National Board of Revenue, Bangladesh
জাতীয় রাজস্ব বোর্ড, বাংলাদেশ

The Revenue and Employment Outcome of Biri Taxation in Bangladesh

National Board of Revenue
Government of the People's Republic of Bangladesh
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MESSAGE

There are concerns regarding loss of employment if tax is increased on biri, However credible data on the size of employment in the biri sector, and estimation of the impact of tax increases on employment in and revenue from the biri sector has not been readily available.

To address this gap in much needed evidence, the National Board of Revenue (NBR) conducted a study in 2012 on `Revenue and Employment Outcome of Biri Taxation in Bangladesh', with support from the World Health Organization (WHO) and Department of Economics of the Dhaka University (DU). The draft report was finalized in 2013. Considering the importance of the issue, the NBR has updated the report with the most recent data, with technical assistance from American Cancer Society (ACS), BRAC Institute of Governance and Development (BIGD), DU and WHO.

I am pleased to present the findings of the report within. The report it self and the recommendations made will help policy makers to tax biri based on robust evidence. This will also help the Government to deliver aspecial programme for welfare of the workers of the biri industry including support for alternative livelihoods; generate more revenue from biri sector, and save lives by reducing consumption of biri.

This report is an example of high quality normative work that NBR has led. I take this opportunity to thank the experts and academicians from WHO, DU, BIGD, ACS and NBR for their collaboration and look forward to reflecting these recommendations in public policy.

Md. Mosharraf Hossain Bhuiyan, NDC

Abbreviations

BDT	Bangladesh Taka
BRAC	Bangladesh Rural Advancement Committee
CBMI	census of biri manufacturing industries
FGDs	focus group discussions
FTE	full-time equivalent (employment)
GDP	gross domestic product
HDS	health development surcharge
ILO	International Labour Organization
IRD	Internal Resources Division
LFS	labour force survey
NBR	National Board of Revenue
NGO	nongovernmental organization
MFI	microfinance institutions
MoF	Ministry of Finance
VAT	value added tax
VGD	Vulnerable Group Development
VGF	Vulnerable Group Feeding
WHO	World Health Organization

Executive summary

INTRODUCTION

Biri is a very cheap form of smoked tobacco in Bangladesh that is popular particularly among the poor population. The production process of biri is labour intensive. There is fear among biri manufacturers that increasing tax and price of biri would cut down biri consumption and production significantly resulting in huge loss of employment in the biri industry. In order to understand the size of employment loss and livelihood consequences of the population that can be adversely affected by the downsizing of the biri industry, the National Board of Revenue (NBR) of the Government of Bangladesh undertook a comprehensive study in 2012 entitled "The revenue and employment outcome of biri taxation in Bangladesh", with technical assistance from the Department of Economics, University of Dhaka and the World Health Organization.

The NBR study used three different survey instruments to collect data on the employment aspects of the biri industry in Bangladesh. Using the census of biri manufacturing industries (CBMI), all workers were enumerated in the 198 currently operational biri factories across the country. A labour force survey (LFS) of biri workers was undertaken to collect detailed information on the household socioeconomic status, sources of employment and income, receipt of government transfers and benefits, interventions by NGOs, characteristics of current employment, and alternative livelihood opportunities of the selected workers. Focus group discussions (FGDs) were held to brainstorm on questions of alternative livelihood options for biri workers from a regional point of view. In addition, a case study was undertaken based on the interview of a former biri worker who is currently employed in a different sector. This report is based on the findings and analyses of data from the NBR study.

CONSUMPTION

Bangladesh recorded a remarkable reduction in adult smoking prevalence from 23% in 2009 to 18% in 2017 according to the Global Adult Tobacco Surveys conducted in 2009 and 2017. This decrease in smoking rate was reflected largely as reduction in biri smoking – while the prevalence of cigarette smoking remained almost the same (14.2% in 2009 and 14.0% in 2017), prevalence of biri smoking decreased to less than half from 11.2% in 2009 to 5.0% in 2017.

The tax-paid sale of biri was 51.19 billion sticks in the fiscal year 2012–13. By 2016–17, tax-paid sales of biri decreased remarkably by 26.7% in four years to 37.53 billion sticks. A small part of this decrease (14%) can be explained by the biri price increase over this period. The remaining 86% decrease can be attributed to the declining trend in biri demand due to shifts in composition of smoked tobacco products in Bangladesh from biri to cigarettes, and other unobservable random disturbances.

EMPLOYMENT

A total of 32,180 persons worked (1,517 administrative staff and 30,663 production workers) in the 198 functional biri factories. Among the production workers, daily labourers accounted for 94%, female employees 33% and child employees 4%, of all persons employed on the factory premises. The majority of production workers worked on a temporary (94%), or part-time (75%) basis. They were categorized as skilled (having mastery) in biri making (91%) by the biri manufacturers.

Apart from the regular employees working on the factory premises, biri factories contract out biri rolling and tobacco dust filling to contractors who then commission the work to their family labourers; this segment totaled 134,927 workers. About 10% of these people received contracts for biri rolling and tobacco dust filling from the factories and the rest worked under their supervision. An overwhelming majority (75%) of these contract workers were women and children (below 18 years of age).

On average, regular production workers on the factory premises worked for 18.6 days a month and 8.9 hours a day: full-time employees worked 20.7 days a month, 10 hours a day, while part-time employees worked 16.9 days per month, 8 hours a day. A similar trend was observed when permanent workers, daily labourers/ temporary workers and unpaid family labourers were compared.

Considering 65% utilization rate of the full-time capacity of a regular employee working on the factory premises and 26% utilization rate of the full-time capacity of a contract worker, that account for actual production at 33% of potential output, the total full-time equivalent (FTE) employment in the biri industry, including regular and contractual employment, was estimated at 55,682. Among them, FTE employment of only production workers amounted to 54,694. With children excluded, FTE of production workers decreased to 46 916.

The total full-time equivalent employment in the biri industry was estimated at 46,916 with children excluded.

The average monthly salary ranged from the lowest for daily labourers (below Bangladesh Taka (BDT) 2,000), to the second lowest for permanent workers (BDT 2,000–4,000), to the clerk (BDT 4,000–5,000), to the managerial staff (BDT 6,000–9,000), and finally to the much higher-level owner employees (BDT 20,000–30,000). For each category of employees, females generally received lower salary than their male counterparts. The average daily wage rate was BDT 146 for the daily labourers in biri making – BDT 174 for males and BDT 117 for females. Those who worked on a piece rate basis were paid BDT 22 per 1000 sticks on average.

ECONOMIC IMPACT OF BIRI TAX INCREASE

The excise tax on biri, known as supplementary duty, is tiered ad valorem varying by filtered/nonfiltered type – 30% of retail price for nonfiltered and 35% of retail price for filtered biri. In addition to the supplementary duty, a 1% health development surcharge and a 15% value-added tax are imposed on the retail price of biris.

As a way forward from the current state of biri taxation in Bangladesh, we considered two scenarios that would yield equivalent increases in price. The first scenario involved increasing the supplementary duty on biri to 55% of retail price, which would bring parity with the current supplementary duty for ‘low’ segment cigarettes. The second scenario involved introducing a specific excise on biri at BDT 0.20 per stick and increasing the supplementary duty to 40% of retail price. In either scenario, the price increase was expected to be 111% for nonfiltered 25-stick packs and 89% for filtered 20-stick packs, under the assumption of full pass through of the increase in tax to consumers.

These tax and price increases imply increase in excise tax share from 31% for nonfiltered biri and 36% for filtered biri to 56% for both types of biris. The total tax share including supplementary duty, health development surcharge and value-added tax would account for 71% of retail price for both biri types.

Following biri tax and price increases, as mentioned above in the first scenario, biri tax revenue would more than double from the current estimated level of BDT 7,408 million to BDT 17,654 million (equivalent to USD 211 million), marking BDT 10,246 million in additional revenue or 125% increase after adjustment for inflation. The revenue gain is expected to be larger in the second scenario – BDT 10,948 million or 134% increase in real terms.

Following tax and price increase, annual revenue from biri would increase by up to BDT 10,948 million.

Following the price increase, annual biri sale was expected to decrease by 24% (based on a price elasticity of biri demand at –0.22). With additional decrease in biri sale by 6.5% attributable to declining trends, total annual biri sale was expected to decrease by about 10 billion sticks. The reduction in biri sale was expected to lead to a similar reduction in biri production, under the assumption that all were tax paid sales.

The reduction in production attributable to tax and price increase is expected to result in 18% reduction in FTE employment (based on an output elasticity of employment at 0.72), or loss of 7,012 full-time jobs. The declining trend of the biri industry is likely to cause further decrease in FTE employment by 1,862 full-time jobs totaling 8,874 jobs.

Tax and price increase and declining trend of the biri industry together would cause loss of 8,874 full-time employment.

The estimated annual loss of income to biri workers, who would lose their job because of the tax and price increase and/or declining trend, was only 3.5% of the estimated revenue gain of BDT 10,246 million in scenario 1 or 3.3% of the estimated revenue gain of BDT 10,948 million in scenario 2. **The net benefit of increasing biri tax thus appears to be positive and significantly high.** It implies that biri workers can be easily compensated for their income loss if the extra revenue is channeled to the cause of retraining and deployment of unemployed biri workers. The extra revenue generated from biri tax increase can be allocated to boost gainful economic activities in the biri producing regions so that unemployed biri workers can find better alternative employment opportunities.

Biri workers can be easily compensated for their income loss if the extra revenue generated from increasing tax on biri is used to train and re-deploy unemployed biri workers.

PUBLIC HEALTH BENEFIT OF BIRI TAX INCREASE

Currently, there are 5.8 million adult biri smokers in Bangladesh. If the biri tax rate is raised to 55% of the retail price, the number of current adult biri smokers is estimated to fall by 628,467, implying 175,971 fewer premature deaths among current adult biri smokers. In addition, this tax increase could lead to an estimated 541,909 potential future biri smokers to abstain from initiating smoking, averting 216,763 million premature deaths among the current young population. Thus, an estimated total of 392,734 premature deaths attributable to biri smoking could be averted among the current adult and young population by increasing biri tax. The potentially averted deaths accounted for 12.3% of all premature deaths in the total population that is attributable to biri smoking. The potential for saving lives is even greater with higher tax rates.

An estimated total of 392 734 premature deaths attributable to biri smoking can be averted by increasing tax on biri.

REGIONAL CONCENTRATION OF BIRI DEPENDENT LIVELIHOOD

The 198 functional biri factories were located in 37 of the 64 districts in the country. The location of biri factories was heavily concentrated in the northern districts of the country – 103 factories (52%) were located in 10 districts of Rangpur and Rajshahi division. Half of these factories (53) were located only in Rangpur district within the Rangpur division. This division is also the most economically depressed region in the country, particularly rural areas. Of all the people employed in regular and contractual jobs in the biri industry, 37.2% were located in Rangpur district. The second largest concentration of biri sector employment was in Kushtia district (20.8%). Thus, these two districts covered 58% of the total employment in the biri industry. The regional concentration of biri factories and employment indicated that a targeted government intervention would be necessary at the district level, with a focus on the Rangpur region, to provide livelihood and income support to unemployed biri workers.

A targeted government intervention would be necessary at regional level to provide livelihood and income support to unemployed biri workers.

SOCIOECONOMIC STATUS OF BIRI WORKER HOUSEHOLDS

Biri workers are generally identified with the underemployed, low income and resource poor segment of the population in Bangladesh, living below the poverty line and missed by the mainstream of economic growth. Several aspects of the socioeconomic status of the biri workers were observed in the study:

- Only 20% of the biri workers was working full time in biri making. The remaining workforce was underemployed in terms of the utilization of their time and earning potential.
- The main source of household income for most of the respondents (43.4%) was biri manufacturing. The second largest source was trade followed by day labour that did not necessarily generate regular income flows. In addition to biri making and daily labour, about 84% of biri worker households survived on casual sources of employment and income, which added to the vulnerability of this population to economic and natural shocks.
- The household heads of two-thirds of biri workers did not have any schooling. The average education level for all members in a household was 2.5 years and the maximum education level was 5.7 years. With extremely low level of education, the potential for transition of biri workers and their family members out of poverty and to alternative employment opportunities on their own would be very limited.
- About 97% of the biri workers were landless. Given the negative correlation between land ownership and poverty, biri workers may be susceptible to worsening poverty in the event of unmitigated job loss.

LIVELIHOOD OPTIONS FOR BIRI WORKERS

Biri making has been the mainstay for most biri workers for generations. About 58% reported to be working in biri manufacturing for over 10 years. Several observations were made with regards to livelihood options for biri workers in this survey:

- The parents of 46% workers and the grandparents of 28% workers were employed in the biri industry. When asked if their children would continue to work in the biri industry, 70% workers answered in the negative. It appears that even though biri making had been the source of livelihood for at least three generations, the future generation was unlikely to stay in the same occupation. The intergenerational transition from a decaying biri industry to more thriving industries seems to be already in place.

