cigarettes and chewed tobacco) requires the use of actual prices and not aggregate indices. The estimates here are therefore

based on retail prices as available from CMIE rather than on the wholesale or consumer price indices.

Table 3.5 presents computations of excise duty as a percent of retail price for individual tobacco products.* The brands listed are some of the most popular brands in their categories. The last row also displays retail prices per gram of tobacco for each of the categories in 2000-01 to illustrate the nearly twenty-fold difference in the post-tax price per gram at the two ends of the spectrum of tobacco products. These retail prices, moreover, correspond to a non-uniform pattern of excise burden and indicate significant gaps, both in revenue potential and in the effectiveness with which current taxes reduce consumption in each product category.

Unfiltered cigarettes, bidis, and chewing tobacco face relatively lower tax rates when compared to filtered cigarettes.

Unfiltered cigarettes, bidis, and chewing tobacco face relatively lower tax rates when compared to

* For 2006-07, the year in which the additional excise duty on goods of special importance was abolished and the right to levy corresponding sales taxes was returned to the states, the impact of the new state VAT at the rate of 12.5% is incorporated into prices for cigarettes and chewing tobacco to ensure the figures are representative of the altered scenario. This is not done for bidis, which were kept out of the ambit of the state-level value added tax.

Table 3.5: Excise duty as a percentage of price^{a, b}

| Year | Cigarettes | | | | | Bidis | Chewing tobacco | |
|--|---------------------------|----------|------------------|-------------|------------|-------|-----------------|--------|
| | Filtered, selected brands | | | | Unfiltered | | | |
| | 75–85 mm | | 70–75 mm | ≤70 mm | | | | ≤60 mm |
| India Kings | Gold Flake King | Navy Cut | Gold Flake Small | Wills flake | Panama | | | |
| 2000-01 | 27 | 49 | 42 | 34 | 64 | 14 | 9 | 33 |
| 2001-02 | 22 | 54 | 47 | 37 | 56 | 14 | 11 | 38 |
| 2002-03 | 22 | 52 | 47 | 35 | 56 | 14 | 11 | 38 |
| 2003-04 | 22 | 52 | 47 | 35 | 56 | 14 | 11 | 38 |
| 2004-05 | 28 | 63 | 57 | 43 | 71 | 11 | 12 | 44 |
| 2005-06 | 31 | 66 | 60 | 46 | 76 | 19 | 12 | 47 |
| 2006-07 | 38 | 54 | 50 | 44 | 59 | 26 | 17 | 50 |
| Retail price per gram of tobacco in 2000-01 ^c | 6.21 | 3.43 | 3.28 | 2.62 | 1.40 | 1.72 | 0.48 | 0.36 |

Notes:

Computed using CMIE data in retail prices and corresponding excise duty rates

a The central government excise duty in India is the value added excise tax applied to manufacturing activity in the country. Most manufactured goods in India faced an excise rate of 16% till recently. To identify the pure excise component of the existing levy on tobacco products, some correction needs to be made for the general consumption tax component of the tax. If a 16% Central Government VAT rate on manufacturing value is approximately equivalent to a 10% tax on retail price, the rates in this table over and above 10% capture the pure excise duty on each tobacco product. For example, the true excise burden corresponding to the 17% burden for bidis in 2006-07 would be 7%.

b In 2008-09, the general excise duty was reduced to 14% and as a part of the corrective to recessionary trends in recent times, the rate has been further reduced to 6%. When the general consumption tax component on non-tobacco products falls, the true excise component of the taxes on tobacco is correspondingly higher – for instance, the 14% burden on bidis in 2006-07 might translate into a 8 to 9% burden rather than just 7% if the general excise duty had been 17% that year.

c Retail prices per gram of tobacco for 2000-01 are computed as follows. The content of tobacco in cigarettes is extrapolated from information available for standard king-size cigarettes – a stick of 84 mm length incorporates a filter of 21 mm and contains 0.75 grams of tobacco. For bidis, the assumption is 0.33 grams per stick. A packet of chewing tobacco is known to contain 3.5 grams on average.

filtered cigarettes. Longer cigarettes do not necessarily bear a higher excise burden: the sole brand cited in the 70-75 mm category carries a smaller burden than the cheaper brand listed in the sub-70 mm category. For a given length within the category of filtered cigarettes, the excise duty as a ratio of retail price decreases when moving from cheaper filtered cigarettes to costlier ones. The 2008-09 increase in the Basic Excise Duty on unfiltered cigarettes is likely to mitigate some of this imbalance.

Table 3.6 reproduced from Sunley's study employs a slightly different approach. Instead of

calculating excise tax as a fraction of price, the burden of excise duty per gram of tobacco for the three broad smoked tobacco categories is computed.¹³ The table makes it clear that the tax burden per gram of tobacco content in non-filtered cigarettes and bidis is much lower, at less than one-hundredth of the burden per gram of tobacco contained in filtered cigarettes. This disparity in the tax burden per gram tobacco is an indicator of how undertaxed bidis and unfiltered cigarettes are relative to filtered cigarettes.

The brief survey of India's tobacco tax structure in this chapter points to several concerns: cigarette taxes

Table 3.6: Excise burden per unit of tobacco, 2005-06

| Category | Grams of tobacco (Per 1000 sticks) | Excise duty (ED) (Rs Per 1000 sticks) | ED per gram of tobacco (Rs) | Market share (Percentage of cigarette consumption) |
|---|------------------------------------|---------------------------------------|-----------------------------|--|
| Handmade bidis | 200 | 14 | 0.07 | Not applicable |
| Micro non-filter cigarettes (≤ 60 mm) | 750 | 168 | 0.22 | 7 |
| Regular filtered cigarettes (≤ 70 mm) | 750 | 819 | 1.092 | 53.5 |

Source:
Sunley (2008), Page 11, Table 6 and Page 15, Table 11.

are complex and multi-tiered, bidi taxes are systematically low, and other tobacco product taxes are easily evaded. Each of these presents a challenge for the pace at which health losses from continued tobacco use can be prevented in India. An improved tax

administration and public health strategy will likely have to rely not only on well-designed taxes, but also on a better understanding of how these taxes precisely affect consumption behaviours, revenues and health gains. Chapters IV and V elaborate on these themes.

Endnotes for Chapter III

¹⁶ Jha P, Musgrove P, Chaloupka FJ, Yurkeli A. The Economic Rationale for Intervention in the Tobacco Market. In: Jha P and Chaloupka FJ, eds. Tobacco Control in Developing Countries. Oxford, U.K.: Oxford University Press; 2000:153-174.

¹⁷ John RM. Crowding out effect of tobacco expenditure and its implications on household resource allocation in India. Social Science and Medicine. 2008;66:1356-1367.

¹⁸ Blecher EH, van Walbeek CP. An international analysis of cigarette affordability. Tobacco Control. 2004;13:339-346.

IV. Price Elasticity of Tobacco in India

Introduction

Any meaningful discussion of tobacco taxation must consider how taxes, specifically, tobacco excises, are passed on to higher effective prices, and to what extent current and potential tobacco users will reduce their consumption. Price is one of the most important factors affecting tobacco consumption decisions, alongside other factors such as literacy, gender, age, and economic status.¹⁹ Increased taxes are especially effective at reducing consumption among economically disadvantaged populations and young people.^{20, 21}

Price is one of the most important factors affecting tobacco consumption decisions.

Good estimates of the responsiveness of tobacco consumption to higher prices are a key input to analyzing the future of tobacco taxation in any country. India's case is complicated by the existence of several distinct categories of tobacco products. This necessitates estimates of the responsiveness of the demand for any given tobacco product, both to its own price, and to the price of other tobacco products (respectively termed the own-price and cross-price elasticity of demand).

Estimates of the own-price elasticity of demand for cigarettes in developed countries range from -0.25 to -0.5 , while estimates in low- and middle-income countries suggest that the price elasticity of demand varies between -0.5 to -1 .²⁰ Most studies report a relatively higher elasticity for tobacco products among lower-income populations.

Estimation of price elasticities for different tobacco products has received little attention in India to date. A thorough examination of the literature revealed three relevant studies. The first of these, by

the National Council of Applied Economic Research, estimated the price elasticity of demand for cigarettes for the sample period 1981-82 to 1992-93 to be -0.67 .²² Cigarettes, however, constitute only 14% of overall tobacco consumption in India,²³ so that this particular estimate, while useful, is insufficient to devise a tax policy for all tobacco products. An unpublished study estimated Engel elasticities (also known as expenditure elasticities) for different tobacco products and found that a given percentage increase in consumer expenditures (often used as a proxy for income) results in the demand for bidis and leaf tobacco rising by a smaller percent, while the demand for cigarettes rises more than proportionately.²⁴ This is consistent with cigarettes being luxury items in most households' budgets.

