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Findings from Wave 1 (2009) and Wave 2 (2010) of the ITC Bangladesh Survey

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Introduction

Increasing taxes and prices is recognized worldwide as the single most cost-effective measure of tobacco control and a critical component of a comprehensive tobacco control strategy. Article 6 of the WHO Framework Convention on Tobacco Control (FCTC) obligates countries that have ratified the treaty to adopt pricing and taxation measures in order to reduce tobacco consumption.

While the urgency of tobacco control is well accepted worldwide, the use of taxation of tobacco products as a means to control tobacco use is subject to debate from political, economic, and social points of view. Such a debate arises from the fact that a policy change intended for benefitting some people often does not come without cost. On the one hand, increased taxes on tobacco can yield significant health benefit to its users by cutting down tobacco consumption. On the other hand, shrinking of tobacco cultivation and manufacturing sector from reduced demand for tobacco use may result in loss of employment in this sector. From a social planner's point of view, this is a dilemma of employing tobacco taxes. The simple decision rule is that tobacco taxes are to be raised as long as the net gain, that is the health benefit less the employment cost, is positive. The WHO 2004-05 study on the cost of tobacco-related illnesses showed that this is indeed the case in Bangladesh. Tobacco usage caused annually about 57,000 premature deaths and about 400,000 cases of disability of adults 30 years and older and imposed net cost of 26.1 billion Taka in 2004, which was equivalent to 1% of the GDP of that year.¹

The first wave of the ITC Bangladesh Survey, conducted in 2009, shows that overall smoking prevalence increased from 20.9% in 2004-05 to 22.0% in 2009, with 42.0% of males (20.2 million) and 1.3% of females (0.6 million) in Bangladesh smoking some form of tobacco. This means that, compared to 2004-05, there were 2.5 million more smokers in Bangladesh in 2009.

The increase in smokeless tobacco use among men and women since 2004-05 is also alarming. The WHO study estimated that 14.8% of men and 24.4% of women were smokeless tobacco users. But the 2009 ITC Bangladesh Survey showed that now 27.6% of men and 32.0% of women are smokeless tobacco users.

Overall, the percentage of Bangladeshis who use any form of tobacco (smoked, smokeless, or both), increased from 36.8% in 2004-05 to 43.2% in 2009. This means that compared to 2004-05, there are now 8.7 million more tobacco users in Bangladesh. Of them, 4.8 million are men and 3.9 million are women. By 2009, approximately 25.7 million men and 15.3 million women used some form of tobacco in Bangladesh. The enormous rise in tobacco use in the country portends the growing spectre of tobacco-caused death and disability far above the figures estimated in 2004-05.

The general message is clear: Bangladesh must engage more urgently and forcefully in tobacco control efforts. FCTC policies such as graphic warning labels and comprehensive smoke-free laws have not been implemented in Bangladesh. In May 2011, the ITC Project issued reports presenting findings from two waves of the ITC Bangladesh Survey on the very poor and declining effectiveness of warning labels and of the continuing very high levels of tobacco smoke in public venues, due to the absence of meaningful smoke-free laws. The third policy domain in which Bangladesh must act with strength is in taxation and price, which is recognized as the most important policy domain for reducing tobacco use.

In this paper, we present the findings from the International Tobacco Control (ITC) Policy Evaluation Surveys and Enumeration conducted in Bangladesh in 2009 and 2010, which provide overwhelming evidence of the need for raising tobacco taxes in Bangladesh. The results show that average cigarette and bidi consumption in Bangladesh remained unabated between 2009 and 2010, in response to the moderate tax changes on these two products. The estimates of price elasticity of demand confirm that cigarette and bidi consumption could be significantly reduced by increasing taxes on these products.