- 22.5% workers reported that biri making was not their only source of income. They supplemented income by undertaking various other economic activities.
- The average income of the biri worker who is exclusively dependent on the biri industry was BDT 1,927 per month. In contrast, biri workers who were involved in other economic activities along with biri making made BDT 5,457 per month. For this group of workers, income from biri making constituted 41% of their total income. Apparently, these workers managed to diversify and allocate their work hour to enhance their earnings. They would also be able to recover income faster in the event of job loss from the biri industry.
- 54% biri workers reported that his/her other family members were also involved in biri making. On average, two persons from each family worked in a biri factory.
- About 93% workers reported that income from biri making was not sufficient for subsisting. When asked about means to supplement income from other sources in the event of job loss, an overwhelming majority (70%) reported that they would live off the income of other family members. This indicates that the income pooling mechanism at the family level cushions against the uncertainty and insufficiency of income flow from biri making.
- If alternative market opportunities that could generate income equivalent to what they make as biri workers were available, 22% were willing to take their own initiative to switch to the new occupation, while others (78%) were not willing to leave their current occupation. Relatively few workers saw the advantage of leaving a decaying industry for an income-equivalent job in other growing sectors and noted the flexibility of work hours, independence, proximity of the workplace to their homes, and casual working conditions, that are characteristic of the biri industry.
- However, if the government launched any redeployment programme for biri workers, 78.4% were willing to give up biri making and move to other occupations. Their expected income from an alternative job on average was BDT 4,811, which is more than twice of what they currently make in the biri industry.
- A majority of biri workers (63%) reported that biri making was their first occupation. The second major occupation was as unpaid family labour or housewives (19%). When asked about potential occupations where they could be employed if the biri factory closes, most workers (58.3%) who responded expressed that they did not know where to go or cannot do any other work. This category of workers would need support for employment generating opportunities. The remaining said that they would find some kind of nonagricultural self-employment on their own.
- Nearly 62.6% workers believed that they did not have the necessary skills to make a transition to an alternative employment. Most (75%) of those who believed that they did not have the necessary skills were interested in acquiring new skills. When asked about preference for full- or part-time job, 63% expressed willingness to do a full-time job.
- The role of NGOs or the microfinance institutions (MFIs) in offering alternative income generating opportunities for biri workers appeared to be limited. About 48% workers reported that they or a person from their family were members of NGOs/MFIs that offered loan services to engage in income generating activities, which could be a potential way out for biri workers.

- Nearly 38.5% workers mentioned government programmes for poverty alleviation in their locality, which targeted particular poor and vulnerable population groups, but that biri workers may not necessarily be eligible for receiving the benefits. Only 26% workers reported that they benefitted from one of these programmes.

MAJOR OBSERVATIONS FROM FOCUS GROUP DISCUSSIONS

The biri workers associations and civil society representatives made a number of important observations during the FGDs. The major ones are listed below.

- The widespread underemployment of biri workers was attributed to the interruption of production due to diminished market demand for biris.
- The biri manufacturers strategically located their factories in areas where limited number of economic activities were viable, thus limiting the scope of the biri workers to switch to alternative livelihoods.
- Women were more attracted to biri making due to the flexibility of work hours and the ability to work from home. They were not willing and/or able to travel far from home for finding alternative employment opportunities.
- Unskilled and impoverished workers and workers with disabilities are engaged in biri making. It implied that workers who lose their job from biri factories may not necessarily be easily able to train for and work in other occupations. This vulnerable group would need targeted assistance to find new employment, so as not to increase inequities.
- The children of both biri workers and biri manufacturers were finding employment outside of the biri industry. This intergenerational movement is already in place paving the way for a shift from the decaying biri producing sector to other thriving sectors for future generations.

RECOMMENDATIONS

Given that biri workers lack household resources, education and skills that are essential to make a smooth transition to alternative livelihoods, the government needs to take preemptive measures, in light of WHO Framework Convention on Tobacco Control Article 17, to counteract the potential loss of welfare of the biri worker families in the event of loss of employment. The resources necessary for such income support can come from increased revenue from higher taxes on biri. In conclusion, this study proposes the following recommendations that could mobilize internal resources for saving lives both through the reduction in consumption of biri and redeployment of biri workers.

- Increase excise tax on biri and earmark it for creating a welfare fund for biri workers. This fund would be dedicated to train and build the capacity of biri workers for non-biri sources of income generation. It could also be utilized to provide micro-credit (interest-free) for entrepreneurial development programmes targeted at former biri workers.
- Replace current ad valorem excise tax system with a mixed excise tax system consisting of a specific tax of BDT 0.20 per stick and an ad valorem tax at 40% of retail price, in setting the new system for biri taxation.

- Ensure collaboration and coordination of the National Tobacco Control Cell and NBR with the Ministry of Labour and Employment to explore government and nongovernment initiatives for employment generating opportunities in the districts where the biri factories are located. Local government bodies need to take leadership at the grassroots level and take advantage of existing infrastructure to accommodate the new goal of redeployment of biri workers.
- Build partnerships among local NGOs, biri worker associations and civil society organizations for making a concerted effort to embed the government initiative to help biri workers transition into alternative livelihoods and integrate into the mainstream of development at the community level.
- Create localized and equitable education, training and employment opportunities for biri workers who are primarily women, children, elderly and disabled. Efforts to help their transition into alternative work are needed because of the regional concentration of biri manufacturing units and the high cost of mobility. The heavily biri producing districts of Rangpur and Kushtia need to be prioritized.

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1. Introduction

Biri is a popular form of smoked tobacco in Bangladesh. As of 2018, a 25-stick pack of nonfiltered biri sold for Bangladesh Taka (BDT) 12.50 to 16.00 (equivalent to USD 0.15 to 0.19) and a 20-stick pack of filtered biri sold for BDT 15.00 to 20.00 (equivalent to USD 0.18 to 0.24). Unlike the biri made in India with tobacco dust wrapped in tendu leaf, Bangladeshi biri is made by rolling paper by hand and filling with tobacco mixture. Biri made in Bangladesh is a cheaper version of cigarettes and is predominantly nonfiltered.

Biri smoking has been associated with severe respiratory and cardiovascular ailments and all-cause mortality in Bangladesh, India and Pakistan (1). In Bangladesh, a significant proportion of the population smokes biri, with the majority belonging to lower socioeconomic and vulnerable groups (2,3). Unabated biri consumption can therefore lead to increase in tobacco-induced health burden among the poor and contribute to greater inequity in health and economics. Control of biri smoking through increase in biri tax and price should, therefore, be an integral part of tobacco control initiatives in Bangladesh.

Biri manufacturers in Bangladesh have been relying on the economic argument of employment generating capacity of the biri industry as a defense against increasing tax on biri. The point of contention is that the measures that reduce biri consumption, such as higher tax, smoke-free law, ban on advertising and warning labels, would reduce biri production and result in loss of employment for biri workers.

Biri industry in Bangladesh is already under pressure due to the marketing of economy brand cigarettes at affordable prices by domestic as well as multinational manufacturers. Between 2009 and 2017, the percentage of exclusive biri smokers decreased dramatically from 7.4% to 2.8%, while the percentage of exclusive cigarette smokers increased from 10.5% to 11.9%, and the percentage of dual smokers of cigarette and biri decreased from 3.7% to 2.1% (4). The rise in the prevalence of cigarette smoking vis-à-vis the declining prevalence of dual smoking of cigarette and biri indicates shifting consumer preferences from hand-rolled biris to machine-made cigarettes as well as growing affordability of cigarettes (4,5).

The increasing prevalence of exclusive cigarette smoking coupled with population growth contributed to a significant increase in the number of exclusive cigarette smokers by 2.7 million (from 10.0 million in 2009 to 12.7 million in 2017), matched by a reduction in the number of dual smokers (from 3.5 million to 2.3 million) and a much larger reduction in the number of exclusive biri smokers (from 7.1 million to 3.0 million) (4). The price competition among biri manufacturers themselves to survive in this shrinking market is therefore intense.

Between 2009–10 and 2017–18, the price of a 25-stick biri pack increased from BDT 6.00 (BDT 11.21 in 2018 prices) to BDT 12.50. The increase in biri price after adjustment for inflation was 18%, while per capita gross domestic product (GDP) increased by 43% over this period. The slower growth in biri price relative to overall income growth in the economy led to increasing affordability of biri. A study based on individualized measure of affordability (5), demonstrated a significant increase in biri smokers' ability to purchase biri in the recent past – the share of annual per capita household income of a biri smoker required to purchase 100 packs of 25-stick biris decreased from 4.8% in 2009 to 2.5% in 2014–15.

An increase in biri tax inducing price increase at a rate faster than income growth could reduce biri consumption. Previous estimates showed that a 10% price increase would reduce biri smoking prevalence by 4.6% and daily smoking intensity among continued biri smokers by 1.8% with overall reduction in biri consumption by 6.4% (6). Reduction in biri consumption is expected to lead to reduction in biri production and employment loss of biri workers over and above the already occurring loss in employment in the biri manufacturing sector due to shift in demand from biri to cigarette smoking. It is deemed necessary to assess the gross employment impact of biri tax increase in isolation from the declining trend and use appropriate government initiatives to make up for the losses incurred by the families of biri workers.

The National Board of Revenue (NBR) of Bangladesh launched the present study, in collaboration with the Department of Economics, University of Dhaka and the World Health Organization (WHO) in 2012, to obtain a comprehensive understanding of the current employment condition in the biri industry and the implications of biri tax policy change for the livelihood of workers.

The NBR is the central authority for tax administration in Bangladesh operating under the Internal Resources Division (IRD) of the Ministry of Finance (MoF). NBR is responsible for formulation and continuous reappraisal of tax policies and tax laws in Bangladesh. It is responsible for mobilizing domestic resources through collection of excise, value-added tax (VAT), customs and income tax for the government. The efficient and effective implementation of excise tax and VAT applicable to tobacco products including biri, cigarette and smokeless tobacco falls under the jurisdiction of the NBR.

The objectives of this NBR-led study are to undertake the following analysis:

(i) measure the total size of employment in biri manufacturing;
(ii) assess the level of income, assets, education and skill of biri workers;
(iii) identify the sources of income of biri worker households;
(iv) explore alternative and supplemental income earning opportunities of biri workers;
(v) estimate the output elasticity of employment for the biri industry;
(vi) factor in the price elasticity of demand for biri and the output elasticity of employment for the biri industry to link biri taxation to its impact on employment in the biri manufacturing sector;
(vii) evaluate the socioeconomic consequences of closure of biri factories or downsizing of biri production; and
(viii) explore the possibilities of alternative livelihoods for displaced biri workers.

With the above objectives in view, the study used three distinct instruments to collect data on the employment aspects of the biri industry in Bangladesh.

(i) **Census of biri manufacturing industries (CBMI):** All workers in the 198 biri factories operating in 2012 across the country were enumerated.

(ii) **Labour force survey (LFS):** A survey of biri workers was conducted to collect detailed information on the household socioeconomic status, sources of employment and income, receipt of government transfers and benefits, interventions by nongovernmental organizations (NGOs), seasonality of employment, migratory nature of the population and alternative livelihood opportunities of the selected workers.

(iii) **Focus group discussion (FGD):** Three FGDs were undertaken to obtain insights into alternative livelihood options for biri workers.

This report is based on the analysis and findings of the primary data collected using the three instruments.

Section 2 of the report presents the background of the study in terms of biri consumption and trend in biri sales, employment in the biri sector, and the history of biri taxation in the country. Section 3 describes the methodology of the study providing details of the surveys and analytical framework of the estimation of output elasticity of employment and simulation of the impact of biri tax increase on biri sales and employment in the biri sector. The findings of the descriptive analysis on the level of biri sector employment are reported in Section 4. In Section 5, the economic impact of biri tax increase is analysed. Section 6 highlights the regional concentration of biri-dependent livelihoods. The socioeconomic status of biri worker households is presented in Section 7. In Section 8, livelihood options for biri workers revealed in the LFS are discussed. The summary of the discussions held under the FGDs is presented in Section 9. A case study of a former biri worker is presented in Section 10. The report concludes in Section 11 with a set of policy recommendations to provide government support to biri workers who could potentially lose their employment and income in the event of biri tax increase.

2. Background

2.1 Biri consumption in Bangladesh

Bangladesh recorded a remarkable reduction in adult smoking prevalence from 23.0% in 2009 to 18.0% in 2017 according to the Global Adult Tobacco Surveys conducted in 2009 and 2017 (7,8). This decrease in smoking rate reflected largely as reduction in biri smoking. While cigarette smoking prevalence remained almost the same (14.2% in 2009 and 14.0% in 2017), biri smoking prevalence reduced to less than half from 11.2% in 2009 to 5.0% in 2017.