John (2008) estimated the price elasticity of demand for three different tobacco products (bidis, cigarettes, and leaf tobacco) separately for rural and urban India using the 55th round National Sample Survey data for the year 1999-2000.²⁵ Together, these products are used by 95% of households reporting consumption of tobacco in India. The study also estimated cross-price elasticities between these tobacco products. This is the most detailed study on the price elasticities of demand for different tobacco products in India and one of few national level studies. Since it drives the estimation of tax revenues and lives saved in Chapter V, John's study is described in further detail below.

Data and Methodology

The 55th round of the National Sample Survey Organization (NSSO) survey, conducted from July 1999 to June 2000 collected information on consumption patterns and various household characteristics of 120,309 households in 10,140 villages in India. While the NSSO surveys provide cross-sectional information on household expenditures and quantity consumed of various tobacco products, they do not provide direct data on

prices. In such instances, unit values (i.e. expenditure divided by quantity) derived from the data collected in the surveys can also be used to estimate price elasticity.

Unit values are not, however, identical to prices since there are measurement errors in quantities reported and variations in quality in the mix of goods that different households consume. An average unit value derived from total cigarette expenditures as reported by several households will not take into account the “quality” differences between different cigarette varieties. Nevertheless, unit values contain price information that can be used to estimate price elasticities if adequately corrected for these differences.

An empirical modelling strategy developed by Deaton²⁶ was employed to consistently estimate price elasticities making use of the spatial variation in unit values from the National Sample Survey data. The model uses data from households reporting tobacco consumption (62% in this particular sample) to arrive at the elasticities.*

Elasticity Estimates

Expenditure Elasticity of Tobacco Products

In addition to estimating the price elasticity of demand, it is useful to have an idea of the extent to which rising incomes increase households’

Income increases in a rapidly growing country like India can lead to more than proportionate increases in cigarette consumption.

consumption of tobacco products. The expenditure elasticity for a product is the percentage change in demand when household expenditure changes by a percentage point. Expenditure elasticities are a useful shorthand for analyzing how consumption might change when incomes increase when actual data on incomes is difficult to uncover.

Table 4.1 presents the total expenditure elasticities (the sum of the expenditure elasticities for quantity and quality) for bidis, leaf tobacco, and cigarettes from the study. The estimated expenditure elasticities are less than 1 for both bidis and leaf tobacco and greater than 1 for cigarettes. A similar result was obtained by Suryanarayana,²⁴ though that study used aggregate data rather than the more finely parsed household-level data used by John. The expenditure elasticity estimates imply that cigarettes are “luxury” goods in the economic sense in both rural and urban India, whereas bidis and leaf tobacco are not. The estimates suggest that a 10% increase in rural household expenditure would lead to a 23.7% increase in cigarette consumption. This underscores the

Table 4.1: Expenditure elasticity estimates for tobacco products in India

| | Bidis | Cigarettes | Leaf tobacco |
|-------|-------|------------|--------------|
| Rural | 0.49 | 2.37 | 0.37 |
| Urban | 0.28 | 1.59 | 0.29 |

Source:

John, 2008.

Note:

The figures are estimates of the percentage change in the purchase of a particular tobacco product for a one percent increase in household expenditure.

* Deaton’s econometric approach is used to deal with the problem of censored observations — the fact that only smokers are observed to make decisions when prices change, while non-smokers are observed to have the same response (zero cigarettes smoked) irrespective of price. Studies that use the entire sample without correcting for the presence of non-smokers underestimate price responsiveness — while smokers reduce consumption when faced with higher prices, non-smokers make no change, and this reduces how strongly the price response is registered over the two groups taken as a whole.

concern on affordability: income increases in a rapidly growing economy carry the risk of more than proportionate increases in cigarette consumption.

Own- and Cross-Price Elasticity of Tobacco Products

Table 4.2 reports own- and cross-price elasticity estimates for bidis, cigarettes and leaf tobacco for both rural and urban households as well as estimates from the all-India pooled sample. The price elasticities reported here are conditional elasticities since the models employ data from only households with non-zero tobacco expenditures.[†] The elasticity in any given cell represents the effect of a change in the price of the tobacco product in the corresponding column on the quantity demanded of the tobacco product in the corresponding row. For example, the estimate of -0.45 in the cell formed by the first column and the second row suggests that a 10% increase in the price of bidis will cause rural consumers to decrease their consumption of cigarettes by approximately 4.5%.

A 10% increase in bidi prices could reduce bidi consumption by 9.2%. A 10% increase in cigarette prices could reduce cigarette consumption by 3.4%.

Table 4.2 confirms that the own-price elasticities of demand (diagonal elements) are negative and, with the exception of cigarettes in urban India, statistically significant. Most of the cross-price elasticities are negative, but are generally not statistically significant. Own-price elasticity estimates for rural and urban households are nearly the same, except in the case of cigarettes, which are relatively more price-inelastic in urban India than in rural India. A 10% increase in bidi prices could reduce rural bidi consumption by 9.2%. A 10% increase in cigarette prices could reduce rural cigarette consumption by 3.4%.

Cigarette demand is relatively inelastic — a given increase in cigarette prices translates into a less than proportionate decline in cigarette demand. This is in

Table 4.2: Price elasticity estimates for tobacco products in India

| | Rural | | | Urban | | | Pooled sample | | |
|--------------|-------------------------|---------------------------|--------------------------|-------------------------|-------------------------|--------------------------|-------------------------|---------------------------|--------------------------|
| | Bidis | Cigarettes | Leaf tobacco | Bidis | Cigarettes | Leaf tobacco | Bidis | Cigarettes | Leaf tobacco |
| Bidis | -0.92* (0.04) | -0.084* (0.03) | -0.01 (0.01) | -0.85* (0.08) | -0.063 (0.09) | 0.011 (0.01) | -0.91* (0.04) | -0.06* (0.03) | -0.0002 (0.01) |
| Cigarettes | -0.45* (0.15) | -0.338** (0.14) | 0.021 (0.03) | -0.091 (0.11) | -0.196 (0.43) | -0.003 (0.02) | -0.20* (0.07) | -0.348** (0.18) | 0.002 (0.02) |
| Leaf tobacco | -0.036 (0.04) | 0.022 (0.03) | -0.871* (0.02) | 0.071 (0.07) | 0 (0.12) | -0.874* (0.03) | 0.0002 (0.03) | 0.013 (0.03) | -0.883* (0.01) |

Source:
John, 2008

Notes:

The elasticity in any given cell is an estimate of the effect of a change in the price of the tobacco product in the corresponding column on the quantity demanded of the tobacco product in the corresponding row. Bold numbers are own-price elasticities.

Values in parentheses are bootstrapped standard errors. Bootstrapping is a statistical method used to obtain confidence intervals when the underlying distribution of a particular computed estimate, like an elasticity, is not known, and yields estimates that can be compared to more familiar statistical distributions like the normal distribution.

Region dummies for the NSSO regions were used in these regressions to remove any regional taste differences that may affect the estimated coefficients. * and ** imply levels of statistical significance 1% and 5% respectively. Coefficients without either superscript * or ** were not statistically significant.

[†] The estimates presented here are symmetry-constrained. Symmetry constrained estimates ensure that the relation between the price of one good and the quantity demand of another good exhibits a logical consistency: it should not, for example, be the case that bidis are substitutes for cigarettes when the elasticity of bidi demand is calculated with respect to cigarette prices, but end up being a complement to cigarette consumption when the elasticity of cigarette demand is calculated with respect to bidi prices.

agreement with conservative estimates available for cigarettes from both developing and developed countries. There are no comparable studies for bidis and leaf tobacco, for which the price elasticities presented are closer to unity.

The statistically significant negative signs on the cross-price elasticity estimates suggest that bidis and cigarettes are economic complements in rural India — an increase in cigarette price is likely to reduce bidi consumption. All other cross-elasticity coefficients are statistically insignificant (suggesting that there are no strong relationships between consumption of these products). The complementarity between bidis and cigarettes, however, does not necessarily mean that an increase in the price of one would result in substantial reduction in the consumption of the other, a fact underscored by the small magnitude of the cross-price elasticity coefficients. In rural India, the effect of a percentage increase in cigarette price on bidi consumption is very low, whereas that of a price increase for bidis on cigarette consumption is higher. The finding that there is little substitution between cigarettes and bidis is also consistent with the observation that the markets for the two products are quite distinct — bidis are typically smoked by people with lower socioeconomic status and lower educational attainment levels, while cigarette smoking is more common among the more educated.