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The ITC Bangladesh Project was created to rigorously evaluate the psychosocial, behavioural, economic, and public health effects of tobacco control legislation in Bangladesh, using methods that the ITC Project has employed in 19 other countries inhabited by over 50% of the world’s population, 60% of the world’s smokers, and 70% of the world’s tobacco users (see www.itcproject.org). The overall objective of the ITC Project is to provide an evidence base to guide policies enacted under the Framework Convention on Tobacco Control (FCTC) and to systematically evaluate the effectiveness of these legislative efforts.

The ITC Bangladesh Survey is a face-to-face survey conducted by trained interviewers from the Bureau of Economic Research (BER) at the University of Dhaka, Bangladesh, in collaboration with the ITC Project at the University of Waterloo in Canada. This project is funded for three survey waves by the International Development Research Centre (IDRC), Canada with additional funding from the Canadian Institutes of Health Research (CIHR). The survey protocol was approved by the Ethical Review Committees of the Bangladesh Medical Research Council and by the Office of Research Ethics, University of Waterloo.

The analyses reported in this paper are based on data collected in Waves 1 and 2 of the survey conducted in February to May 2009 and March to June 2010, respectively. The Wave 1 Survey consisted of a nationally representative sample of 2,510 adult smokers and 2,116 adult non-smokers aged 15 years and older. These respondents form a cohort, who were re-contacted to answer follow-up surveys in 2010 and will be re-contacted in 2011 for the third wave of the ITC Bangladesh Survey.

The ITC Bangladesh Wave 1 Survey is a nationally representative probability sample of tobacco users and non-users selected through a multi-stage clustered sampling design (sampling with probability proportional to population size at the levels of district, upazila/thana, and village/ward). A total of 94,485 adults aged 15 and older from 31,689 households were enumerated to establish an accurate sampling frame from which survey participants would be drawn. For the National sample, 23 districts out of the 64 districts covering Bangladesh were selected, 20 of them using probability proportional to population size. One district, Satkhira, was selected to cover one land port that is used for cross-border trade of tobacco products. Two other districts, Netrokona and Rangamati, were selected purposively to survey the tribal communities of Garo and Chakma. A total of 40 upazilas from the 23 districts, and 2 villages from each upazila were selected, again with probability proportional to size. Thus, a total of 80 villages/wards were selected for the National sample. For the analysis in the present paper, only the probability sample selected from 20 districts has been used to make the estimates nationally representative. In
addition, in each wave, about 1200 individuals are purposively selected from slum areas in and around Dhaka city to study the tobacco use behaviour of the floating population.

**Article 6 of the FCTC and tobacco taxation in Bangladesh**

Article 6 of the WHO Framework Convention on Tobacco Control specifies the following measures relating to the reduction of demand for tobacco through taxation:

1. “The Parties recognize that price and tax measures are an effective and important means of reducing tobacco consumption by various segments of the population, in particular young persons.”

2. “Without prejudice to the sovereign right of the Parties to determine and establish their taxation policies, each Party should take account of its national health objectives concerning tobacco control and adopt or maintain, as appropriate, measures which may include:

(a) implementing tax policies and, where appropriate, price policies, on tobacco products so as to contribute to the health objectives aimed at reducing tobacco consumption; and

(b) prohibiting or restricting, as appropriate, sales to and/or importations by international travellers of tax- and duty-free tobacco products.”

During the period of time between the passage of the 2005 Tobacco Control Act until Wave 2 of the ITC Bangladesh Survey in 2010, the Bangladesh government took a number of initiatives in tobacco taxation:

- Two adjustments of the four retail price slabs for the supplementary duty (SD) applied at a progressive rate on cigarettes in addition to 15% value added tax (VAT);
- Increasing the SD by one percentage point at each price slab for cigarettes;
- Increasing the SD on unfiltered bidis from 17.5% to 20% and to 25% for filtered bidis;
- Imposing a 15% VAT and 10% SD on smokeless tobacco (zarda and gul);
- Imposing a 10% duty on tobacco exports;
- Requiring all cigarette, bidi, and smokeless tobacco companies to pay corporate taxes.