According to Population Census 2011 (9) projection, Bangladesh in 2012 had a population of 152.5 million, of which 69% or 104.8 million were adults. The total number of biri smokers in Bangladesh as of 2012 was 11.735 million (104.8 million adults x 11.2% biri smoking prevalence), who constituted about half of the total smoking population (including cigarette and biri smokers) in Bangladesh. Excluding 2.1% occasional smokers, the total number of daily biri smokers was 9.537 million. With average consumption of 13.8 biri sticks per day (sourced from International Tobacco Control Bangladesh Survey (10)), the total annual biri consumption in the country was estimated to be 48.04 billion sticks (9.537 million daily biri smokers x 13.8 sticks per day x 365 days), which is 458 sticks per adult person.

The estimated 48.04 billion sticks of the total annual biri consumption of daily smokers was about 1.90 billion sticks over the annual production of 46.13 billion sticks reported in the CBMI in 2012 by all running biri factories in the country. The bias could be from the reporting of production by the factories for the last one month, which was converted to annual production by multiplying by 12. A contemporary study also reported a similar magnitude of production at 48.62 billion sticks (11).

According to NBR records, the tax-paid sale of biri was 51.19 billion sticks in the fiscal year 2012–13. By 2016–17, tax-paid sales of biri decreased remarkably by 26.7% in four years to 37.53 billion sticks. During this period, biri price increased by 17.4%. Using a price elasticity of –0.22 (12), it can be estimated that the price increase contributed to 3.8% reduction (17.4 x 0.22) in biri consumption.[1] Price increase thus explains only 14% (3.8 as % of 26.7) of the total decrease in biri sales. The residual 86% decrease can be attributed to the declining trend in biri demand due to a shift in consumption of smoked tobacco products in Bangladesh from biri to cigarette, and other unobservable random disturbances.

2.2 Employment in the biri industry

According to the LFS, 112,117 workers were employed in biri manufacturing during 2005–06 (Table 1; see Annex B). These accounted for almost 87% of the total employment in all tobacco manufacturing activities and 2% of all manufacturing employment in the country. No update has been available since 2005–06 at the national level for employment statistics of biri manufacturing. The present study filled the gap by enumerating workers in all biri factories operating at the time of the survey in 2012.

[1] The effect of income growth is expected to increase biri consumption, as generally reflected in positive income elasticity. However, the net effect of income growth on biri consumption can be negative as biri smokers are likely to switch to low price cigarettes when they experience increase in income and ability to purchase better quality products. This effect is captured in the residual structural change.

2.3 Biri taxation

The excise tax on biri, known as supplementary duty, is tiered ad valorem varying by type of biri (filtered/nonfiltered). Up to fiscal year 2016–17, the base for calculating the excise tax was the tariff value per pack fixed by the government. The number of nonfiltered biris per pack varied from 8 to 25 sticks and the tariff values were higher for larger pack size (though, per stick the tariff value was same, for example, BDT 0.28 per stick of nonfiltered biri in fiscal year 2016–17). In addition to the supplementary duty, 15% value-added tax was imposed on the tariff value and excise tax of biris. The biri tax structure was essentially tier specific as the amount of tax liability per pack for each category of biri was fixed.

As shown in Table 2 (see Annex B), the supplementary duty on nonfiltered biri for the 25-stick pack was 20% with tariff value BDT 2.83 from 2005–06 to 2007–08. The tariff value was increased to BDT 3.16 in 2008–09 and then to BDT 3.88 in 2013–14 keeping the same tax rate.

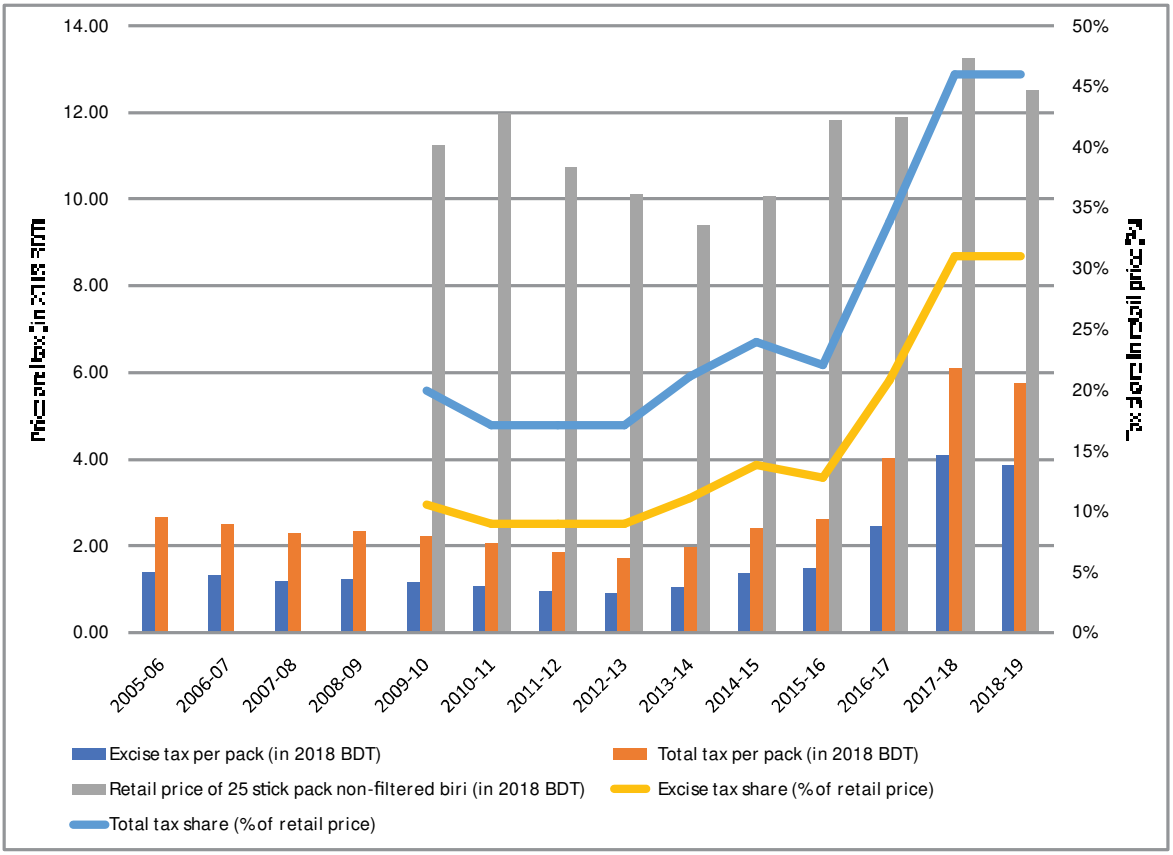
In 2008–09, a supplementary duty at the rate of 25% was introduced on 20-stick pack of filtered biri with a tariff value of BDT 3.43. The tariff value was raised to BDT 4.22 per pack in 2013–14 with the same tax rate.

In 2011–12, the biri industry bargained with the NBR to introduce 12-stick and 8-stick packs of nonfiltered biri and 10-stick packs of filtered biri in the market at existing tax rates for nonfiltered and filtered biri. The introduction of smaller size packs was intended to induce increase in biri purchase in packs and greater consumption. However, the dominance of 25-stick packs of nonfiltered biri sustained the market share, i.e. 99.8% in 2012–13 continued to be 99.3% in 2016–17.

In the 2013–14 budget, the tariff values were slightly raised without altering the tax rates. As the base of the tax was the tariff value, which was roughly half the retail price, the share of excise tax in the retail price of biri was negligible. The estimated excise tax share in the retail price of nonfiltered biri was only 11.1% and of filtered biri was 10.6% in 2013–14 (Table 3; see Annex B). These shares were well below the WHO recommended share of excise tax at 70% of the retail price. Including both excise and VAT, the total tax shares were 21.1% and 18.5%, respectively for nonfiltered and filtered biri.

The tariff value for biri supplementary duty was meant to be the pretax price equivalent. The difference between the pretax price and the tariff value gets accrued to the biri manufacturers as profit for the most part, after accounting for minimal production costs. This large gap was responsible for the low excise tax share in the retail price of biri. After several adjustments in the tariff values and supplementary duty rates, as shown in Table 2 (see Annex B), the tax base for biri tax was shifted from tariff value to maximum retail price in fiscal year 2017–18. The effect of this reform got reflected in the increase in excise tax share to 31% for nonfiltered biri and 36% for filtered biri, and in the total tax share to 46% for nonfiltered biri and 51% for filtered biri (Table 3; see Annex B).

Figure 1: Retail price, excise and total tax of 25-stick pack of nonfiltered biri (in 2018 BDT), 2005–06 to 2018–19



Overall from 2005–06 to 2012–13, we observed that both excise and total taxes per pack of biri decreased after adjustment for inflation (Figure 1). The upward adjustments in tax rates and tax base resulted in gradual increases in the tax per pack of biri and the tax share in retail price since 2012–13. Between 2012–13 and 2018–19, the excise tax per pack more than quadrupled and the total tax more than tripled. However, the increase in biri price was much less dramatic (only 24%) in real terms over this period, making it evident that the tax increase was not fully passed on to price increase. The biri industry undershifted the tax increase to keep biri prices relatively low and increase biri affordability.

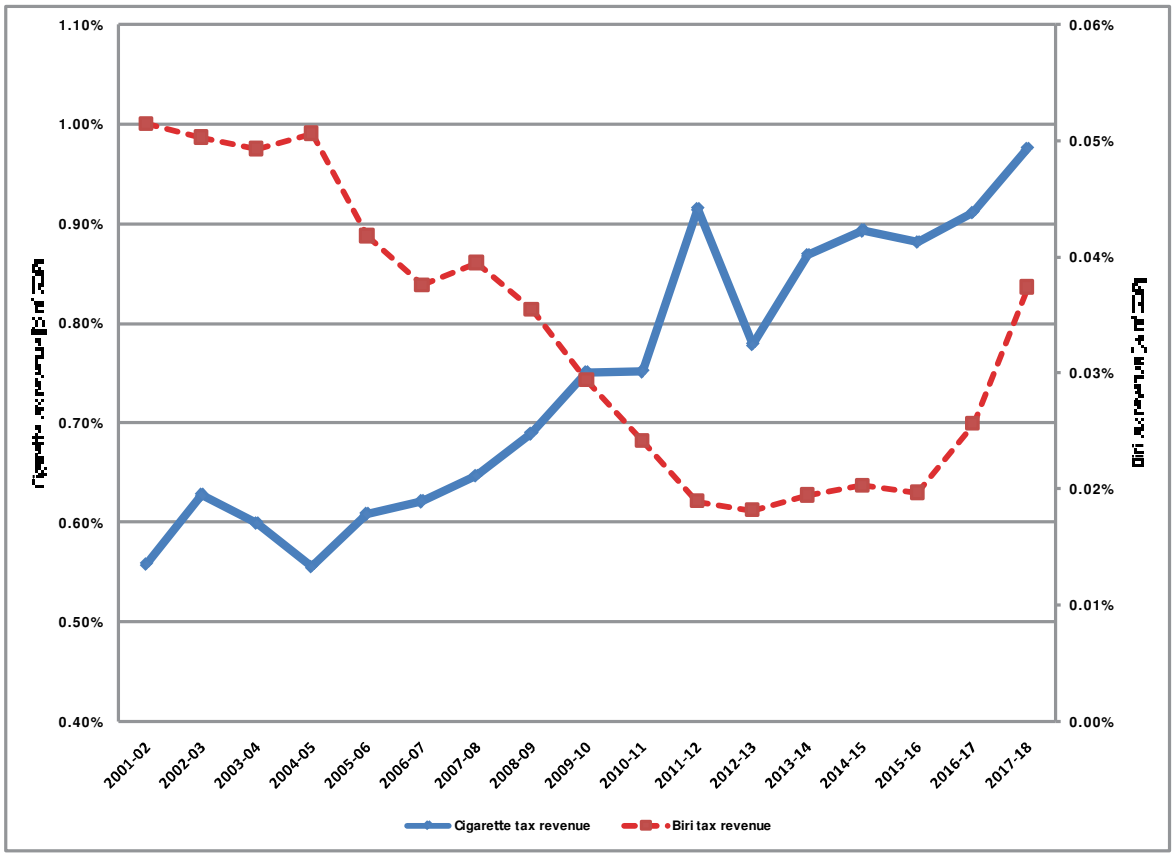
2.4 Biri tax revenue

Compared to cigarette tax revenue, the contribution of biri tax revenue to the economy of Bangladesh has been minimal. In 2017–18, supplementary duty and VAT on cigarettes generated BDT 219.7 billion (0.98% of GDP), while taxes on biri generated BDT 8.4 billion (0.04% of GDP). Over time, the contribution of cigarette tax revenue as percentage of GDP showed an upward trend, while that of biri declined until 2012–13 but has started to increase in recent years (Figure 2). Nevertheless, the contribution of cigarette tax revenue towards total tobacco tax revenue continued to increase – 96% in 2017–18 compared to 92% in 2001–02. These trends indicate a growing dominance of the cigarette industry and decline of the biri industry in generating tax revenue.