One qualification of this empirical finding is of particular relevance to tax policy. Sunley points out that a reduction in the excise on non-filter micro cigarettes from Rs 120 to Rs 60 per 1000 in 1994-95 was followed by an increase in consumption of all cigarettes in the next year, part of which can be explained by some bidi smokers shifting to non-filter micro cigarettes.¹³ To situate the findings of the present analysis in the context of Sunley's observations, it should be assumed that substitution between bidis and cigarettes is absent at an aggregate level. The elasticity for cigarettes computed in John's analysis is for an average cigarette and does not differentiate between low priced non-filter cigarettes

and high priced filtered cigarettes. Detailed and disaggregated analyses of the demand for different types of cigarettes and bidis would be required to examine more complicated substitution and complementary relationships between cigarettes and bidis.

John's study indicates that consumption of tobacco products in India does respond to changes in prices, though increases in price lead to slightly less than proportionate reductions in consumption in the case of bidis and leaf tobacco, and less pronounced reductions in consumption in the case of cigarettes. From a public health perspective, for any given tax, quantities consumed decline more for tobacco products with larger demand elasticities. In India's case, these products are bidis, which are the predominantly smoked — and inadequately taxed — form of tobacco.

Another important caveat in interpreting John's analysis is the fact that elasticities in the study are computed at the household level and not at the individual level, while tobacco consumption cannot be attributed to all members in the household. Tobacco is consumed mostly by adult men in most households in India. Existing data do not provide sufficient information to produce similar estimates at the individual level. Moreover, the estimates here are aggregated for all income groups. Studies in other countries indicate that the price elasticity of tobacco is likely to be different across income groups, with lower-income groups having higher price sensitivity. The elasticity estimation in John's study uses the variability in unit values for average households from one location to another, and as such cannot be used to further generate disaggregated estimates of elasticities specific to income groupings.

**Higher prices significantly reduced
cigarette consumption among young
smokers.**

Price Elasticity of Youth Smoking

Joseph (2008) used Global Youth Tobacco Survey (GYTS) data collected from 26 of 28 states and two of the seven Union Territories between 2000 and 2004 to estimate the price elasticity of youth cigarette, bidi and gutka demand in India.²⁷ The Indian GYTS data collected prices from both tobacco users and non-users; these data were used to construct school-level and State- and Union Territory-level prices (prices constructed based on data from only users were highly correlated with those based on the full sample). Joseph found that higher cigarette and bidi prices significantly reduced the prevalence of cigarette and bidi smoking

(elasticities of -0.17 and -1.17 , respectively), and that higher prices also significantly reduced cigarette consumption among young smokers (conditional demand elasticity of -0.3). Finally, Joseph found that boys were more responsive than girls to changes in cigarette and bidi prices, suggesting that any declines in prices of these products would lead to larger increases in male youth smoking. These estimated price elasticities for youth are comparable to those computed by John for adult cigarette and bidi smoking in India. In both studies, bidi smoking was more responsive to price changes than cigarette smoking.

Endnotes for Chapter IV

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V. Potential Impact of Tobacco Tax Increases

Effects on Tobacco Consumption and Government Revenues

Using the elasticity estimates from Chapter IV, we generate projections of the effect of raising tobacco taxes on revenue and consumption in India. Annual consumption of manufactured cigarettes in India is estimated to have been 107.5 billion sticks and the tax revenue from cigarettes amounted to Rs 70.86 billion (US\$ 1.56 billion based on an exchange rate of Rs 45.3 per US\$ in year 2006) in the financial year 2006-07.¹³ Assuming that tax is collected on all cigarettes consumed (an assumption we examine below), this yields an average tax of Rs 659 per 1000 sticks (Rs 13.18 per pack of 20). We compute a weighted average retail price for cigarettes in India using data on prices of a set of most popular brands in different categories from Sunley,¹³ supplemented with data on the fraction that each of those brands represent in total cigarette consumption. For a representative cigarette, we calculate the excise duty as a percent of retail price to be 38.3% and the retail price to be Rs 1.72 per stick (Rs 34.4 per pack of 20).

Taxes on bidis are very low, with a specific tax in the year 2007-08 of Rs 14 per 1000 sticks for handmade bidis and Rs 26 per 1000 for machine-made bidis.¹³ Since handmade bidis constitute more than 98% of bidis produced in India,¹³ Rs 14 is taken as the initial tax amount. Using the *ad valorem* tax rate (8.8%) for bidis and the tax per stick, we impute a price for an average bidi stick of Rs 0.16 (or Rs 4 per pack of 25 bidis). Annual consumption of manufactured bidis in India is estimated to have been between 750 billion to 1.2 trillion sticks in 2007.

For the purpose of this simulation, we take the current consumption of bidis to be one trillion sticks. Tax revenue collected from bidis in the year 2006-07

was Rs 4.3 billion. Significantly, this figure is as much as 70% less than the potential revenue if taxes were collected on all bidis consumed. The initial tax revenue for our simulation is taken to be Rs 14 billion — we assume taxes are indeed collected on all bidis consumed. There is, in reality, wide-scale tax evasion in the case of bidis — we assume otherwise here, for the purpose of simplicity.

Table 5.1 presents the estimated changes in consumption and tax revenues as a result of changes in tax rates. Tax shocks (increases in tax as a percentage of the existing tax) are introduced, and changes in consumption, expenditure and tax revenue are calculated using the price elasticities in Table 4.2 (rural and urban price elasticities of -0.338 and -0.196 respectively for cigarettes, and rural and urban price elasticities of -0.922 and -0.855 respectively for bidis). The effects are calculated separately for rural and urban India using the corresponding elasticities and are later aggregated to obtain the all-India results. Of the total cigarettes consumed, 43% are attributed to rural, and 57% to urban households as estimated from the National Sample Survey (NSS) data. For bidis, the proportions are 82% and 18% for rural and urban households, respectively.

Bidi taxes currently average 9% of retail price; revenues will continue to increase till bidi taxes reach 40% of retail price...

Bidi taxes currently average 9% of retail price; revenues will continue to increase till bidi taxes reach 40% of retail price, which would be equivalent to a 600% increase from the current level of roughly 9% of the retail price. Specifically, the tax on bidis can be increased to Rs 98 per 1000 sticks as compared to the current Rs 14, with revenue increasing as the tax increases. At that level, the average price of a pack of 25 bidis would be slightly more than Rs 6, or Rs 0.24 per stick, which would effectively mean a

Table 5.1: The impact of increasing taxes on bidis and cigarettes on consumption, expenditures and government revenue

| Tax increase | Unit price (Rs) | Tax rate (% of retail) | Tax per stick (Rs) | Consumption (Billion sticks) | Expenditure (bidi or cigarette consumption) (Billion Rs) | Tax revenue (Billion Rs) |
|-------------------|-----------------|------------------------|--------------------|------------------------------|--|--------------------------|
| Bidis | | | | | | |
| 0% | 0.159 | 9% | 0.014 | 1000 | 159.1 | 14.0 |
| 20% | 0.162 | 10% | 0.017 | 984 | 159.3 | 16.5 |
| 40% | 0.165 | 12% | 0.020 | 968 | 159.4 | 19.0 |
| 60% | 0.167 | 13% | 0.022 | 952 | 159.4 | 21.3 |
| 80% | 0.170 | 15% | 0.025 | 936 | 159.4 | 23.6 |
| 100% | 0.173 | 16% | 0.028 | 920 | 159.2 | 25.8 |
| 200% | 0.187 | 22% | 0.042 | 840 | 157.1 | 35.3 |
| 400% | 0.215 | 33% | 0.070 | 680 | 146.2 | 47.6 |
| 600% | 0.243 | 40% | 0.098 | 520 | 126.3 | 51.0 |
| 620% | 0.246 | 41% | 0.101 | 504 | 123.8 | 50.8 |
| Cigarettes | | | | | | |
| 0% | 1.721 | 38% | 0.659 | 108 | 185.0 | 70.9 |
| 20% | 1.853 | 43% | 0.791 | 105 | 195.3 | 83.4 |
| 40% | 1.985 | 46% | 0.923 | 103 | 205.0 | 95.3 |
| 60% | 2.116 | 50% | 1.055 | 100 | 214.1 | 106.7 |
| 80% | 2.248 | 53% | 1.186 | 98 | 222.7 | 117.5 |
| 100% | 2.380 | 55% | 1.318 | 96 | 230.7 | 127.8 |
| 200% | 3.039 | 65% | 1.977 | 84 | 262.4 | 170.7 |
| 460% | 4.753 | 78% | 3.691 | 60 | 279.6 | 217.1 |
| 470% | 4.819 | 78% | 3.757 | 58 | 278.3 | 217.0 |

Notes:

Authors' computations, using price elasticity estimates for cigarettes (-0.338 rural and -0.196 urban) and bidis (-0.922 rural and -0.855 urban) from Table 4.2. Estimates have been aggregated for the all-India figures.