Despite these tax measures undertaken by the National Board of Revenue, tobacco consumption remained unabated in Bangladesh. Data from Waves 1 and 2 of the ITC Bangladesh Survey collected in 2009 and 2010 shows that there is ample room to implement stronger pricing and taxation measures to reduce tobacco consumption and prevalence in Bangladesh.
Cigarette and bidi taxes, prices, and consumption

The current cigarette tax in Bangladesh is composed of two components collected at the producer level: a value added tax (VAT) at the rate of 15%, and a supplementary duty (SD) that varies at different price ranges of cigarette packs of 10 sticks. Between 2009 and 2010, the price slabs for the four tiers of cigarette prices were increased and the SD for each tier was raised by one percentage point as shown in Table 1. These range of price slabs is, however, not continuous. The gaps between successive tiers are shown in the row under each tier with corresponding percentage of smokers who reported prices in that range. For the purpose of calculation of average SD, we imputed the tax rate for each price tier to the price gap above that tier until the lower limit of the next higher price tier.

After weighting by the number of cigarettes smoked per day as reported by individual smokers, we find that average SD increased from 38% in 2009 to 45% in 2010 and average real price of a pack of 10 cigarettes increased from 17.4 to 19.3 Taka in 2009 prices (see Table 2). The average SD and cigarette price is driven down by the concentration of smokers in the lowest two price tiers—79.8% in 2009 and 76.6% in 2010.

The increase in cigarette prices between 2009 and 2010 is reflected in the upward adjustment of the price slabs by 12 to 16% on the lower limit and 5 to 10% on the upper limit. Part of the price increase can be attributed to increased tax rates by 1% point in 2010-11 over the 2009-10 rates. Our estimate shows that on average the 1% point increment in SD resulted in an increase in price per pack of 10 cigarettes by 0.80 Taka. It accounted for 4.6% increase from the initial price of 17.4 Taka in 2009, while the total increase was 11.2%. More than half of the price increase (11.2% - 4.6% = 6.6%) is attributed to the increased profit margin of cigarette manufacturers and distributors and the increased cost of production.

Despite this price increase, the number of cigarettes smoked per day remained almost the same—10.2 sticks per day in 2009 and 10.5 sticks per day in 2010 (Table 2). During this period, GDP of Bangladesh increased by 6.2%, according to estimates from the World Bank. It is likely that the negative effect of a modest price increase on inelastic cigarette demand was more than offset by a strong positive effect of income growth in Bangladesh.
Table 1. 2009-10 Cigarette taxes and distribution of smokers by price tiers (weighted by average daily cigarette consumption).

<table>
<thead>
<tr>
<th>Year of observation</th>
<th>Cigarette Price Slab</th>
<th>Price tier (Taka)</th>
<th>SD (%)</th>
<th>% of cigarette smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave 1 (2009)</td>
<td>LOW</td>
<td>Tier 1: 7.25 – 8.75</td>
<td>32</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8.75 – 16.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEDIUM</td>
<td>Tier 2: 16.25 – 17.25</td>
<td>52</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.25 – 23.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIGH</td>
<td>Tier 3: 23.25 – 29.25</td>
<td>55</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29.25 – 46.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREMIUM</td>
<td>Tier 4: 46.25 +</td>
<td>57</td>
<td>2.8</td>
</tr>
</tbody>
</table>

| Wave 2 (2010)       | LOW                  | Tier 1: 8.40 – 9.15 | 33     | 10.0                   |
|                     |                      | 9.15 – 18.40        |        |                        |
|                     | MEDIUM               | Tier 2: 18.40 – 19.00 | 53     | 1.0                    |
|                     |                      | 19.00 – 27.00        |        |                        |
|                     | HIGH                 | Tier 3: 27.00 – 32.00 | 56     | 14.7                   |
|                     |                      | 32.00 – 52.00        |        |                        |
|                     | PREMIUM              | Tier 4: 52.00+       | 58     | 1.1                    |

Source: National Board of Revenue, Government of Bangladesh.

Table 2. 2009-10 Cigarette and bidi price, tax and consumption.