The large and widening gap in revenue generation of cigarette and biri industries is attributable in part to the volume growth in cigarette sales vis-à-vis declining biri sales. During the decade, 2006–07 to 2016–17, tax-paid sales of cigarettes increased from 44.2 to 84.4 billion sticks (91% increase), while biri sales decreased from 50.3 to 37.5 billion sticks (25% decrease).

The revenue gap can also be explained by huge and persistent differentials in statutory tax rates and incidence between the two products. In 2006–07, the supplementary duty for cigarettes was 32% of the retail price for low brands, 52% for medium brands, 55% for high brands and 57% for premium brands. In contrast, the supplementary duty on nonfiltered biri was 20% of the tariff value, which implies an even lower tax burden as percent of retail price because the tariff value was much lower than the retail price. The supplementary duty for cigarettes including health development surcharge was gradually raised to 51% of the retail price in low tier, 63% in high tier and 65% in premium tier by 2016–17. In the same year, the supplementary duty was 30% of the tariff value for nonfiltered biri and 35% of the tariff value for filtered biri, again implying much lower tax burden (20.7% of retail price for nonfiltered biri and 23.2% for filtered biri).

Figure 2: Trends in cigarette and biri tax revenues as percentage of GDP, 2001–02 to 2017–18



Source: National Board of Revenue.

3. Methods

3.1 Data collection

3.1.1 Census of biri manufacturing industries

The NBR undertook a full enumeration of 198 biri manufacturing establishments operating across the country in 2012. Following the questionnaire of the Survey of Manufacturing Industries of the Bangladesh Bureau of Statistics, a CBMI questionnaire was designed to collect information on the ownership status, fixed assets, wage/salaries and employment of labour/staff, operational cost, tax payments, production and sales of the enumerated establishments (see Annex C). It took about half an hour for a key informant from each establishment, such as the manager of the firm, to fill in the census form.

Six teams of enumerators, each with one representative member from the NBR and one field investigator, were involved in conducting the census during September to November 2012. The enumerators were trained at the Tobacco Tax Cell of NBR prior to the fieldwork.

The enumerators obtained written consent from the respondents for their voluntary participation in data collection. The consent form stated that the identity of the respondents would remain strictly confidential and only be available to the researchers involved in the study. The study received ethical clearance from the Bangladesh Medical Research Council.

3.1.2 Labour force survey of biri workers

LFS was conducted to collect information on the household socioeconomic status, sources of employment and income, receipt of government transfers and benefits, interventions by NGOs, characteristics of current employment and alternative livelihood opportunities of selected workers from biri factories enumerated in the CBMI. See Annex D for the survey questionnaire.

From the roster of biri workers in each factory, 5% workers were randomly selected for interviews for the LFS. In total, 1746 workers were interviewed. On average, it took about 45 minutes to complete the interview of each biri worker.

3.1.3 Focus group discussion with key informants

Three FGDs – one in Dhaka and two in Tangail district – were organized with stakeholders including factory owners, labour associations, local NGOs, and members of civil societies. Each group consisted of seven to 10 participants. The coinvestigator of the project facilitated the discussion. One study team member accompanied the coinvestigator as an observer in meetings with focus groups. For transcription purposes, the discussion was recorded electronically. The head office of the NBR in Dhaka and the local office of NBR in Tangail organized the discussion sessions. The script for conducting FGDs is enclosed in Annex E. It took about an hour to complete an FGD.

3.1.4 Case study

A case study was conducted to represent individuals or families who were previously employed in biri factories but had moved to a different occupation on their own. The case study recorded why and how a former biri worker changed his occupation. This study explored whether this case could act as model for unemployed biri workers in general.

3.2 Descriptive analysis

Based on CBMI data, the number of people working in 198 biri factories across the country was counted. Those working on the factory premises as regular employees were classified by their position, such as owner employees, administrative staff, clerks, permanent production workers, daily labourers and unpaid family labourers. Those who rolled biri on a contractual basis and were working from home were identified as contract workers.

The regular production workers on the factory premises were classified under three different heads, namely:

(i) permanent and temporary workers;
(ii) full-time and part-time workers; and
(iii) skilled, semi-skilled and unskilled workers.

All types of workers were further classified as adult male, adult female and children (below 18 years of age).

The CBMI collected data on the total payment (for wages, salaries and other benefits to the regular employees) stratified into administrative employees, production workers and owner employees in each factory in the last one month. This total payment was divided by the total number of employees for each category to estimate the average monthly income of the employees for each category in a factory. Then the monthly income per employee was averaged over 198 factories by category of employee.

All production employees working on the factory premises were listed for selection through random sampling. Selected workers were then interviewed to record the average number of work hours per day and the number of days they worked in the past one month. The data on average work hours and days were used to determine the full-time equivalent (FTE) employment status of regular production workers.

The contract workers get paid on piece rate basis and hence the factories did not record their work hours. The study estimated the rate of capacity utilization using their output as percentage of the total capacity of production had they been fully employed (i.e. working 2000 hours annually). The FTE employment of the contract workers was then determined by multiplying the number of workers by the rate of their capacity utilization. The sum of FTE employment of the regular and contract production workers provided the estimate of total direct employment in the biri industry. This estimate was used as a baseline to project the impact of increase in biri tax on employment in this sector.

3.3 Estimation of output elasticity of employment

The elasticity of employment with respect to output is a measure of the responsiveness of employment to changes in the output level. To assess the effect of biri tax increase on biri sector employment derived from decrease in biri production and sale, the output elasticity of employment was estimated by the percentage change in FTE employment in biri factories in response to a given change in the market sales based on the production function for the biri industry. For this purpose, the demand for labour function was estimated.

The demand for labour function derived from the production function specifies that employment is dependent on the level of output and capital (fixed assets). In addition, it is expected that the type of ownership of firms would make a difference in the level of employment. For example, firms under individual ownership are likely to be smaller in size

than firms under partnership or private limited company or cooperatives, and hence are expected to employ fewer workers. Also, the regional concentration of biri factories in some areas of the country explains higher level of employment in those areas. So, the location of the biri factory by district was controlled for in the regression analysis. The technical details of the analysis are provided in Annex A.1.

3.4 Simulation of the effect of increase in biri tax

In order to project the economic impact of increasing biri tax, a simulation was carried out under different scenarios of the excise tax rate on biri to estimate the effects on the following indicators:

i. Retail price of biri
ii. Aggregate biri consumption and sale
iii. Aggregate full-time equivalent employment in the biri industry
iv. Government tax revenue from biri
v. Number of lives saved from premature mortality attributable to biri smoking.

The steps involved in the simulation exercise are described in detail in Annex A.2.

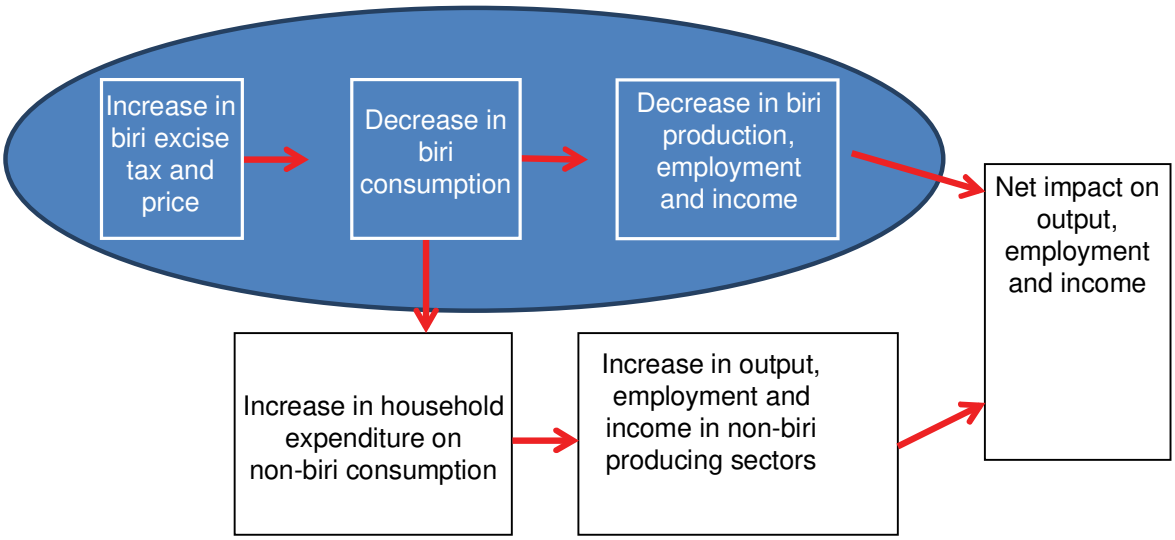
3.5 Gross versus net effect on employment

The measure of employment loss derived from the simulation exercise shows the “direct” gross effect of tax increase on employment in the biri sector. There would be a reduction in consumer spending on biri due to reduced consumption. It would be reallocated to the consumption of other products, the demand for which would increase leading to increase in production and employment opportunities in sectors producing those commodities. Thus, the employment loss in the biri industry would be at least partially offset by the gain in employment in other sectors. The net effect on employment is the sum of these changes in employment, which is expected to be less than the gross effect on employment in the biri industry.

The assessment of the net employment effect, however, requires a general equilibrium framework (input–output or the IO approach) to be able to allocate resources released from the biri sector to other productive sectors that can potentially draw on these resources. A number of previous studies have taken this approach in analysing the employment effect of increase in cigarette tax and reduction in cigarette consumption (13–15). Since biri is mostly consumed by the poor segment of the population and hence competes with the basic necessities of life, it is likely that the gain in employment would occur in sectors producing food, education, health care, and housing, for example. Studies done using the IO approach showed that tobacco control policies do not have a negative effect and may even have a small positive effect on total output and employment in the national economy, except in a few countries that are heavily dependent on tobacco production (16). These studies showed that in the end an increase in tobacco tax would lead to more jobs in the economy outside of tobacco-related activities.

The underlying assumption of the assessment of the net effect on employment is that the resources released from this declining sector would be allocated to other sectors by market forces. However, the assumption of the free market principle may not necessarily be applicable to the workers in the lower end of the income spectrum, whose livelihood is largely dependent on biri making and who do not possess skills marketable to other economic sectors. The present study is, therefore, limited to the assessment of the gross effect on employment only. The scope of the study is shown in the blue-circled part in the flowchart below.

The net effect of increase in biri excise on output, employment and income



The decrease in biri industry employment estimated in this study is expected to occur in addition to the declining trend that has already been taking place over the past decade due to smokers switching from biri to cigarette (which is attributable to increase in consumer income and shift in preferences) and growing competition with the cigarette industry. Thus, the tax increase may accelerate the process of employment loss that has already been taking place in the biri industry due to the declining trend of the industry as a whole.

4. Size of employment in biri factories

4.1 Number of persons employed in the biri industry

Employment in the biri producing sector can be classified into four categories:ment, such as the manager of the firm, to fill in the census form.

(i) Tobacco cultivation for biri making
(ii) Biri rolling
(iii) Administrative and clerical job in biri manufacturing establishments
(iv) Biri distribution and retailing.

Among these four categories of employment related to biri production and distribution, the study focused on the second and the third categories that were directly involved with biri rolling in the factory premises.

In addition to “direct” employment in biri manufacturing, there exist “spin-off” jobs, such as “indirect” jobs generated by purchases made by biri manufacturers and “induced” jobs created by purchases made by people who receive income from biri manufacturing. The size of employment estimated in this study excluded “indirect” and “induced” jobs and included only the “direct” jobs available in the biri manufacturing establishments.

As of October 2011, 493 biri factories were registered with the NBR. By 2018, the number of registered biri factories rose to 530. At the time of the survey (September–November 2012), 198 factories were found operational and the rest were closed. The closed industries stopped their production either temporarily or permanently and yet continued their registration with the NBR. However, among the 198 operating factories, only 69 reported positive sales in the last month before the survey, which reflects interrupted process of production and sales around the year.

The 198 operating factories had 32,180 persons working on the factory premises – 1,517 administrative staff and 30,663 production workers (Table 4; see Annex B). Among the production workers, 94% were daily labourers. Female employees were 33% and child employees were 4% of all the persons employed within the factory premises.

Table 5 (see Annex B) shows a further breakdown of production workers on the factory premises by type of labour. Most of them appeared to work on a temporary basis (94%)/part-time (75%), and were skilled in biri making (91%). Further breakdown by age group and gender revealed that almost all (over 99%) female and child workers were temporary. A relatively large percentage of male workers (77%) were employed part-time compared to female (72%) and child (65%) workers.