53 percent increase from the current average retail price of just under Rs 4 for 25 sticks, or Rs 0.16 per stick. An intuitive explanation for the predicted patterns is that smokers cut back on consumption, though by a smaller proportion than the tax-induced price increase. Smokers' spending increases to a point, with increasing fractions of that spending being diverted to tax revenues.

Revenue from higher taxes on cigarettes in the model increases until the total tax is about 78% of the retail price, which effectively means that the tax can be increased to almost Rs 73.8 per pack of 20 compared to

the current Rs 13.18 per pack. Consumer expenditures and tax revenues on cigarettes start declining only after the tax reaches at least Rs 3691 per 1000 sticks. Effectively, this translates to a 176% increase from the current average retail price of cigarettes.

While the figures of a 600% increase in current taxes of bidis and 460% increase in tax of cigarettes might seem drastic, the actual taxes in our projections only rise to 40% and 78% of retail price of bidis and cigarettes respectively. Indeed, the Rupee value of the revenue-maximizing and consumption-minimizing taxes are not especially high — increasing the near-

**Increasing the existing near-zero tax
per bidi stick to Rs 0.10 per stick
can halve consumption and
increase revenues four-fold.**

zero tax per bidi stick to a tenth of a rupee can halve consumption and increase revenues four-fold.

The following assumptions are used to arrive at these results: (1) no substitution effects due to price change, (2) change in price is commensurate with change in tax, (3) elasticity is constant across the entire range of prices, and (4) there is no tax evasion or smuggling as a result of increased taxes. These assumptions are fairly strong. Allowing for tax evasion, or allowing for changes in consumption of bidis when cigarette taxes increase might reduce the revenue projected. Price changes can instead have the opposite effect of further reducing consumption if bidi and cigarette producers pass on to consumers price increases more than proportionate to tax increases.

The analysis provides strong support for taxing all tobacco products regardless of form (bidis, cigarettes or leaf tobacco). However, the existing tax on bidis of Rs 14 per 1000 sticks is negligible compared to the Rs 819 per 1000 tax on the lowest-taxed filtered cigarette. The recent study by Jha et al. suggests that increased taxes on bidis can be justified on health grounds as even modest levels of smoking substantially increase the risk of death.³

Table 5.1 also suggests that there is a potential to increase taxes on cigarettes. An important first step in this context was the move to bring unfiltered cigarettes up to the tax treatment of filtered cigarettes in the 2008-09 central government budget, as part of the broader move towards a simpler tax administration.

Effects on Prevalence and Health

With the elasticity and tax estimates computed above, we use a static model for the cohort of the Indian population alive in 2008 to project the potential impact of cigarette and bidi price increases on deaths caused by smoking in India. This analysis is conducted separately for cigarettes and bidis, at the revenue maximizing values of the corresponding taxes discussed in the previous section, corresponding to a 52.8% increase in bidi prices and a 176% increase in cigarette prices. The key elements of the projection model are described here.

The analysis requires three primary data inputs: estimates of the number of adult cigarette and bidi smokers, estimates of the youth (ages 0 through 14 years) and adult (ages 15 years and older) populations, and estimates of the net impact on demand of cigarette and bidi price changes (price elasticities). Estimates of the number of adult smokers are taken from a report by ERC Statistics (2005);²² population size estimates are taken from the U.S. government's Census Bureau; and single-product price elasticity estimates for cigarettes and bidis for adults are derived from work by John (2008) (see Table 4.2) and Joseph (2008) described in Chapter IV.^{25,27}

Three elasticity estimates are used for each of the two product categories, bidis and cigarettes. The lowest and the highest estimates correspond to the rural and urban own-price elasticity figures in Table 4.2 (-0.855 and -0.922 for bidis in urban and rural India respectively; -0.196 and -0.338 for cigarettes in urban and rural India respectively). The middle values (-0.91 for bidis and -0.257 for cigarettes) are a weighted average of the urban and rural elasticities. The middle values are different from the own-price elasticity estimates reported for the pooled all-India sample in Table 4.2 owing to differences in estimation.*

* While the pooled estimates in Table 4.2 are obtained from a regression that included all data points from India, the middle values used in Table 5.2 are obtained by a simpler weighted averaging process. Weighted averages are more likely to yield valid estimates for our purposes in comparison to a pooled regression when the two subpopulations are as disparate as the rural and urban sub-samples used here.

Several assumptions have been made in this analysis about tobacco-related mortality and the potential impact of price changes. Based on the recent Jha et al. study,³ we assume that 40% of regular bidi smokers and 55% of regular cigarette smokers in India (both males and females) will eventually die from tobacco-related causes. Among adult users who quit, we assume that 70% who would have died prematurely from a disease caused by their tobacco use avoid a premature death. With respect to the potential impact of price changes, other important assumptions are applied to this analysis: first, males and females are taken to respond equally to price changes; second, youth are assumed to be relatively more price-responsive than adults, as suggested by existing research; third, for adults, a price change is assumed to have half of its impact on the rate of smoking (prevalence) and half on the consumption of individuals who do not quit; and, finally, no health benefits are assumed to result from reduced consumption among continuing smokers who do not quit altogether.

For the purpose of estimating the impact of price increases on the number of young people (aged 0 through 14 years) who would eventually become regular smokers as adults and subsequent deaths caused by smoking for this age group, the future adult smoking prevalence of youth is assumed to be comparable to current adult prevalence. Finally, to be conservative, it is assumed that there is no additional initiation among those 15 years and older.

The change in tobacco-related mortality from a given price increase on a specific tobacco product is the product of (a) the magnitude of the price change for that product; (b) the price elasticity of demand for that product; (c) the net impact of half of this price change on reductions in the prevalence of smoking; (d) the number of expected tobacco-related deaths prior to the price increase; and (e) reductions in deaths among those who quit, taking into account the fact that not all smokers who quit will avoid a premature death caused

If the status quo continues, 38.4 million current bidi smokers and 13.2 million cigarette smokers are likely to die prematurely.

by tobacco. Table 5.2 summarizes the estimates obtained from this model for current smokers (aged 15 years and older) and expected future smokers (currently aged less than 15 years).

If the status quo continues, 38.4 million current bidi smokers and 13.2 million current cigarette smokers are likely to die prematurely from diseases caused by bidi and cigarette smoking respectively. The estimates of premature deaths correspond to 40% and 55% of current bidi and cigarette smokers. Assuming youth take up smoking at similar rates, 17.6 million youth alive today are likely to die prematurely from diseases caused by bidi smoking and another 6.1 million will die from diseases caused by cigarette smoking. A substantial number of these premature deaths are avoidable.

At an elasticity of -0.910 for bidis, applying a tax-induced price increase of 52.8% on bidis (the result of a tax increase to Rs 98 per 1000 sticks, the amount that would maximize tax revenue) would avert about 15.5 million premature deaths caused by bidi smoking — 4.6 million among current bidi smokers and an additional 10.9 million among youth who are otherwise likely to take up bidi smoking.