<table>
<thead>
<tr>
<th></th>
<th>Cigarette</th>
<th>Bidi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
<td>2010</td>
</tr>
<tr>
<td>Average cigarette price (2009 Taka per pack of 10)</td>
<td>17.4</td>
<td>19.3</td>
</tr>
<tr>
<td>Average SD (%)</td>
<td>37.9</td>
<td>45.1</td>
</tr>
<tr>
<td>VAT</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Average SD as % of average price</td>
<td>24.0</td>
<td>27.0</td>
</tr>
<tr>
<td>Number smoked per day</td>
<td>10.2</td>
<td>10.5</td>
</tr>
</tbody>
</table>

Note: 2010 prices are discounted by 8% to adjust for inflation during 2009-2010.
The average real price of bidis (weighted by the number of bidis smoked per day), on the other hand, decreased from 6.0 to 5.7 Taka per pack of 25 sticks, while the SD on bidis did not change during the period of 2009-10. The number of bidis smoked per day also remained about the same at 13.6 stick per day in 2009 and 13.8 sticks in 2010 (Table 2).

The minor effect of increased SD on cigarette price and the fall in bidi prices, with almost unaltered average consumption, indicates that the Bangladesh government has yet to gain control over cigarette and bidi prices, and thus is not controlling tobacco consumption. At the current rates of SD on cigarettes, the share of SD in the purchase price was on average 24% for cigarettes and 10% for bidis in 2009. In 2010, these shares increased slightly to 27% and 12% for cigarette and bidi respectively and remained far below the recommended level of 70% by the World Health Organization.\(^5\) Thus we find that there is ample room for increasing SD on both cigarettes and bidis.

**Price sensitivity of smoking**

The association between cigarette and bidi prices and consumption reported above does not take into account factors other than price that can affect individual consumers’ decision to smoke and the number of cigarettes or bidis smoked per day. This association can therefore conceal the true effect of price change on cigarette and bidi demands. In a multivariate analysis of individual level data pooled from the Wave 1 household enumeration, and Waves 1 and 2 of the ITC Bangladesh Surveys conducted in 2009 and 2010 respectively, we controlled for the following:

- individual demographic and socio-economic characteristics (e.g., age, marital status, education, work status, household size and income, restrictions on smoking at home and workplace, and rural/urban area of residence),
- number of years since initiation of smoking on a regular basis (which reflects the degree of addiction), and
- the year of observation (which accounts for overall macroeconomic effect on demand).

In consideration of the possibility of simultaneously choosing quantity and price of cigarettes by smokers and resulting endogeneity of price, we use an instrumental variable method of estimation for the cigarette demand function. We used rates of SD on cigarette, housing index and upazila/thana of residence as instruments to predict cigarette price; this instrumented price variable was then used in the cigarette demand equation. Sampling

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weights, clustering and stratification of households by socio-economic status were taken into account in using survey data for estimation. This method ensures national representativeness of the estimates.

The price elasticity of the number of cigarettes smoked per day is estimated at -0.22 and the price elasticity of the decision to smoke cigarettes at -0.44 (see Table 3). The total price elasticity of cigarette demand is thus estimated to be -0.66. This means that if cigarette price doubles, cigarette consumption will fall by 66%. These results confirm the conventional wisdom that increases in cigarette price can significantly reduce cigarette smoking prevalence and daily consumption among smokers.

Using housing index for stratification of respondents into low, medium, and high socio-economic status (SES), we estimate greater price sensitivity of daily cigarette consumption and smoking prevalence among lower SES respondents. The total price elasticity varies from -0.76 for low SES to -0.73 for medium SES and -0.59 for high SES respondents. On average, two-thirds of this price sensitivity is accounted for by the price responsiveness of the decision to smoke, indicating the enormous role that price increase can play in inducing quitting behaviour among current smokers and discouraging initiation of smoking behaviour among non-smokers.