Apart from the regular employees working on the factory premises, biri factories contract-out biri rolling and tobacco dust filling to a number of contractors who then commission the work to their family workers. Thus, a part of the biri industry runs as a cottage industry subcontracted from the manufacturing units. In total there were 134,927 such contracted biri workers (Table 6; see Annex B). The total size of the contract biri workers was much lower than the corresponding count (220,000) in a contemporary study of 2012 (11). About 10% of these people received contracts for biri rolling and tobacco dust filling from the factories and the rest worked under their supervision. An overwhelming majority (75%) of these contract workers was made up of women and children – 71,614 were adult female workers and 30,230 were child workers. It should be noted that the Bangladesh Labour Act 2006 prohibits the appointment of children under the age of 14 years in the formal sector.

Only designated contractors were listed with biri factories, and not the contract workers. Their count was 14,011 including contractors for rolling biri and contractors for filling tobacco, as given in Table 6. There was a possibility of some overlap between the two types of contractors, in which case the numbers would be lower. Adding 14,011 contractors to the 30,663 regular workers on the factory premises, the total number of listed workers was 44,674, far lower than the 65,000 reported in another study (11).

4.2 Working hours and wages of biri workers on the factory premises

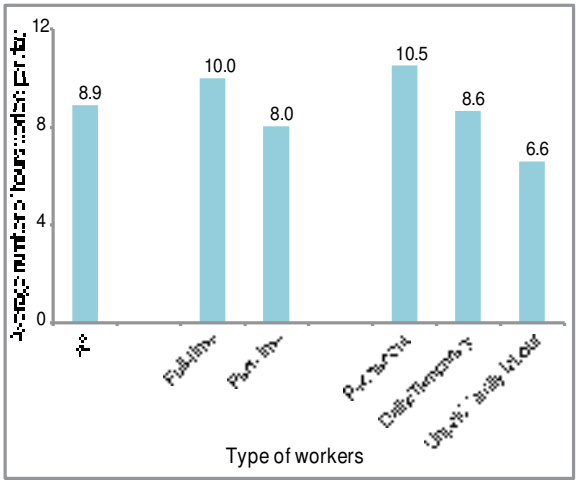
As discussed in the earlier section, two major categories of workers were involved in the biri making process:

(i) those who worked on the factory premises under regular contract; and
(ii) others who worked from home on a piece rate basis.

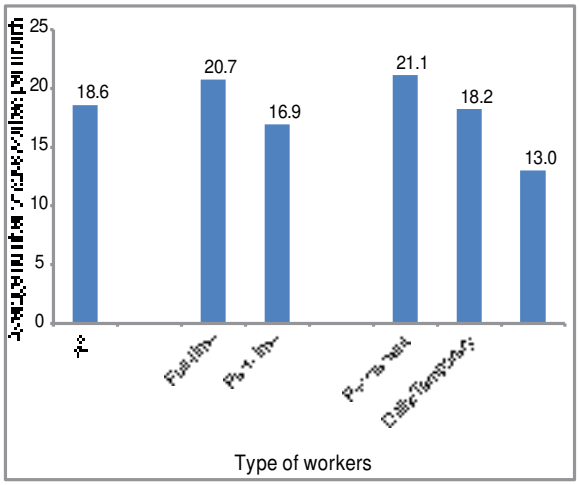
In the CBMI, regular production workers were asked about their working hours and wages from employment in the biri factory. On average, regular production workers worked for 18.6 days a month and 8.9 hours a day. The full-time workers worked 20.7 days a month and 10 hours a day, while part-time workers worked 16.9 days per month and 8 hours a day. As expected, part-time workers worked fewer days in a month and fewer hours per day. A similar trend was observed when permanent workers were compared with daily labourers/temporary workers and unpaid family labourers (Figures 3a and 3b).

Figure 3: Average number of days per month and hours per day worked by type of workers on biri factory premises, 2012

(a) Hours per day



(b) Days per month



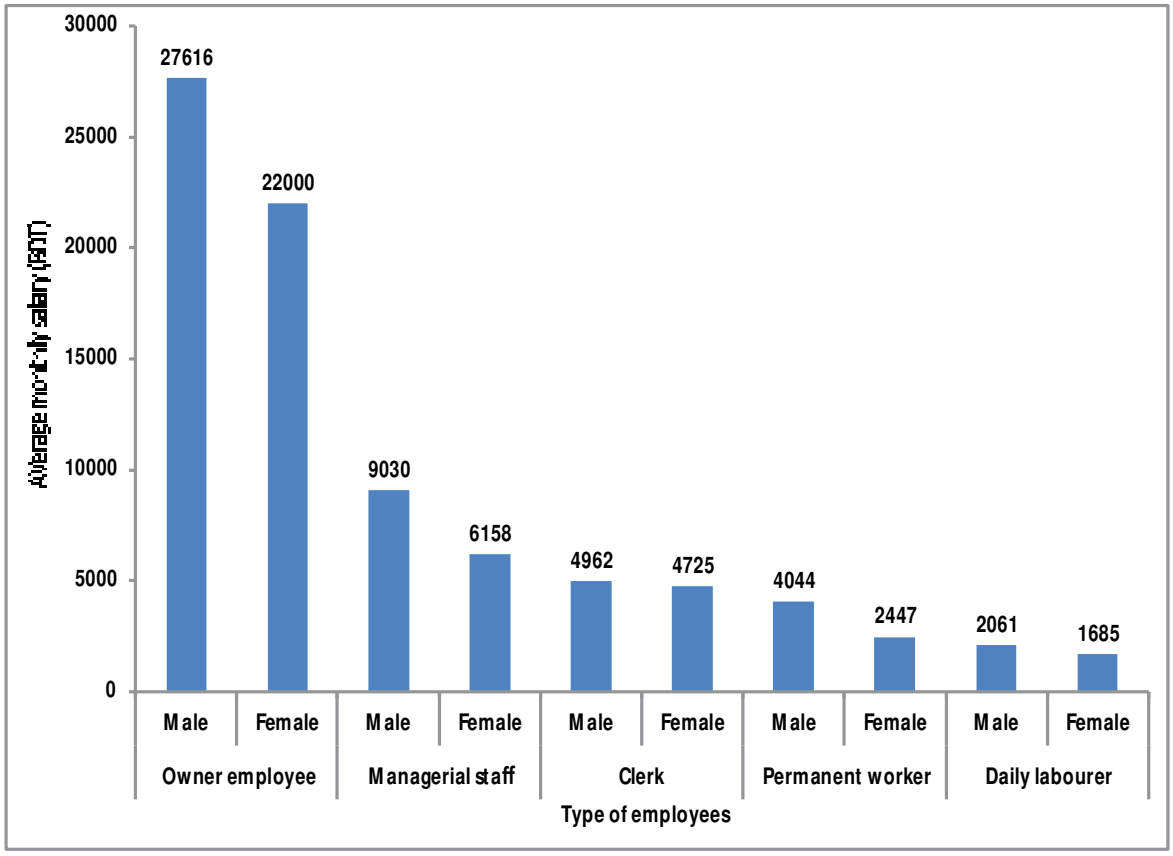
Source: Census of biri manufacturing industries, 2012.

Biri making involves a few stages including the preparation of tobacco dust, rolling paper, filling tobacco dust into the rolled paper, packaging and gluing stamps. While there may be some division of labour and specialization within each factory, most of the workers (81%) reported their involvement in almost all these stages of production.

The breakdown of the average monthly salary by type of workers distinctly revealed a hierarchy in the salary structure of regular employees on the factory premises. It ranged from the lowest salary for daily labourers, below BDT 2,000 per month, to the second lowest salary for permanent workers, from BDT 2,000 to BDT 4,000, to the salary for clerks,

from BDT 4,000 to BDT 5,000, to the salary of managerial staff, from BDT 6,000 to BDT 9,000, and finally to the much higher level of salary of the owner employees, from BDT 20,000 to BDT 30,000 per month (Figure 4). For each category of employee, females generally received lower salary than their male counterparts.

Figure 4: Average monthly salary (in BDT) by type of employee on biri factory premises, 2012



Source: Census of biri manufacturing industries, 2012.

As of 2012, the average daily wage rate was BDT 146 for the daily labourers in biri making - BDT 174 for male daily labourers and BDT 117 for female daily labourers. After adjusting for annual rate of inflation at 8%, these wage rates were equivalent to BDT 138 and BDT 93 for males and females respectively for 2009-10. These wage rates represented 53% and 45% higher wage rates above the average male wage rate of BDT 90.33 and average female wage rate of BDT 63.89, respectively, for biri binding reported by the Bangladesh Bureau of Statistics for the working poor for the year 2009–10 (17). The inflation-adjusted wage rates reported in the CBMI, however, closely resembled the corresponding national average wage rates at BDT 133.02 for males and BDT 96.03 for females for 2009–10.

Those who worked on a piece rate basis were paid BDT 22 per 1,000 sticks on average, which was similar to the range reported in another study, i.e. BDT 21–30 per 1,000 sticks of biri (11).

4.3 Full-time equivalent employment

A full-time employed person is expected to work 40 hours a week or 2,000 hours (50 weeks x 40 hours) a year. The CBMI showed that biri industry workers who were employed on a regular basis on the factory premises worked 1986 hours a year on average (18.6 days per month x 8.9 hours per day x 12), which was approximately the full-time equivalent annual hours of employment. However, CBMI also reported that biri factories operated less than 40 hours a week. The average number of days operated in a week was 3.4 and the average number of hours worked per day was 7.7. Thus, on average, the factories operated 26.1 hours a week or 1,303 hours a year (50 weeks x 26.1 hours), which was 65% of the full-time capacity of 2,000 hours. This suggests that the number of hours reported for individual workers in CBMI was overstated. The number of working hours per day and working days per week reported by the biri workers themselves in the LFS (reported in Section 7.3 later in this report) confirms this overstatement. The study therefore adjusted the FTE of 30,663 regular production workers and 1,517 administrative staff (total of 32 180) using the rate of capacity utilization. The FTE of regular production workers and administrative staff working on the factory premises was thus 20,969 (32 180 x 65%).

The work hours of contract workers hired on a piece rate were not recorded. In order to assess the FTE for these workers, the study used output-based calculations. Under the standard assumption that it took three full time workers to produce 10,000 biris per day, 167,107 workers (30,663 regular workers + 134,927 contract workers including contractors) have the capacity to produce 137 992 million sticks [(167,107 x (10,000/3)/1,000,000) x 50 weeks x 5 days] annually. The CBMI indicated that the total annual production in the 198 factories was 46,134 million sticks, which was 33% of the potential output level when all the workers involved in the industry were fully employed. Considering that the 30,663 regular production workers on the factory premises work at 65% of their full-time capacity and the actual production is 33% of the potential output, the rate of full-time capacity utilization (C) for 134,927 contract workers using the following formula, which solves for C = 25.73%, was calculated as:

134,927 x C + 30,663 x 65% = (134,927 + 30,663) x 33%

Applying 25.73% rate of full-time capacity utilization to contractual work,
the FTE of contract workers was 34,714 (134,927 x 0.26).

The total FTE employment in the biri industry including regular and contractual employment was thus estimated to be 55,682. Among them, the FTE employment of only production workers was 54,694. Excluding children, the FTE size of employment of adult production workers reduced to 46,916.

5. Economic impact of biri tax increase

An increase in biri tax is expected to raise the price of biri inducing existing biri smokers to quit or cut down their daily use and preventing young people from initiating biri smoking. As a result of this decrease in biri consumption, biri manufacturing would have to cut down their production and sales. They would therefore require less people for biri-making resulting in loss of employment for biri workers. This section presents the expected loss of employment from a given reduction in biri production and links it to biri price and consumption to estimate the effect of an increase in biri tax on employment in the biri industry.

5.1 Output elasticity of employment in the biri industry

The output elasticity of employment in the biri industry was estimated to be 0.72, as shown in the estimated derived demand for labour function in equation (1) below:

$$\widehat{lnLi} = -6.26 + 0.72 \; **lnYi + 0.00\, Ki + Type\ of\ ownership\ effects + Location\ effects$$

Number of factories = 198 Adjusted R2 = 0.92 (1)

Note: *** implies significant at 1% level.

The result states that if production goes down by 10%, employment would go down by 7.2%. For example, consider a biri factory that currently employs 1000 full-time workers who produce 40 million sticks per month. If the biri factory cuts down monthly production by 4 million sticks (which is 10% of 40 million) over a year, 72 full-time workers (7.2% of 1,000 workers) would lose their employment from this factory as a consequence.