At an elasticity of -0.257 for cigarettes, a larger tax-induced cigarette price increase of 176% (the result of a tax increase to Rs 3691 per 1000 sticks, again roughly what would maximize tax revenue) would prevent about 3.4 million premature deaths that would otherwise be caused by cigarette smoking — 1.8 million among current cigarette smokers and 1.6 million among youth who are otherwise likely to take up cigarette smoking. Many of the premature deaths averted would be among current children and adolescents, given the

Table 5.2: Projected impact of increased tobacco taxes under alternative elasticity assumptions

| Model parameters, baseline, 2008 population | | | | | | |
|---|------------------|--------------|---------------|-----------------------|---------------|---------------|
| Key variables | Bidis | | | Cigarettes | | |
| Number of current smokers (millions) | 96 | | | 24 | | |
| Premature deaths among current smokers (millions) | 38.4 | | | 13.2 | | |
| Number of future smokers (millions) | 44.1 | | | 11 | | |
| Premature deaths among future smokers (millions) | 17.6 | | | 6.1 | | |
| Number of current and future smokers, total (millions) | 140.1 | | | 35 | | |
| Premature deaths in current and future smokers (millions) | 56 | | | 19.3 | | |
| Current average excise tax (percent of retail price) | 9% | | | 38% | | |
| Model projections based on 2008 population | | | | | | |
| Increased average excise tax (percent of retail price) | Bidis 40% | | | Cigarettes 78% | | |
| Alternative elasticity assumptions | -0.855 | -0.91 | -0.922 | -0.196 | -0.257 | -0.338 |
| Reduction in number of current smokers (millions) | 21.7 | 23 | 23.4 | 3.6 | 4.7 | 6.2 |
| Reduction in premature deaths among current smokers (millions) | 4.3 | 4.6 | 4.7 | 1.4 | 1.8 | 2.4 |
| Percentage of premature deaths in current smokers averted by higher taxes | 11.3% | 12.0% | 12.2% | 10.5% | 13.8% | 18.1% |
| Reduction in number of expected future smokers (millions) | 25.6 | 27.2 | 27.6 | 2.2 | 2.9 | 3.8 |
| Reduction in premature deaths among future smokers (millions) | 10.2 | 10.9 | 11 | 1.2 | 1.6 | 2.1 |
| Percentage of premature deaths in future smokers averted by higher taxes | 58.0% | 61.8% | 62.6% | 19.9% | 26.0% | 34.2% |
| Reduction in total number of smokers, current and future (millions) | 47.3 | 50.2 | 51 | 5.8 | 7.6 | 10 |
| Reduction in premature deaths among current and future smokers (millions) | 14.5 | 15.5 | 15.7 | 2.6 | 3.4 | 4.5 |
| Percentage of premature deaths in current and future smokers averted | 25.9% | 27.7% | 28.0% | 13.5% | 17.6% | 23.3% |
| Additional Tax Revenues (Rs billions) | 39.8 | 36.9 | 36.3 | 189 | 146.3 | 89.7 |
| Additional Tax Revenues (US\$ billions) | 0.83 | 0.77 | 0.76 | 3.9 | 3.1 | 1.9 |

Notes:

Assumptions described in the text. The exchange rate used for converting new revenues to US dollars is 47.94 Rs per US\$. Numbers may not add due to rounding.

relatively greater price sensitivity of youth and the greater health benefits from never initiating smoking.

Tax-induced price increases of 52.8% on bidis and 176% on cigarettes would have a positive impact both on public revenue via taxes and on reduced tobacco-related public health expenditures. At the mid-range elasticities, the tax increases would generate Rs 146.3 billion and Rs 36.9 billion (US\$ 3.1 billion and \$0.77 billion at a September 2009 exchange rate of 47.94 rupees to 1 US\$) in new cigarette and bidi tax revenues, respectively.

Smuggling of Tobacco in India

It is often argued that an increase in taxes on tobacco products could lead to increases in individual tax avoidance as well as organized, large-scale smuggling, consequently eroding the effectiveness of the tax regime. Official estimates of smuggling are not available for most countries, but data compiled by Merriman et al. shows that the estimate of smuggling in India as a percentage of 1995 domestic cigarettes sales was close to 1%.²⁸ A report by the World Bank states “smuggling is not an issue in India. Based on World Bank estimates, less than 1 to 2% of domestic consumption is smuggled cigarettes”.²⁹ This is quite low compared to international standards. However, a more recent study by Joossens et al.³⁰ puts the illicit market for cigarettes in India at 14% of the total cigarette consumption in the year 2004. This is significantly higher than all previous estimates of illicit trade in tobacco in India.

A different report indicates that smuggling might be on the rise in India with a rise in illegal imports from Bangladesh and Nepal, and smuggled cigarettes entering from China or Indonesia.²³ Some 3 to 8 billion contraband cigarettes likely entered the Indian market in 2001/02, as compared to 1 billion pieces in 1998/99. The king-size or premium sector of the filtered cigarette market, which accounts for nearly 6.5% of the

total cigarette market, is the segment most affected by the contraband trade in India. A more recent study places the extent of cigarette smuggling in India at 6-7% of the total market, with a retail value of Rs 17 billion (US\$ 375.3 million at exchange rate of 45.3 per US\$ in year 2006).³¹

The market for contraband bidis, in contrast, primarily results from tax evasion within India. A recent report estimates that 52% to 70% of all bidis consumed in India have no taxes paid either due to non-compliance or due to small producer exemptions from excise duty for manufacturers producing less than two million bidis in a financial year.¹³ Non-compliance typically takes the form of bidi manufacturers underreporting their sales. More than half of untaxed bidis are estimated to escape taxation through tax evasion.

Unless increased tobacco taxation is accompanied by measures to increase tax compliance and reduce illicit trade, the problem of smuggling will continue to grow. Curbing smuggling requires solutions such as adopting high-quality tax stamps that are difficult to counterfeit (particularly the new generation of stamps that include features such as holograms or radio-frequency identification), coupled with strong tax administration, aggressive enforcement and strong penalties.

Earmarking Tobacco Taxes

Experiences in several high-income countries and in a growing number of low- and middle-income countries suggest that tax increases are most effective when used as part of a comprehensive approach to

Tax increases are more effective when accompanied by comprehensive smoking bans, graphic warning labels and other elements of the MPOWER package.

reduce tobacco use known as the MPOWER package.²⁸ In addition to higher taxes, this approach includes comprehensive bans on smoking in public places and workplaces to protect non-smokers from exposure to tobacco smoke; prominent graphic warning labels and public education campaigns that warn people about the dangers of tobacco use; comprehensive bans on tobacco company advertising, promotion, and other marketing efforts; and support for tobacco users who are trying to quit. Earmarking some of the revenues from increased tobacco taxes to support such a comprehensive tobacco control programme will lead to larger reductions in tobacco use than would result from the tax increase alone. In addition, earmarking some of the new revenues for enforcement efforts to curb tax avoidance and organized smuggling will maximize the revenue and public health impact of higher tobacco taxes.

A more general approach is to earmark revenues from higher tobacco taxes to finance public health priorities. A number of countries follow the earmarking principle. In the United States, for example, several states have used cigarette tax revenues to finance tobacco-related health

Earmarking some of the revenues from increased tobacco taxes to support a comprehensive tobacco control programme will lead to even larger reductions in tobacco use...

programmes. In other countries, these proceeds are used to augment health expenditures: Egypt, for instance, uses the revenue from a special cigarette tax to provide medical insurance coverage to students. New Zealand, Thailand, and Australia are other countries with successful earmarked tobacco taxes. In the Indian case, the intent and mechanism for such an earmarking does appear to exist. A health cess was introduced in 2005 as part of the central government tobacco excises, to fund the National Rural Health Mission. But the revenues collected under this category currently form a part of the Consolidated Fund of India and are diverted to the larger pool of tax collections. As the experience of other countries demonstrates, there is significant scope to harness revenues to improve public health.

Endnotes for Chapter V

²⁸ Merriman D, Yürekli, Chaloupka F. How big is the worldwide cigarette smuggling problem? In: Jha P, Chaloupka F, eds. Tobacco Control in Developing Countries. Oxford, UK: Oxford University Press; 2000:365-392.

²⁹ World Bank. Economics of Tobacco in India. Available from: www1.worldbank.org/tobacco/pdf/country%20briefs/INDIA.doc.

³⁰ Joossens L, Merriman D, Ross H, Raw M. How eliminating the global illicit cigarette trade would increase tax revenue and save lives. Paris:International Union Against Tuberculosis and Lung Disease; 2009.

³¹ ASSOCHAM. Combating Counterfeiting: Brand Protection. New Delhi; 2007.

Discussion and Recommendations

Immediate and sustained measures need to be taken to reduce tobacco use in India. Higher taxes will reduce tobacco consumption and counter its health consequences, while at the same time generating significant new revenues, a portion of which can be used to support other efforts as part of a comprehensive approach to reducing tobacco use. Based on the evidence presented in this report, we make the following recommendations for tobacco taxation in India:

1. Increase bidi taxes substantially

India should, over a few years, increase the bidi tax from Rs 14 to Rs 98 per 1,000 bidis. This will increase government revenue by Rs 36.9 billion (US\$ 0.8 billion), raise the tax to 40% of the retail price, and increase the average price of bidis by 53%. The price increase will avert up to 15.5 million premature deaths that would otherwise be caused by bidi smoking.