For estimating the bidi demand equation, the instrumental variable method of estimation cannot be applied because the bidi tax rate did not change during 2009-2010, an exogenous variation that is essential for identification of the bidi demand equation from the price equation. We only controlled for the price of bidis and household income status of bidi smokers due to lack of sufficient number of observations to control for all the explanatory variables as specified in the cigarette demand function. Because the prevalence of bidi smoking is greater among the tribal and slum areas, we included these purposive samples in the estimation of bidi demand function in addition to the nationally representative sample.

The prevalence of bidi smoking is not significantly affected by the variation in bidi price, possibly because bidi price is too low to influence people’s decision to quit bidi smoking or prevent initiation of bidi smoking. The elasticity of the number of bidis smoked per day with respect to bidi price is estimated to be -0.22.

When estimated by SES, we find that the daily bidi smoking of high SES smokers is more sensitive to changes in bidi price than that of low and medium SES smokers and their price elasticity of bidi consumption is statistically significant. The high SES bidi smokers usually purchase bidis from the high end of the bidi price range, which overlaps with the cigarette prices at the lower end of cigarette price range. The closeness of bidi and cigarette prices at the margin increases the prevalence of dual smoking — that is, smoking both cigarette and bidi by a significant proportion of smokers in Bangladesh. According to household
enumeration conducted prior to the Wave 1 (2009) survey fieldwork, the prevalence of cigarette smoking was 18.8%, bidi smoking was 12.4%; and smoking both bidi and cigarettes was 9.3%. Thus about half of cigarette smokers and three-fourths of bidi smokers in Bangladesh smoke both tobacco products, either regularly or occasionally. These dual smokers would generally have tendency to switch between cigarette and bidi depending on the relative price of these two products, among others. When bidi price increases, the high SES smokers tend to cut down bidi consumption and switch to smoking cigarettes which become relatively cheaper. Out of 292 exclusive bidi smokers interviewed at Wave 1, 21% were smoking cigarettes at Wave 2; of 329 dual smokers at Wave 1, 17% became exclusive cigarette smokers at Wave 2. The tendency to substitute cigarettes for bidi is expected to be stronger among higher SES smokers because of greater affordability of cigarettes among them. These dynamics of the joint decision to smoke cigarette and bidi calls for more rigorous investigation, which would be undertaken using the longitudinal data collected by ITC Bangladesh Surveys.

Table 3. 2009-10 Price responsiveness of smoking behaviour.

<table>
<thead>
<tr>
<th>CIGARETTE</th>
<th>All</th>
<th>Low SES</th>
<th>Medium SES</th>
<th>High SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Price elasticity of daily cigarette consumption of smokers</td>
<td>-0.22***</td>
<td>-0.22***</td>
<td>-0.22**</td>
<td>-0.17***</td>
</tr>
<tr>
<td>B. Price elasticity of cigarette smoking prevalence</td>
<td>-0.44***</td>
<td>-0.54***</td>
<td>-0.51**</td>
<td>-0.42**</td>
</tr>
<tr>
<td>A+B. Total price elasticity of cigarette demand</td>
<td>-0.66</td>
<td>-0.76</td>
<td>-0.73</td>
<td>-0.59</td>
</tr>
<tr>
<td>BIDI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Price elasticity of daily bidi consumption of smokers</td>
<td>-0.22**</td>
<td>-0.13</td>
<td>-0.24</td>
<td>-0.50**</td>
</tr>
<tr>
<td>D. Price elasticity of bidi smoking prevalence</td>
<td>0.03</td>
<td>-0.13</td>
<td>0.16</td>
<td>0.22</td>
</tr>
<tr>
<td>C+D. Total price elasticity of bidi demand</td>
<td>-0.22</td>
<td>-</td>
<td>-</td>
<td>-0.50</td>
</tr>
</tbody>
</table>