5.2 Effect of biri tax increase on biri consumption and output

The reduction in biri consumption from a given increase in tax and price can be predicted using the price elasticity of demand for biri, which was estimated to be –0.22 in a previous study (12). This means that a 10% increase in price leads to 2.2% reduction in biri consumption. For example, if the price of 25-stick pack of nonfiltered biri increases from the current level of BDT 12.50 to BDT 13.75 (10% increase), the total consumption of biri in the country would go down from the current level of consumption of 37.53 billion sticks by 0.83 billion sticks (2.2% of 37.53 billion).

This small magnitude of the estimated effect of change in price on biri consumption is attributable to the existing low level of price of biri, as well as little variation in price in the individual level survey data for two consecutive years that was used in the cited study to estimate the price elasticity (12). As biri tax and price become higher, in the long term the price sensitivity of biri smoking is expected to be greater and the effect of tax increase on lowering biri consumption is likely to be stronger.

As a way forward from the current state of biri taxation in Bangladesh, we considered two scenarios that would yield equivalent increases in price. The first scenario involved increasing the supplementary duty on biri to 55% of the retail price, which would create parity with the current supplementary duty for 'low' segment cigarettes.[2]

[2] The supplementary duty rates on cigarettes for fiscal year 2018–19 were:

Retail price/pack of 10 (BDT)	Segment	Supplementary duty (% of retail price)
35.00 +	Low	55%
48.00 +	Medium	65%
75.00 +	High	65%
105.00 +	Premium	65%

The second scenario involved introducing a specific excise on biri at BDT 0.20 per stick and increasing the supplementary duty to 40% of retail price. In either scenario, the price increase was expected to be 111% for nonfiltered 25-stick pack and 89% for filtered 20-stick pack, under the assumption of full pass through of the increase in tax to consumers (Table 7; see Annex B).

The tax and price increases noted above implied increase in excise tax share from 30% for nonfiltered biri and 35% for filtered biri to 55% for both types of biris. The total tax share including supplementary duty, health development surcharge and value-added tax would account for 71% of retail price for both biri types.

Following the price increase, annual biri sale is expected to decrease by 24%. With additional decrease in biri sales by 6.5% attributable to the declining trend, total annual biri sales is expected to decrease by about 10 billion sticks (Table 7). The reduction in biri sales is expected to lead to a similar reduction in biri production, under the assumption that all were tax paid sales.

5.3 Effect of biri tax increase on employment and income of biri workers

The effects of biri tax and price increases on employment and income of biri workers, and government tax revenue were compared with the baseline tax rates of 30% supplementary duty on nonfiltered biris and 35% supplementary duty on filtered biris (Table 7). The reduction in production consequent upon the reduction in sale attributable to tax and price increase was expected to result in 18% reduction in FTE employment, or loss of 7012 full-time jobs. The declining trend of the biri industry is likely to cause further decrease in FTE employment by 1,862 full-time jobs totaling 8,874 jobs.

Since the daily labourers would be the first to feel the effect of cut in production and employment in the biri industry, we used their average income of BDT 2,061 per month per FTE employed person in 2012, adjusted it to BDT 2,651 using wage inflation from 2012 to 2018–19, and estimated the total loss of income at BDT 359 million a year from the predicted employment loss.

As mentioned in Section 4.1, 94% workers were temporary and 75% workers were part-time. The workers to lose their job first are most likely temporary or part-time workers whose livelihood is not completely dependent on biri making. These workers have other sources of income and hence their livelihood would be only partially affected by loss of job in the biri industry compared to those who are permanent or full-time workers. The policy implication of this finding is that these workers can be compensated for their loss of income from biri making by enhancing income earning opportunities and utilization of their time in other economic activities that they are already employed in besides biri making.

5.4 Effect of biri tax increase on government revenue

Following the biri tax and price increases, as mentioned above in the first scenario, biri tax revenue would more than double from the current estimated level of BDT 7,408 million to BDT 17,654 million (equivalent to USD 211 million), marking BDT 10,246 million in additional revenue or 125% increase after adjustment for inflation (Table 7). The revenue gain is expected to be larger in the second scenario, i.e. BDT 10,948 million or 134% increase in real terms.

The estimated annual loss of income to the biri workers, who would lose their job because of the tax and price increase and/or declining trend, would be only 3.5% of the estimated revenue gain of BDT 10,246 million in scenario 1 or 3.3% of the estimated revenue gain of BDT 10,948 million in scenario 2.

The net benefit of increasing biri tax thus appears to be positive and significantly high. It implies that biri workers can be more than compensated for their income loss if the extra revenue is channeled to the cause of retraining and redeployment of unemployed biri workers.

The extra revenue generated from biri tax increase can be allocated to boost gainful economic activities in biri producing regions so that unemployed biri workers can find better alternative employment opportunities.

In making all these projections, it is important to consider the relative price and substitutability of cigarettes and biris. For example, if cigarette price does not increase while the biri tax and prices are raised, biri price (projected to be BDT 28 per 25-pack nonfiltered biri and BDT 30 per 20-pack filtered biris in both scenarios) would reach that for the current minimum price per pack of 10 cigarettes (BDT 35) when the tax increases further. Biri would be competing with the cheapest cigarettes belonging to the low segment inducing some smokers to switch upward to cigarettes. Note that the upward migration of smokers is already happening and this effect on biri sale and employment has been captured in the reduction due to declining trend as shown in Table 7. This trend could be accentuated due to the change in relative price and substitution of cigarette for biri.

5.5 Public health implications of biri tax increase

According to a recent study conducted in 2018 by the Bangladesh Cancer Society in collaboration with the University of Dhaka, every year tobacco use and second-hand smoke exposure cause 125 718 deaths among the Bangladeshi population, which is 13.5% of all cause deaths (18). The Global Burden of Disease Study 2017 also estimated 113 670 deaths attributable to tobacco use and second-hand smoke exposure in 2017 (19). Clearly, the annual death toll due to tobacco has doubled since the last estimate of 57,583 tobacco-attributable deaths obtained in 2004 (20). The burden of disease and premature mortality is going to increase over time unless adequate and timely measures are taken to prevent the tobacco epidemic.

The present analysis simulates the effect of biri tax policy change proposed in the previous section on the number of current and future smokers and the total number of deaths that would be caused by biri smoking over the life cycle of the current living cohort of the population.

Given the population size at the time of the study at 159.5 million, of whom 115.9 million were aged 15 years and older, and daily biri smoking prevalence in this subpopulation at 5.0% (8), there were 5.80 million biri smokers aged 15 years and older in Bangladesh. According to the US Surgeon General's Report 2004, more than one-in-two lifetime smokers are likely to die prematurely from smoking related diseases (21). A conservative estimate, assuming that 40% of current biri smokers would die prematurely, is that 2.32 million people 15 years and older who are currently smoking biri would die prematurely of smoking-related diseases. Assuming the same future rate of biri smoking prevalence, of the estimated 2.18 million future biri smokers from the current youth cohort (below 15 years of age), 0.87 million would die prematurely from smoking-related diseases. The total number of premature deaths among current and future smokers would thus be 3.19 million.

Based on a previous estimate of the price elasticity of biri consumption at –0.22 (12), we assumed that half of the total reduction in biri consumption among adults resulted from a reduction in biri smoking prevalence and the other half resulted from reduction in smoking intensity among continuing biri smokers. Thus, the assumed price elasticity of biri smoking prevalence was –0.11. Since the percentage increase in price was the same in the two scenarios considered for biri tax increase, we presented the public health impact of the tax and price increases as a single scenario in Table 8 (see Annex B).

Current biri smoking prevalence is expected to decrease to 4.4% with 628,467 fewer current biri smokers. Under the assumption that 70% of those who quit smoking could survive their normal expected lifetime, this reduction in biri smoking prevalence would imply 175,971 fewer premature deaths among current adult biri smokers.

Since the price sensitivity is greater among youth than adults, we assumed the price elasticity of smoking prevalence to be twice as much as the value considered for adults. Then the tax increase in consideration could keep 541,909 potential future biri smokers from initiating biri smoking, thus averting 216,763 premature deaths among the current young population.

Thus, 392,734 premature deaths attributable to biri smoking can be averted among the current adult and young population. The potentially averted deaths accounted for 12.3% of all premature deaths in the total population that was attributable to biri smoking. The potential for saving lives would be even greater with higher tax rates.

The estimates in this simulation, however, are slightly optimistic in assuming that all the people giving up biri smoking will quit smoking altogether. A certain fraction of these people could choose cigarettes and continue smoking. In that case, the number of premature deaths averted by exclusive increase in biri tax may fall short of the intended outcome. It is therefore necessary to harmonize the tax increase on both biri and cigarettes.

6. Regional concentration of biri-dependent livelihoods

The operational 198 biri factories are located in 37 of the 64 districts in the country. The location of biri factories is heavily concentrated in the northern districts of the country – 103 factories (52%) are located in 10 districts of Rangpur and Rajshahi divisions. About half of these factories (53) are located only in Rangpur district within Rangpur division. This division is also the most economically depressed region in the country, particularly the rural areas. The incidence of poverty is the highest in Rangpur division and has increased between 2010 and 2016, while the poverty rate has gone down at the national level and in all other divisions over this period (Table 9; see Annex B).

From the manufacturer's perspective, the choice of location of an overwhelmingly labour-intensive industry, such as biri-making, is strategic because they want to make use of the cheap labour available in the economically disadvantaged geographical areas of the country to minimize cost of production.

Among the 214 closed biri factories, 55% were located in only three districts – Rangpur, Pabna and Bogra – which are in the northern region of the country. The closed factories in the 10 districts of Rangpur and Rajshahi areas accounted for 70% of all closed biri factories showing again a remarkable regional concentration of employment loss in the biri industry.

The CBMI further showed that, of all the people employed in regular and contractual jobs in the biri industry, 37.2% were located in Rangpur district only. The second largest concentration of biri sector employment was in Kushtia district (20.8%). Thus, these two districts covered 58% of the total employment in the biri industry (Table 10; see Annex B). This regional concentration of biri sector employment has critical implications on the fear of loss of employment in the event of biri tax increase and downsizing of production. If 1000 workers lose their work in this sector in a year, it can be anticipated that about 60% of them, i.e. 600 jobs, would be lost in only two districts. The regional concentration of biri factories and employment indicates that targeted government interventions would be necessary at the district level, with focus on the Rangpur region, to provide incentives to new entrepreneurs to invest in gainful economic activities in the region that would create employment opportunities for unemployed biri workers in other sectors.

The reasoning from the macroeconomic perspective is that while biri-producing districts may face gross employment loss in the event of decline in biri consumption and production, non-biri producing districts would experience gross employment gain due to reduced spending on biri and increased spending on other commodities. A recent analysis showed that reducing tobacco use would be economically beneficial in Bangladesh through the reallocation of resources from the tobacco sector to nontobacco sectors with growth in overall output, factor return and household income (22). The net employment effect is therefore expected to be positive when the employment effects in both biri-producing and non-biri producing districts are combined, although to a lesser extent in the biri-producing districts. Thus, at the national level, the net employment gain is likely to be positive.

Furthermore, the adjustment in the employment scenario would be a slow process as the reduction in biri consumption is gradual. This would allow unemployed biri workers to make their transition to alternative livelihoods.

However, it should be noted that the geographic concentration of job loss is aggravated because the biri industry plays a major role in providing employment opportunities to the low-income people living in these regions. The shrinking of a major business in the region would reduce the total number of available jobs and increase the competition to find alternative livelihood opportunities in the concerned districts, which can barely be compensated by the market forces, such as the growth in demand for labour in more dynamic and growing sectors. Hence, government support is a necessity for the areas that are heavily dependent on biri production for their livelihood. This would be feasible as discussed in the earlier section that the revenue gain resulting from increase in biri tax is more than adequate to compensate for income loss incurred by unemployed biri workers.

7. Socioeconomic status of biri worker households

While Bangladesh has been experiencing a uniform and steady decline in national poverty rate since 2,000, biri workers have continued to have a difficult existence. They are identified generally with the underemployed, low income and resource poor segment of the population in Bangladesh living below the poverty line and missed by the mainstream of economic growth. Based on household survey data collected from biri workers, we thoroughly reviewed their household economic resource indicators (summary in Table 11; see Annex B).

7.1 Household economic resources

Three-fourths of the biri workers reported that they owned no land. The average land size for the one-fourth households who owned land was 16.3 decimals,[3] which is far below the threshold of 50 decimals corresponding to the poverty line. Only 3% households had more than 50 decimals land. Thus, 97% of the biri workers are functionally landless. Given the negative correlation between land ownership and poverty, biri workers appear to be susceptible to a perpetual state of poverty.

The average size of the homestead of biri workers is 4.2 decimals, with less than two rooms per household. Nearly 87.2% respondents reported living in their own house, although not necessarily built on their own land. Most of the houses were tin-sheds, did not have sanitary toilet facilities, had access to water supply from a tube well or deep tube well, and used biomass fuel (such as cow dung, straw, leaf, firewood) for cooking.