2. Tighten policies regulating bidi production

To effectively address bidi taxation policy, a number of suggestions have been made.¹³

- (i) The small producer exemption should be eliminated or limited to truly small companies (not those effectively under the direct ownership or control of larger companies).
- (ii) The sale of unbranded bidis should be prohibited, and manufacturer names should

be printed on bidi packets to ensure higher tax compliance.

- (iii) Reporting of the sale and purchase of processed bidi tobacco by any persons or entity should be made mandatory. Other safeguards include recording the exact volume of transactions, and the names of persons involved in all transactions involving the purchase and sale of bidi tobacco.

3. Increase cigarette taxes substantially

A significant increase in the existing tax on cigarettes will reduce cigarette smoking and the resultant public health damage, while at the same time generating higher cigarette tax revenues. Raising the cigarette tax to Rs 3691 per 1000 sticks (a 460% increase in the tax) will increase the tax to 78% of the retail price (a 176% price increase). A tax increase of this magnitude will avert 3.4 million premature deaths that would otherwise be caused by cigarette smoking, while at the same time raise about Rs 146.3 billion (US\$ 3.1 billion) in new revenues per year. Bidis and cigarettes do not appear to be substitute products suggesting that the price increase on one could be done without fear of substitution to the other.

These observations are based on the assumption that there is no increase in individual tax avoidance or larger-scale organized smuggling in response to the higher taxes. For India, there is some evidence of a non-trivial and growing market for smuggled cigarettes. However, rather than forgoing significant tax increases, we recommend

Raising the bidi tax to Rs 98 per 1000 sticks will increase tax to 40% of retail price, avert 15.5 million premature deaths and generate Rs 36.9 billion in new tax revenues.

Raising the cigarette tax to Rs 3691 per 1000 sticks will increase tax to 78% of retail price, avert 3.4 million premature deaths and generate Rs 146.3 billion in new tax revenues.

implementation of effective efforts to curb illicit tobacco trade including strengthening systems of licensing, customer verification, security and preventive measures along supply and distribution chains.

4. Simplify, extend and strengthen tobacco taxation

The practice of taxing cigarettes based on length should be abolished to simplify tax administration and convey the public health message that all cigarettes regardless of their shape, design or length are harmful to the health of their users. The overall approach, which would help maximize public health gains and revenue collection (and decrease tax evasion), would be to simplify the system by reducing and eventually eliminating the differential taxes on various smoked tobacco products to eventually end up at a high specific tax that is regularly adjusted for inflation. In practical terms, effective tobacco taxation includes inflation-adjusted central government excise taxes on bidis, cigarettes and other tobacco products, and supplementary excises in the proposed Goods and Services Tax regime, in addition to innovations to tax other tobacco products more effectively. In a changing tax landscape, detailed and well-planned tax administration studies that sustain the evidence base for higher taxation of tobacco products will be especially important.

Cigarette taxes based on length should be abolished to simplify tax administration and convey the public health message that all cigarettes regardless of their shape, design or length are harmful to health.

...effective tobacco taxation includes inflation-adjusted central government excise taxes on bidis, cigarettes and other tobacco products, and supplementary excises in the proposed Goods and Services Tax regime...

5. Explore earmarking as a means of supporting additional tobacco control efforts

Experience from other parts of the world, including Thailand and Australia, suggests that earmarking by raising taxes and dedicating some of the new revenues to comprehensive tobacco control and other social and public health programmes is politically viable. Although increasing tobacco tax is the single most effective tobacco control intervention, when tobacco taxes are increased as part of a comprehensive approach to reducing tobacco use, the reductions in use and improvements in health are greater than from a tax increase alone.

If the tax increases recommended above are adopted and effective tax compliance and anti-smuggling measures are in place, the tax increases would generate more than 18,400 crore rupees (184 billion rupees, or US\$ 3.8 billion) per year. These extra funds could pay for a substantial proportion of the National Rural Health Mission, National Urban Health Mission and other social programmes.

Effective tobacco tax policies have been shown elsewhere in the world to be an important part of national tobacco control efforts. Within India's unique environment for tobacco use — including increasing consumption trends and the extensive use of locally-

produced, under-taxed tobacco products — the proper use of evidence-based tax policy has the potential to have an even greater positive impact on short- and medium-term revenue, the growth of effective tobacco control programmes, and reduced tobacco use. Such

interventions can have an important impact on the looming crisis of tobacco-related morbidity and mortality in India, while helping to further establish the country's leadership role in the development of effective policy-based solutions to the global tobacco epidemic.

Appendix I. Supply-side considerations: tobacco production, employment and industry structure in India

Tobacco Farming/Agriculture, Manufacturing

Tobacco in India is sown on medium black and light soils. The crop takes 6 to 7 months to mature. It has a relatively short growing season, enabling farmers to cultivate other minor pulses such as green gram, black gram and certain varieties of rice outside the tobacco-growing season. Since tobacco is a short duration crop, the time lag between investment and returns is not long. It is also a hardy crop and grows on light soil with little risk from weather, pests and diseases making for fairly assured returns on investment. It is a labour-intensive crop in all three stages — cultivation, harvesting and processing.¹²

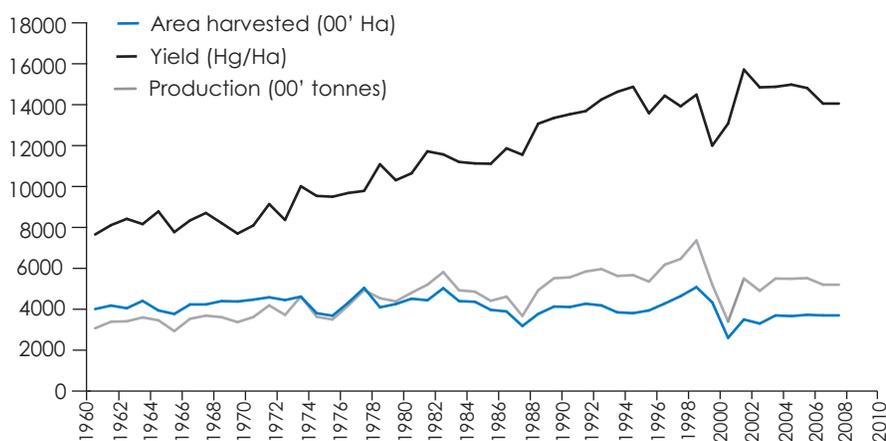
Price response and the assured market (contracts being typically entered into well before the harvesting of the crop) play a significant role in the economics of

tobacco cultivation. The Tobacco Board serves as both a regulatory and a promotional body for Virginia tobacco. All farmers seeking to cultivate the crop need to register with the Board and are allocated quotas for tobacco to be delivered to the auction platforms. The Board provides a minimum support price and arrangements for auction of the output produced. All buyers too need to be registered with the Board. Similar, though less rigorous support arrangements are operated by the Directorate of Tobacco Development in coordination with the state departments of agriculture for other types of tobacco. In addition to the above, the Central Tobacco Research Institute along with the Indian Council of Agricultural Research have been active in developing strains with better quality and higher yield, thus ensuring the sustainability and attractiveness of this crop to farmers.

Trends in Tobacco Production (Area and Yield)

Changes in the land area under tobacco cultivation have gone through four broad phases, as shown in Graph AI.1. During the first phase in the

Graph AI.1: Trends in harvested area, production and yield of tobacco in India, 1960-2008



Notes:

Harvested area under tobacco cultivation has remained fairly steady in India - the area under tobacco remained above 400,000 hectares for most years before 1999, but has stayed below that level ever since. Output of tobacco experienced a moderate but steady increase over the period 1961-2008. The yield of tobacco increased almost continuously over the same period — in 2008, harvested area was 31,000 hectares less than in 1961, while production was 213,000 tonnes more in 2008 than in 1961.

1950s (not depicted in the graph), the area under cultivation increased. In the second phase, through the late 1970s, crop levels remained stationary, and then expanded substantially in a third phase beginning 1989-90. This trend continued until a fourth phase in the late 1990s, when the area under tobacco showed a definite decline.