Note: ***,**,* stand for 1%, 5% and 10% level of significance, respectively.
The findings of price elasticity of demand for cigarettes and bidis have important implications for public health. For a smoker, positive health benefits are realized to a (much) greater extent for quitting than for reducing consumption. And thus, the proportion of the total price elasticity that is accounted for by elasticity of smoking prevalence is relevant to an understanding of the impact of increasing price on quitting. The World Bank treatise of 1999 found that overall for high income countries, the proportion of the total price elasticity that is accounted for by elasticity of smoking prevalence is about 50%. From our analysis of ITC Bangladesh Survey data, the proportion is 0.44/0.66 = 67% for cigarettes. Thus, if taxes were increased on cigarettes in Bangladesh, there would be greater impact on reducing the prevalence rate (leading to greater gains in enhancing health at the population level) than would be the case in most other countries.

**Implications for tobacco taxation policy**

The price elasticity estimates indicate that tobacco consumption can be significantly reduced by employing higher taxes and prices. Given the inelastic demand for cigarettes, it is expected that the percentage reduction in cigarette consumption would be less than the percentage increase in price from a given tax increase, thus yielding greater amount of tax revenue to the government. Although bidi smoking prevalence appears to be price insensitive, the daily bidi consumption of smokers can be significantly reduced by tax and price increase. Given the inelastic demand for bidi by continued bidi smokers, tax revenue collected from bidi smokers will continue to rise with the tax and price increase.

The effectiveness of tobacco taxation, however, can be weakened to a great extent by the presence of tiered ad valorem tax structure, such as the one for cigarettes in Bangladesh, which may trigger downward switching to lower priced brands when cigarette taxes are increased. In contrast, there was upward movement of smokers from the lowest price tier to the medium and high price tiers reflecting increased affordability of cigarettes in 2009-10—the percentage of cigarette smokers in the lowest tier fell from 73.2% to 43.1% and the percentage in the medium two tiers increased from 23.7% to 56% (see Fig 1).

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Furthermore, the differential tax structure and gaps between the price tiers allow tobacco companies to evade tax through false declaration of brand by using the same tax stamps and banderole on two price points in the lower price slab. According to the estimate of the National Board of Revenue, the government loses 3,000 billion Taka annually due to this type of tax evasion by tobacco companies. Moreover, as Table 1 shows, a greater percentage of smokers buy cigarettes within a price range that is higher than the tier specified by the National Board of Revenue and falls between two successive tiers. This phenomenon is attributable to the fact that more than two-thirds of cigarette purchases take place in loose cigarettes rather than in pack form. Purchasing loose cigarettes costs the smoker more per stick than it would cost them had they bought in packs. In principle, the gaps between price tiers should be removed and the price slabs should be continuous. However, ad valorem tax ought to be replaced by specific (unit) tax in view of the consideration that tobacco products of all price levels are equally harmful to health. Tobacco tax should not be differentiated by differential tax rates on the ground of progressivity of tax rate.

### Smokers’ opinions: Does price/tax of tobacco products matter?

A number of findings from the ITC Bangladesh Survey suggest that smokers care about the costs of buying cigarettes or bidis. Tax and price increases will motivate thoughts and action among smokers toward cutting down tobacco consumption or quitting. Moreover, tax and price increase can trigger compensatory behaviour among both smokers and tobacco manufacturers to minimize costs and avoid taxes, which can in turn undermine the effectiveness of taxation as a tobacco control measure.
1. **Tobacco spending:** The majority of smokers (91.3% of cigarette smokers and 85% of bidi smokers) at Wave 1 said that they spend too much money on tobacco. The percentages, however, decreased to 81.8% and 80.1% for cigarette and bidi smokers respectively at Wave 2. This suggests that the affordability of cigarette and bidi has increased (see Figure 2). About 75% of cigarette smokers and 66% of bidi smokers at Wave 2 reported thinking about how much money they spend on tobacco. The opportunity cost of tobacco use is reflected in the response of 4-5% of smokers who reported that they spent money on tobacco that they were supposed to spend on food. However, the average monthly household spending on tobacco products is low and actually decreased in real terms from 571 Taka at Wave 1 to 529 Taka at Wave 2.