The households however used electricity as the primary source of lighting due to a successful countrywide rural electrification programme; 41% of biri workers used electric fans and some even reported owning a television at home.

An overwhelming proportion of biri workers (45%) reported owning mobile phones made possible by the widespread mobile phone networks and affordability of phone sets and call rates.

7.2 Household demographics and educational status

The average household size of biri workers is 4.2, with almost 62% households having household size less than or equal to 4, which is generally the size of a nuclear family. The dependency ratio of minors (below 15 years of age) and the elderly (65 years and above) to working age persons (15–64 years of age) was less than 1 for 78% households. Thus in 22% households, each working age person had to support more than one dependent.

The heads of two-thirds of biri worker households did not have any schooling; 24% had some primary school education and the remaining 10% had above five years of schooling. The average education level for all members in a household was 2.5 years and the maximum education level was 5.7 years on average. For children 6-18 years of age, when the number of years of schooling was regressed on age and gender, the regression coefficient for age was 0.6 indicating that the difference in schooling was less than a year for each additional year of age. [4] It means that not

[3] A decimal is a unit of area in Bangladesh approximately equal to 1/100 acre; 1 decimal equals 435.6 sq feet.

[4] Years of education = –3.9 + 0.61 age + 0.4 female
t-stat = (–21.6) (41.7) (4.6)
adj–R2 = 0.45
N = 2143

all children were going to school. If all of them were going to school, there would be a one-to-one correspondence between age and number of years of schooling, i.e. the regression coefficient would be 1 instead of 0.6. The loss of schooling for children could partly be attributed to their engagement in biri making along with other adult family members. The opportunity cost of biri making for children should, therefore, be taken as equivalent to 0.4 (1–0.6) years of schooling for children of school-going age.

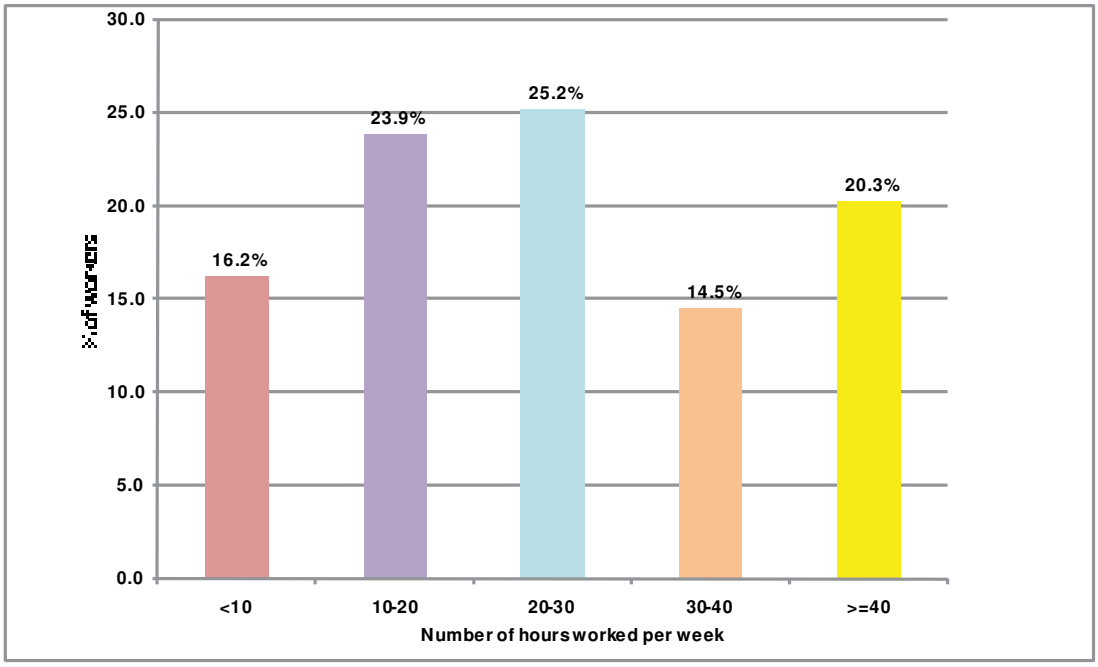
Absence or low level of education in the family was highly correlated with poverty. According to the World Bank Bangladesh Poverty Assessment Report 2013 (23), an individual with no education heads 72% of the poor households in Bangladesh. Furthermore, with extremely low level of education, the potential for transition of biri workers and their family members out of poverty and to alternative employment opportunities on their own is very limited and will require support.

7.3 Household employment conditions

The main source of household income for most of the respondents (43.4%) was in biri manufacturing. The second largest source was trade followed by day labour, which does not necessarily generate a regular income flow. Including biri making and daily labour, **about 84% of the biri worker households survived on casual sources of employment and income, which adds to the vulnerability of this population to economic and natural shocks.**

As shown in Table 12 (see Annex B), the largest numbers work three days a week (21.19%) and eight hours a day (26.79%). Considering 40 work hours per week as full-time employment, the workers were classified by the total number of hours they worked in the week prior to the survey. The resulting distribution of weekly work hours is presented in Figure 5. It shows that **only 20% workers were working full time in biri making. The remaining work force was underemployed in terms of utilization of their time and earning potential.**

Figure 5: Distribution of biri workers by number of work hours per week, 2012

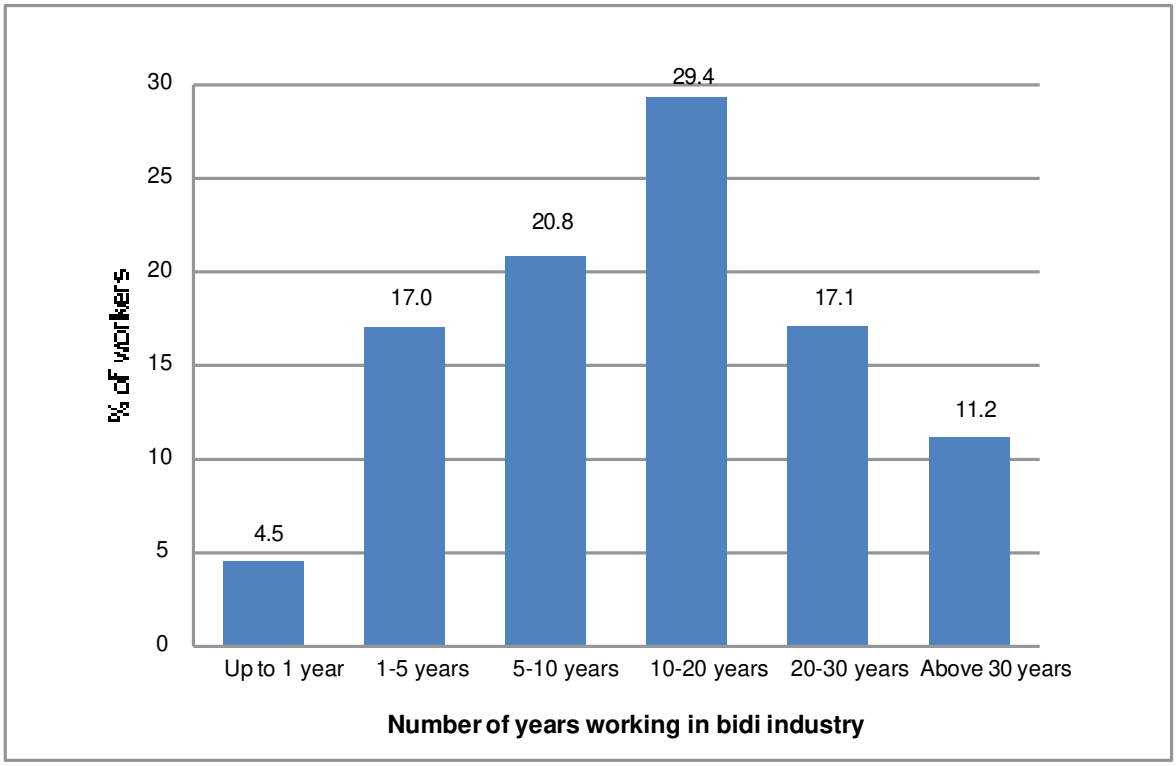


Source: Labour force survey of biri workers in Bangladesh, 2012.

8. Livelihood options for biri workers

Biri making has been the mainstay for most biri workers for a long period of time (Figure 6). About 58% workers reported that they have been working in biri manufacturing for over 10 years.

Figure 6: Distribution of biri workers by the number of years spent working in the biri industry



Source: Labour force survey of biri workers in Bangladesh, 2012.

Biri making has been the source of livelihood for not only the current generation but also previous generations. The parents of 46% workers and the grandparents of 28% workers were employed in the biri industry. The present generation of biri workers would therefore consider moving to a new occupation only under dire circumstances. However, **when asked if their children would continue to work in the biri industry, 70% workers answered in the negative.** It appears that even though biri making has been the source of livelihood for at least three generations, the future generation is unlikely to stay in the same occupation.

Biri workers reported several reasons (listed below) for the likelihood that their children would not choose biri making as their principal means of earning in the future.

- Biri industry is shrinking gradually with no future in this sector.
- Biri factories do not operate full time and cannot fully utilize a worker's time.
- Income from biri making is irregular and unstable.
- Biri making is hazardous to health.
- Biri making can cause working disability.
- Income from biri making is very low and children can make more money from other jobs when they grow up.
- Children do not like this job as they have to work hard for low pay and hence do not consider it rewarding to work in biri factories.

- Children are getting education to be employed in other sectors (such as government service).
- There is no social respect for this job.

On average, each biri worker works three days a week and seven hours a day in a biri factory. Thus, they work 21 (3 x 7) hours per week. This average number of work hours compares poorly with the national average for production and transport workers at 51 hours per week (24). The average weekly work hour of biri workers was approximately 50% of the full-time work of 40 hours per week. The remaining 50% time was available for undertaking other types of economic activities. Indeed 22.5% workers reported that biri making was not their only source of income. They supplemented income by working in various economic activities such as in agriculture, nonagricultural self-employment, manufacturing, transport and service; some also received transfer income (such as widow allowance, elderly allowance, disability allowance, house rent) from the government. The details of these activities are listed in Table 13 (see Annex B).

The average income of biri workers who are exclusively dependent on the biri industry was BDT 1,927 per month. In contrast, biri workers involved in other economic activities along with biri making earned BDT 5,457 per month. For this group of workers, income from biri making constituted 41% of their total income. Apparently, these workers had managed to diversify and allocate their work hours to enhance their earnings. They were also able to recover income faster in the event of job loss from the biri industry.

The extent of dependence of a biri worker's livelihood on biri making is further reflected in the number of family members involved in biri making. Around 54% biri workers reported that his/her other family members were also involved in biri making. On average, two persons from each family work in a biri factory. However, each person works only 50% of their time on average. As a result, **the effective FTE employment in the biri industry is one person per family of biri workers.**

About 93% workers reported that income from biri making was not sufficient to make ends meet. When asked about means to supplement income from other sources in the event of job loss, an overwhelming majority (70%) reported that they would be supported by the income of other family members. This indicates that the **income pooling mechanism at the family level cushions against the uncertainty and insufficiency of income flow from biri making.** About 27% workers looked forward to finding some private sector jobs and relatively few workers considered starting their own business (7.8%), farming (7.2%) or cottage industry (4.8%) as a supplemental source of income.

If alternative market opportunities that could generate income equivalent to what they make in biri making were available, 22% workers were willing to take their own initiative to switch to the new occupation, while others (78%) did not want to leave their current occupation. The reasons for willingness and reluctance to move out of biri making are summarized in Table 14 (see Annex B). Relatively few workers value the advantages of leaving a decaying industry for an alternative income-equivalent job in other growing sectors. Regarding reluctance to switch occupation, most workers reported the flexibility of work hours, independence, proximity of the workplace to their homes, and casual working conditions especially for women, children, elderly and disabled persons, that are characteristic of the biri industry. It is noted that biri manufacturing capitalizes on cheap labour of a vulnerable population group who have limited access to alternative livelihood options, and are not the principal earners in their families. Unless the biri factory in their neighborhood closes, these workers prefer to continue in this occupation.

However, their preference may shift with government intervention. For example, if the government launches any redeployment programme for biri workers, 78.4% would willingly give up biri making and move to other occupations. Their expected income from an alternative job on average was BDT 4811, which is higher than twice what they currently make in biri manufacturing. As already mentioned, the workers value the flexibility of work hours, independence, proximity of the workplace to their homes, and casual working conditions, that are characteristic of the biri industry. To compensate for the above benefits they associate with the biri industry, these workers expect a high differential over and above their existing income from an alternative livelihood.

The majority of biri workers (63%) reported that biri making was their first occupation (Table 15; see Annex B). About a fifth of biri workers reported being unpaid family labour or housewives prior to their current occupation in biri factories. When asked about the potential occupations if the biri factory closes, most workers (58.3%) who responded to this question expressed that they did not know where to go or cannot do any other work (Table 15). These workers need support for employment generating opportunities, while others can rely on self-help. The remaining said that they would find some kind of nonagricultural self-employment on their own.