Area response to price changes is often cited as the major reason for the increase in area and production of tobacco.³² Evidence however points to a statistically insignificant relationship between area

and tobacco prices, and it seems likely that non-price factors are more important in influencing acreage.

Employment Concerns in the Indian Tobacco Industry

Estimates from national employment surveys by the National Sample Survey Organization, (NSSO) indicate the tobacco workforce in India to be around seven million during 2004-05 as shown in Table AI.1 and Graph AI.2. Since India's national workforce is estimated to be 457 million it amounts to roughly 1.5% of the total employment.

Table AI.1: Estimated tobacco workforce in India, selected years, 1983 to 2004-05 (in thousands)

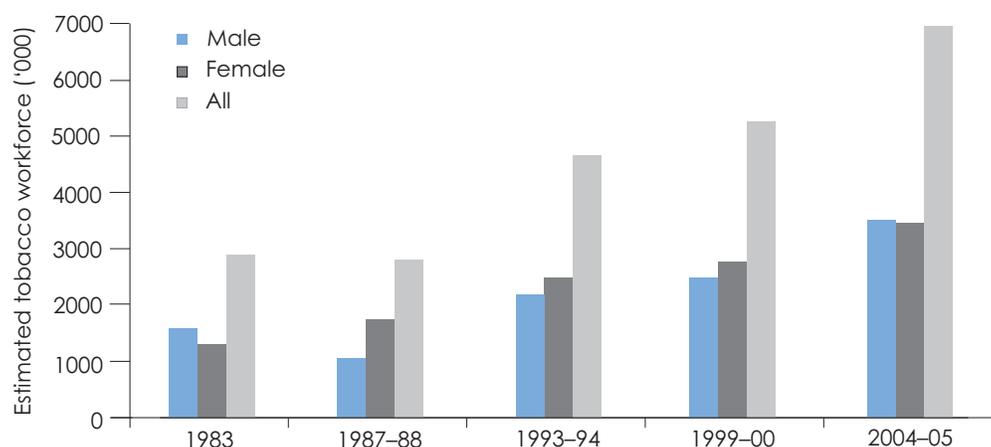
| Year | Rural | Urban | Total | All Employment |
|---------|----------------------|----------------------|--------------------|----------------|
| 1983 | 1,960 [67.93] | 925 [32.07] | 2,885 [100] | 307,838 |
| 1987-88 | 1,900 [67.89](-0.67) | 898 [32.11](-0.64) | 2,798 [100](-0.66) | 325,867 |
| 1993-94 | 2,940 [63.10](7.55) | 1,719 [36.90](11.42) | 4,659 [100](8.87) | 367,676 |
| 1999-00 | 3,497 [66.53](2.94) | 1,760 [33.47](0.39) | 5,257 [100](2.03) | 400,793 |
| 2004-05 | 4,910 [70.70](7.02) | 2,035 [29.30](2.95) | 6,945 [100](5.73) | 457,899 |

Source:

Estimates derived from Unit Level Records of successive National Sample Survey (NSS) rounds. The proportion of employed persons derived from the NSS is then multiplied by the mid-year projected census population to obtain estimates of the size of the workforce in the tobacco industry.

Notes: i) Figures in square brackets are percentages of the total workforce. ii) Figures in parentheses are compounded annual growth rates of workforce for the period between successive rounds. iii) All Employment includes workforce engaged in all sectors of the economy.

Graph AI.2: Tobacco workforce in India by gender, selected years, 1983 to 2004-05*



Notes:

* Estimates derived from unit level records of successive rounds of the National Sample Survey (NSS).

Table AI.2: Estimated tobacco workforce in India by gender, selected years, 1983 to 2004-05 (in thousands)

| Year | Male | Female | Total |
|---------|-----------------------|----------------------|---------------------|
| 1983 | 1,587 [55.00] | 1,298 [45.00] | 2,885 [100] |
| 1987-88 | 1,058 [37.81] (-8.43) | 1,740 [62.19] (6.58) | 2,798 [100] (-0.66) |
| 1993-94 | 2,173 [46.63] (12.74) | 2,486 [53.37] (6.13) | 4,659 [100] (8.87) |
| 1999-00 | 2,488 [47.33] (2.28) | 2,769 [52.67] (1.81) | 5,257 [100] (2.03) |
| 2004-05 | 3,500 [50.39] (7.07) | 3,445 [49.61] (4.47) | 6,945 [100] (5.73) |

Source:

Estimates derived from Unit Level Records of NSS of respective rounds. The proportion of employed persons derived from NSS is then multiplied by mid-year projected census population to obtain estimates of number of workforce in the tobacco industry.

Notes: i) Figures in square brackets are the percentage share of the total workforce.

ii) Figures in parentheses are the compounded annual growth rates over the preceding survey round.

In the last two decades, the number of workers engaged in the tobacco sector has grown more than two-fold, from 2.88 million in 1983 (as against nearly 300 million workers in the country) to roughly around 7.0 million during 2004-05 (in contrast to India's overall employment of 457 million).³³ These figures stand in contrast to the tobacco industry's own estimates of almost three to four times the figure (from 27 to 35 million).³⁴

Unlike in many other industries, female workers appear to play a vital part in the tobacco industry as shown in Table AI.2. In fact, over one-half of the workers engaged in this industry are females. Bidi production, which is a significant share of the tobacco industry in India, is largely conducted as a small scale and household industry. This explains the higher employment intensity of female and child labour in this sector. There has been a consistently positive growth of female employment as against an erratic growth of male employment in this industry in the last 20 years. During the past five years, both male and female employment in the tobacco sector has displayed tremendous growth. In spite of various tobacco control measures in recent years, the industry does appear to be growing rapidly. Over two-thirds of the tobacco workforce is reported to be engaged in manufacturing,

while over one-fourth is involved in trading of tobacco products and the rest is employed in tobacco growing (Table AI.3). However, over the last twenty years, structural changes in employment in the tobacco industry point to a gradual shift from tobacco manufacturing to trade (wholesale and retail). Tobacco trade accounted for roughly 5% in 1983, and has grown in strength to over one-fourth of all workers in this sector. The fraction of workers in tobacco manufacturing has fallen from around 85% to roughly 64% for the same period.

The structural shift in tobacco employment also reflects other interesting changes occurring in the sector. Evidence suggests that male employment in the tobacco industry has shifted toward wholesale and retail trade rather than manufacturing. Female employment in the industry, however remains overwhelmingly in tobacco manufacturing.

Structure of India's Tobacco Industry

On the supply side, the production pattern of tobacco in India reflects the domestic raw material demand arising from chewing tobacco and bidi manufacture, followed by cigarette production. India is the third largest tobacco producer globally, after China

Table AI.3: Industrial distribution of tobacco workers in India (percentages), selected years, 1983 to 2004-05

| Year | Cultivation | Manufacture | Trade | Total |
|---------------|-------------|-------------|-------|-------|
| Rural | | | | |
| 1983 | 14.06 | 81.32 | 4.62 | 100 |
| 1993-94 | 8.97 | 73.86 | 17.16 | 100 |
| 2004-05 | 13.51 | 65.42 | 21.06 | 100 |
| Urban | | | | |
| 1983 | 0.95 | 90.78 | 8.27 | 100 |
| 1993-94 | 0.46 | 68.72 | 30.81 | 100 |
| 2004-05 | 0.53 | 58.87 | 40.60 | 100 |
| Male | | | | |
| 1983 | 9.71 | 78.58 | 11.71 | 100 |
| 1993-94 | 9.62 | 45.24 | 45.14 | 100 |
| 2004-05 | 13.70 | 35.17 | 51.13 | 100 |
| Female | | | | |
| 1983 | 6.98 | 92.77 | 0.25 | 100 |
| 1993-94 | 2.87 | 92.34 | 4.79 | 100 |
| 2004-05 | 6.76 | 86.38 | 6.87 | 100 |
| All | | | | |
| 1983 | 9.86 | 84.35 | 5.79 | 100 |
| 1993-94 | 5.83 | 71.97 | 22.20 | 100 |
| 2004-05 | 9.71 | 63.50 | 26.79 | 100 |

Source:
Percentage share derived from Unit Level Records of NSS of respective rounds.

and Brazil. India produced over 10% of the world's raw tobacco during 2003-04 but was ninth in the world as an exporter of tobacco and tobacco products. A sizeable fraction of raw tobacco goes into manufacturing chewing tobacco, bidis and other products, with cigarettes accounting for only one third of the total production.