**Fig 2. Percentage of cigarette and bidi smokers who agree or strongly agree that they spend too much money on tobacco, Wave 1 and Wave 2**

![Graph showing percentage of smokers spending too much money on tobacco at Wave 1 and Wave 2](image-url)
2. **Quitting:** About 6% of smokers at Wave 1 had quit smoking at Wave 2. Of those who had quit, 36.3% reported that price was one of the reasons for quitting—54.5% of cigarette smokers and 38.6% of bidi smokers. These percentages, however, decreased to 42.4% for cigarettes and 26.8% for bidi at Wave 2 indicating that the role of price in stimulating quit intentions had weakened considerably in just one year (Figure 3).

**Fig 3. Percentage of exclusive cigarette and exclusive bidi smokers who think that price of tobacco is a reason to quit, Wave 1 and Wave 2.**

The percentage of cigarette smokers (including dual smokers) who think that price is a reason for quitting smoking is the third lowest of 19 ITC countries (Figure 4). These are strong indications that price is not an important factor in motivating smokers to quit in Bangladesh, convergent evidence for the importance of increasing tax/price in the country.
Fig 4. Percentage of smokers who think price is a reason to quit smoking in 19 countries of the ITC Project.

Ireland and Scotland data 2006.
South Korea and France data 2008.
Australia, Canada, New Zealand, US, UK, and Uruguay, data 2008/09.
Brazil, China, Germany, Malaysia, and Thailand data 2009.
Bangladesh, Mexico, Mauritius, and The Netherlands data 2010.
* Includes cigarette smokers and dual users (cigarettes and bidis)

3. **Product substitution:** Out of 2100 exclusive cigarette smokers at Wave 1, 4% switched to bidis or added bidis to their cigarette smoking by Wave 2. 91.4% of smokers who switched from exclusive cigarette to exclusive bidi smoking reported that they chose bidis over cigarettes because bidis are cheaper than cigarettes. 35.9% of smokers who were exclusive cigarette smokers at Wave 1 and started dual smoking reported that they added bidis because bidis are cheaper than cigarettes. Thus it appears that the large price differential between cigarettes and bidis induces product substitution and switching to the cheaper bidis. This weakens the effectiveness of tax and price increases in reducing tobacco consumption.
4. **Brand choice:** 58% of cigarette smokers and 60.9% of bidi smokers at Wave 1 reported that they selected the brand they usually smoke due to its price. These percentages increased to 60.4% and 65.8% at Wave 2. Among the relatively few smokers who smoke foreign brands, 1.2% of cigarette smokers and 3.1% of bidi smokers at Wave 1 reported that price was the reason for selecting the particular foreign brand they smoke. However, at Wave 2, the corresponding percentage shot up to 10% for cigarette smokers while falling to 1.5% for bidi smokers. This might signal that foreign brand cigarettes are penetrating the domestic market through price competition with domestic brands, while domestic bidi producers are outcompeting foreign brands of bidi.

5. **Tax/price avoidance:** 7.9% of cigarette smokers and 19.3% of bidi smokers at Wave 1 reported that they made special efforts to buy cheaper products than those available in local stores. These findings reflect that this cost minimizing behaviour is more prevalent among bidi smokers. This percentage, however, increased slightly to 8.6% for cigarette smokers and decreased to 17.3% for bidi smokers at Wave 2. The fact that this tendency is growing among cigarette smokers and falling among bidi smokers might be the outcome of the growing price differential between cigarette and bidi. Moreover, 4.2% of smokers at Wave 1 reported that they received special price offers from tobacco sellers. This percentage increased to 7% at Wave 2, which may suggest that tobacco companies have expanded their tobacco promotion efforts by offering price incentives to smokers.