Given the strength of non-cigarette tobacco production in India, its import of tobacco is primarily in the form of manufactured cigarettes. There has been a surge in imports of cigarettes in recent years (Table AI.4). This has become an emotive issue as tobacco farmers have urged the government to restrict

transnational corporations in the tobacco industry from importing cigarettes into the country as it is expected to adversely affect their profits. The non-cigarette tobacco lobbyists also argue that the current ban on foreign direct investment in tobacco and cigarettes is meaningless if imports are allowed unhindered.¹⁴

The distinguishing feature of tobacco production and exports from India in the larger spectrum of global manufacturing and trade is the dominance of non-cigarette products. This is clear from Table AI.5 — bidis, hookah tobacco paste and chewing tobacco occupy a large share both in quantity and value terms.

**Table AI.4: Trends in cigarette production, imports and exports
(in million sticks)**

| Year | Production | Imports | Exports |
|------|------------|---------|---------|
| 1990 | 86,400 | | 800 |
| 1991 | 87,000 | | 6248 |
| 1992 | 88,000 | 51 | 2410 |
| 1993 | 89,000 | 25 | 3456 |
| 1994 | 93,000 | 86 | 3463 |
| 1995 | 102,000 | 134 | 1461 |
| 1996 | 99,000 | 157 | 1206 |
| 1997 | 98,000 | 252 | 1446 |
| 1998 | 97,000 | 76 | 2218 |
| 1999 | 97,000 | 225 | 1325 |
| 2000 | 86,300 | 41 | 3626 |
| 2001 | 90,000 | 101 | 4542 |
| 2002 | 92,000 | 150 | 5409 |
| 2003 | 94,000 | 271 | 1690 |
| 2004 | 95,000 | 2689 | 1360 |

Source:
ERC Statistics International PLC, 2005.

Table AI.5: Pattern of exports of tobacco products from India

| Tobacco Products | 1995-96 | | 2001-02 | | 2007-08 | |
|-----------------------|-------------------|-----------------------------------|-------------------|--------------------|-------------------|--------------------|
| | Quantity (tonnes) | Value (Rs million) ^{a,b} | Quantity (tonnes) | Value (Rs Million) | Quantity (tonnes) | Value (Rs million) |
| Cigarettes | 884 | 139 (23.28) | 2883 | 849 (49.02) | 5833 | 1451.4 (26.67) |
| Bidis | 676 | 115 (19.26) | 961 | 334 (19.28) | 1003 | 442.2 (8.12) |
| HT paste ^c | 9376 | 261 (43.72) | 8910 | 348 (20.09) | 10,656 | 457.0 (8.40) |
| Chewing tobacco | 424 | 61 (10.22) | 2640 | 125 (7.22) | 8338 | 2529.5 (46.48) |
| Cut tobacco | 512 | 18 (3.02) | 652 | 69 (3.98) | 4680 | 548.2 (10.07) |
| Snuff | 06 | 01 (0.17) | 19 | 05 (0.29) | 147 | 14.4 (0.26) |
| Others | 05 | 02 (0.34) | 11 | 02 (0.12) | - | - |
| Total | 11883 | 597 (100) | 16076 | 1732 (100) | 30,657 | 5442.7 (100) |

Source:
Tobacco Board 2003 (as quoted in Reddy and Gupta (2004)) and Tobacco Board (2008).

Notes: a Figures in parentheses indicate the percentage share of total value of tobacco product exports attributable to the particular tobacco product.

b The exchange rate of Indian rupee with respect to the US dollar was 33.45 rupees during 1995-96; 47.69 rupees during 2001-02 and about 44 rupees in September, 2008.

c HT denotes Hookah Tobacco Paste.

Table AI.6: Market share of the top cigarette producing companies in India

| Company | Production (in billion pieces) | | | Market share (in percentage) | | |
|-----------------------|--------------------------------|-------|-------|------------------------------|-------|-------|
| | 1998 | 2001 | 2004 | 1998 | 2001 | 2004 |
| ITC Ltd | 67.35 | 60.89 | 68.08 | 65.9 | 70.7 | 71.3 |
| Godfrey Phillips | 12.78 | 8.87 | 11.84 | 12.5 | 10.3 | 12.4 |
| VST Ind. Ltd | 12.88 | 8.78 | 7.16 | 12.6 | 10.2 | 7.5 |
| GTC Ind. Ltd (Dalmia) | 8.38 | 7.23 | 5.60 | 8.2 | 8.4 | 5.9 |
| Others | 0.61 | 0.35 | 2.80 | 0.8 | 0.4 | 2.9 |
| Total | 102.20 | 86.12 | 95.48 | 100.0 | 100.0 | 100.0 |

Source:
ERC Statistics International PLC, 2005.

In nominal value terms, cigarette exports rose substantially from close to one-fourth of the total value of tobacco product exports during the mid-1990s to almost half during 2001-02, but slid back to a little over one-fourth of the nearly 5.5 billion rupees worth of exports in 2007-08. In recent years, chewing tobacco export appears to be growing enormously, accounting for close to one-half of the value of all tobacco exports during 2007-08.

Cigarette production in India is largely monopolized by one single entity – the ITC Group – which controls about 70% of the trade in volume terms (Table AI.6). Only four players account for nearly the entire market in India's cigarette manufacturing sector – ITC Group, Godfrey Philips India Ltd, VST Industries Ltd and GTC Industries Ltd.

India's Rs 150 billion (US\$ 3.4 billion) bidi industry, in contrast, is highly fragmented with a few

big players and a large number of small scale industries.¹⁴ The number of brands in the bidi segment is estimated to be roughly 300 in recent years. The bidi industry is considerably less concentrated than the cigarette industry, and even the top-ranking brands do not capture more than five percent of the market share. The popularity of bidi brands tends to be state-specific, though some brands have a national presence.¹³

Some of the most popular brands that are both consumed and exported from India are 501 Pataka, 502, 202, Ganesh, Desai bidis. The number of bidi producers which stood at 6,693 units in 1995 declined to less than 3,000 by 2004. The sharp decline in the number of bidi producers in the last ten years might be a reflection of the preference of large bidi manufacturers to break-up into small units and further into household units (in the form of outsourcing) to escape taxation and, in some instances, to avoid the penalty of engaging child labourers.

Endnotes for Appendix I

³² Pancharukhi PR. Agricultural diversification as a tool for tobacco control. Proceedings of the WHO International Conference on Global Tobacco Control Law: Towards a WHO Framework Convention on Tobacco Control; 7-9 January, 2000; New Delhi, India.

³³ Bhattacharya BB, Sakthivel S. Economic reforms and jobless growth in India in the 1990s. Indian Journal of Labour Economics. 2003;46:845-865.

³⁴ Das Gupta, S. Stubbing out the Habit. Business Standard. 2003 May 31.

Appendix II: Structure of excise duty on tobacco products other than bidis and cigarettes

Table All.1: Structure of excise duty on tobacco products other than bidis and cigarettes

| Product categories | 2006-08 | | | | | 2008-09 | | | | |
|---|---------|-----|------|----|-------|---------|-----|------|----|-------|
| | BED | SED | NCCD | HC | Total | BED | SED | NCCD | HC | Total |
| Cigarillos, cigars and cheroots | 16 | | | 10 | 26 | 14 | | | 10 | 24 |
| Unmanufactured tobacco, tobacco refuse, Unbranded | 42 | 16 | | 10 | 68 | | | | 10 | 10 |
| Unmanufactured tobacco, tobacco refuse, Branded | 42 | 16 | | 10 | 68 | 26 | 16 | | 10 | 52 |
| Smoking mixtures of pipes and cigarettes | 300 | | 45 | 10 | 355 | 300 | | 45 | 10 | 355 |
| Jarda scented tobacco | 50 | 16 | 10 | 10 | 86 | | | | 10 | 10 |
| Snuff | 50 | 16 | 10 | 10 | 86 | 50 | 16 | 10 | 10 | 86 |
| Cut tobacco (Rs per Kg) | 50 | | | 5 | 55 | 50 | | | 5 | 55 |

Source:

Central Excise Tariff, various issues, published by CENTAX Publications Pvt. Ltd

BED: Basic Excise Duty

SED: Special Excise Duty

NCCD: National Calamity Contingency Duty

HC: Health Cess, formally known as the AED (PMT), or the Additional Excise Duty on paan masala and other tobacco products for National Rural Health Mission.

Unless specified the rates are ad valorem, levied as a percent of retail price. Empty cells indicate that the corresponding excise is not levied on the particular tobacco product category.

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