**Summary and Policy Recommendations**

Globally, tobacco taxation has proved to be one of the most potent instruments in curbing the tobacco epidemic. The negative relationship observed between tobacco consumption and pricing suggests that increasing tobacco taxes by a significant amount could potentially avert millions of premature tobacco-induced deaths and disabilities in Bangladesh. As the cigarette smokers with lower SES are more price sensitive, they will cut down their smoking by a larger percentage than the smokers with higher SES. As a result, greater health gains will accrue to those with lower SES. Tobacco tax can thus contribute to reduction in health inequality as well. At the same time, the government can reap significant gains in tax revenue because the consumption of cigarettes and bidis would fall by a lesser percentage than the percentage increase in price. Thus the goals of public health promotion and tax revenue increase are non-competing. Unlike other policies that may have unexpected negative consequences, increasing excise taxes on cigarettes and bidis represents a true win-win opportunity for the Bangladesh Government.
Our estimates show that in order to meet the requirement of excise tax on tobacco accounting for 70% of retail price, the SD on both cigarette and bidi must increase to 400%. Other things remaining the same, this tax rate will increase cigarette and bidi prices more than threefold. We appreciate the fact that it may not be feasible to raise the current tobacco tax rates to 400% at a time when there is political resistance to ANY tax increase from the beneficiaries of tobacco use. The government of Bangladesh can consider a suboptimal excise tax rate that is significantly higher than the current rates, which would still operate to reduce overall tobacco demand in the country.

In view of the findings of the analyses presented from the rich and detailed information collected in the ITC Bangladesh Survey over two years, the following recommendations can be made for the current tobacco tax policy in Bangladesh over short, medium, and long terms:

**Short-term strategy:** Reduce the gap between the tax rates for different tiers of cigarette prices and work toward uniform tax rates.

1. Reduce the number of price tiers for cigarettes from four to three by merging top two tiers for high and premium brand cigarettes and apply SD at 58%. This rate would be applicable to all cigarettes with retail price above 20 Taka given the 2010-11 price slabs.
2. For the medium level tier, raise the SD to 56%.
3. Increase the SD rate for the lowest tier from 33% to 40%.
4. Levy SD on bidis based on retail price instead of tariff value. The rate of SD on unfiltered bidi can be maintained at 20% in the short-term.

**Medium-term strategy:** Reduce the tax gap between bidis and the cheapest cigarettes and introduce a specific excise tax floor.

1. Increase the SD on bidis (both unfiltered and filtered) from 20% to 40% to eliminate the difference with the SD for the cheapest cigarettes.
2. Introduce a specific excise tax in addition to the existing ad valorem tax, in order to ensure a minimum price for cigarettes and bidis.
3. For cigarettes, the rule should be to raise the average price of low price brands, which is currently 10 Taka per pack of 10, to the level of the average price of medium price brands, which is currently 20 Taka per pack. In order to achieve this goal of setting the minimum price per pack of 10 cigarettes at 20 Taka, specific tax should be set at 10 Taka for cigarettes that are currently sold for 10 Taka or below.
4. For bidi, the minimum price should be raised to 20 Taka per pack to make the average price of bidi comparable to the cheapest cigarettes after the addition of the specific tax. This would require a specific tax of 14 Taka per pack of bidi to raise the average retail price of a pack of bidi from the current level of 6 Taka to 20 Taka.
Long-term strategy: Harmonize the excise tax rate and replace ad valorem tax with specific excise tax.

1. Harmonize the excise rates by levying same tax rates for all tobacco products.
2. Increase the tax rates by the same amount for all tobacco products.
3. Replace the ad valorem tax rate completely with specific excise tax.
4. Adjust the specific tax for inflation and income growth every year.
The International Tobacco Control Policy Evaluation Project

The ITC Project
Evaluating the Impact of FCTC Policies in...

20 countries • 50% of the world’s population
60% of the world’s smokers • 70% of the world’s tobacco users

Australia
Bangladesh
Bhutan
Brazil
Canada
China (Mainland)
France
Germany
India
Ireland
Malaysia
Mauritius
Mexico
Netherlands
New Zealand
South Korea
Thailand
United Kingdom
Uruguay
United States of America

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