However, 62.6% workers believed that they do not have the necessary skills to make a transition to an alternative employment. Most (75%) of those who believed that they do not have the necessary skill were interested to learn and acquire skills. About two-third biri workers (63%) expressed willingness to do a full-time job while the rest wanted part-time jobs.

There is considerable potential of utilizing the existing infrastructure of NGOs or microfinance institutions (MFIs) in offering alternative income generating opportunities to biri workers. About 48% workers reported that they or their family members were members of NGOs/MFIs. Most of these people are members of organizations such as Association for Social Advancement (ASA), Grameen Bank, Bangladesh Rural Advancement Committee (BRAC), Thengamara Mohila Sabuj Sangha (TMSS) and Society for Social Service (SSS). These organizations could offer loan services to engage in income generating activities and act as a potential alternative for the biri workers.

Apart from NGO activities, 38.5% workers mentioned government programmes for poverty alleviation in their locality, such as Vulnerable Group Development (VGD), Vulnerable Group Feeding (VGF), widow allowance, elderly allowance, Food for Work (building roads, ponds, canals). However, these programmes target the extremely poor and vulnerable populations, and biri workers may not necessarily be eligible for receiving these benefits. Only 26% workers reported that they benefitted from one of these programmes. Moreover, the benefit they received was minimal, such as 25 kg rice per month or BDT 300 as widow or elderly allowance per month, both of which constituted a very insignificant portion of their family income. A welfare fund could be created using the tax collected from the biri sector and channeled to help biri workers in the event of job loss from the biri factory or their willingness to move to a new job.

9. Focus group discussions

A total of three FGDs were held to gain insight into the perspectives of biri manufacturers, biri workers and civil society with respect to the implications of biri tax increase on livelihood. The first FGD was held in the NBR office in the presence of representatives of biri manufacturer associations and biri worker associations from all over Bangladesh. The second FGD was undertaken with representatives of biri manufacturers and workers in Tangail district. The third FGD was held with civil society groups in Tangail district. This section summarizes the highlights from these discussions.

9.1 Observations of the groups

The shelf life of biri is short – it cannot be stored for too long because it gets soggy in the humid weather conditions typical of Bangladesh. Biri manufacturers, therefore, tend not to produce a new batch until the previous stock is sold out. Under diminished market conditions, as prevalent now for the biri sector, the gap between two production slots ranges from a few days to one week. The workers remain idle during this gap, which varies depending on the speed of sales of the products. This results in underemployment of biri workers to a great extent.

Biri factories are generally located in areas where the potential for development of other industries is bleak. These areas are characterized by displacements caused by periodic river erosion, remoteness from mainstream development activities, economic insecurity, lack of safety, among others, which discourage investments in the locality. Biri manufacturers strategically locate their factories in areas where limited number of economic activities are viable, thus limiting the scope of biri workers to switch to alternative livelihoods.

In some areas, there may be other industries at distant locations. However, women and children, who constitute most of the workers in the biri industry, are usually not willing and/or physically able for commuting far for employment. Besides, the transportation system in rural areas is not favourable for travelling long distances. Women are more attracted to biri making due to the flexibility of work hours and the ability to work from home. Some large biri manufacturers (such as Akij Biri factory in Mithapukur) provide nonwage benefits to current workers, such as health care services, day care for children that incentivize especially women to work at biri factories.

Biri factory owners are also reluctant to allow new businesses or NGOs to locate in the same areas in anticipation of creation of alternative employment opportunities that would raise the labour cost to the biri industry. The cheap labour used in biri making is a major comparative advantage for the biri industry.

Biri manufacturers are currently facing two key challenges:

(i) Losing market share among smokers due to aggressive marketing strategies of the cigarette industry, particularly the sale of cheap cigarettes at prices comparable to that for biris. As a result, there has been a declining trend in biri sales and production in recent years.
(ii) Losing market share to large biri manufacturers. The biri industry is characterized by heavy concentration of market power. The business conglomerate-Akij Group possesses the largest market share in biri manufacturing.

This group's market share is increasing and driving out smaller producers from the market.[5]

Biri making is exclusively labour intensive and sedentary. Unskilled and impoverished workers, and workers with disabilities are engaged in biri making. This implies that workers who lose their job from biri factories may not necessarily be easily able to train for and work in other occupations. This vulnerable group would need targeted assistance to find new employment, so as not to increase inequities.

Workers below 40 years of age are able to move to a different place to explore new job opportunities. Older workers, on the other hand, have limited mobility and have no choice but to work in the current occupation/location.

A few NGOs provide loans to the poor, including the biri workers. However, biri workers feel more exploited than supported due to the exacting enforcement of repayment. Currently, no government or NGO programmes exist to provide support specifically to former or current biri workers.

In Tangail district, weaving used to be an attractive occupation when it was based on handlooms. At present, due to large-scale automation with the use of power looms, this sector is no longer a viable option for former biri workers.

The children of both biri workers and biri manufacturers are finding employment outside the biri industry. Intergenerational occupational mobility is already in place paving the way for the movement of future generations from the declining biri producing sector to other thriving sectors.

9.2 Suggestions made by the groups

Biri workers suggested locating the garment industry, which is the most thriving sector across the country, in the region where the biri factories are concentrated. The new garment factories can absorb the displaced biri workers. However, former biri workers need to be trained for employment in this new industry. For example, the industries located in the Export Processing Zone of Ishwardi would not employ biri workers laid off by biri factories in Pabna district unless these workers are trained in making garments.

Generally speaking, biri workers lack education and training necessary to make the transition to alternative livelihood opportunities and need support to receive necessary training.

In 2005, a local NGO in Tangail – Social Advancement Through Unity – received funds from the International Labour Organization (ILO) to divert children who were working in biri factories. This organization provided support for health care, education and microcredit covering 1800 children for two and a half years. However, after the end of the programme, these children went back to the work in the biri factories again. This indicates that any government or nongovernment initiative to support biri workers and their families need to continue for an extended period of time to ensure sustainable income generating capacity of the target population.

[5] Note that according to the CBMI, the market share of Akij Biri is 40%. For all other manufacturers, the market share varies from less than 1% to 5% each.

10. Case study of a former biri worker

We interviewed a 45-year-old male who worked in a biri factory 12 years ago. Presently, he works as a mechanic for irrigation pumps. He started as an apprentice to acquire the skills of a mechanic. His father was a salesman in a grocery store. His two sons (one is a mason and the other is studying in high school) are unlikely to become biri workers.

He reported that his income from biri making was not enough for his family, but now he is making more money from the mechanic's job than he was making at the biri factory.

In his locality, there are alternatives to biri making for livelihood, such as operating irrigation pumps, driving auto vans run by irrigation machine engines (locally known as Nochimon), farming, bamboo and jackfruit growing, rickshaw pulling. In his village, there are no NGOs or enterprises that can help them with alternative livelihood options. The scope of establishing businesses in his area is limited due to lack of access to electricity.

Most of the male biri workers have left the biri factory for alternative work opportunities. Many former biri workers in the village have gone to work abroad by selling their land and are more prosperous now. Only female biri workers are continuing to work in the biri factory.

In their village, the literacy rate is high and the biri workers are also literate. Girls go to BRAC school. So, there is potential for them to be able to move to alternative income generating activities.

11. Conclusions and Recommendations

Biri manufacture is a declining industry in Bangladesh as reflected in the number of factories increasingly closing down in the recent past. Being a labour-intensive industry, closures have resulted in significant loss of employment of biri workers. In the event of biri tax and price increase and further reduction in consumption and production, this employment loss is going to accelerate. In these circumstances, the government understands the necessity and importance of supporting biri workers to find alternative livelihoods in light of WHO Framework Convention on Tobacco Control Article 17.[6] The objective of this study is to provide a complete understanding of the plight of biri workers and the health, social, and economic impact of tax increase on biris.

Annual biri tax revenue would more than double from the current estimated level of BDT 7,408 million to BDT 17,654 million with 55% of retail price as supplementary duty, and BDT 18,356 million with BDT 0.20 per stick specific excise and 40% of retail price as supplementary duty. On the other hand, an estimated 7,012 full-time jobs would be lost, which is commensurate with BDT 283 million in terms of income loss of unemployed biri workers a year. Including job and income loss due to declining trend of the biri industry, biri workers would incur a total loss of 9,320 full-time jobs and BDT 359 million in annual income. This loss is equivalent to only 3–4% of the estimated revenue gain, which implies that biri workers can be easily compensated for their income loss through revenue gained from taxation.

Considering that biri workers need additional household resources, education and skill to make a smooth transition to alternative livelihoods, the government needs to take preemptive measures to counteract the potential loss of welfare of families of biri workers in the event of loss of employment. The resources necessary for such income support can be acquired from increased revenue from higher taxes.

In conclusion, this study proposes the following recommendations that can mobilize internal resources for saving lives both through reduction in consumption of biri and redeployment of biri workers.

- **Increase excise tax on biri and earmark it for creating a welfare fund for biri workers.** This fund would be dedicated to train and build the capacity of biri workers for non-biri sources of income generation. It could also be utilized to provide micro-credit (interest-free) for entrepreneurial development programmes targeted at former biri workers.

- **Replace current ad valorem excise tax system with a mixed excise tax system (comprising ad valorem and specific component).** In setting the new system for biri taxation, it is advisable to have a mixed system consisting of a specific tax of BDT 0.20 per stick and an ad valorem tax at 40% of retail price, making provision for periodic adjustments for inflation to the specific tax.

- **Ensure collaboration and coordination of the National Tobacco Control Cell and NBR with the Ministry of Labour and Employment** to explore government and nongovernment initiatives for employment generating opportunities that currently exist in the districts where the biri factories are located. Local government

[6] WHO FCTC Article 17 (Provision of support for economically viable alternative activities): Parties shall, in cooperation with each other and with competent international and regional intergovernmental organizations, promote, as appropriate, economically viable alternatives for tobacco workers, growers and, as the case may be, individual sellers.

bodies need to take leadership at the grassroots level and take advantage of existing infrastructure to accommodate the new goal of redeployment of biri workers.

- **Build partnerships among local NGOs, biri worker associations and civil society organizations** for making a concerted effort to embed the government initiative to help biri workers transition into alternative livelihoods and integrate into the mainstream of development at the community level.
- **Create localized and equitable education, training and employment opportunities.** Because of the regional concentration of biri manufacturing units and the high cost of mobility of biri workers, efforts to help their transition into alternative work, training or education opportunities, will have to have a local focus. In this respect, the heavily biri producing districts of Rangpur and Kushtia need to be prioritized.

References

1. Duong M, Rangarajan S, Zhang X, Killian K, Mony P, Swaminathan S, et al. Effects of bidi smoking on all-cause mortality and cardiorespiratory outcomes in men from South Asia: an observational community-based substudy of the Prospective Urban Rural Epidemiology Study (PURE). Lancet Glob Health 2017; 5: e168–76.
2. Roy A. Tobacco consumption and the poor: An ethnographic analysis of hand-rolled cigarette (bidi) use in Bangladesh. Ethnography 2011; 13:162–88.
3. Zaman MM, Bhuiyan MR, Huq SM, Rahman MM, Sinha DN, Fernando T. Dual use of tobacco among Bangladeshi men. Indian J Cancer 2014;51:46–9.
4. Nargis N, Hussain AKM G, Goodchild M, Quah ACK, Fong G. A decade of cigarette taxation in Bangladesh: lessons learnt for tobacco control. Bull World Health Organ 2019;97:221–9 (https://www.who.int/bulletin/ volumes/97/3/ 18-216135.pdf, accessed 20 May 2019).
5. Nargis N, Stoklosa M, Drope J, Fong GT, Quah ACK, Driezen P, Shang C, Chaloupka FJ, Hussain AKMG. Trend in the affordability of tobacco products in Bangladesh: findings from the ITC Bangladesh Surveys. Tob Control 2018. Published Online First: 19 April 2018. doi: 10.1136/tobaccocontrol -2017-054035.
6. Nargis N, Ruthbah UH, Fong GT. Taxation of tobacco products in Bangladesh: findings from the 2009 ITC Bangladesh survey. ITC Project Working Paper Series. Waterloo: University of Waterloo; 2010.
7. Global Adult Tobacco Survey: Bangladesh Report 2009. Country Office for Bangladesh: World Health Organization; 2009 (http://www.searo.who.int/ bangladesh/publications/global_adult_tobaccot_2009.pdf, accessed 12 March 2019).
8. Global Adult Tobacco Survey. Fact Sheet. Bangladesh 2017. (http://www.searo. who.int/ bangladesh/gatsbangladesh2017 standalonefsscanoffinal 14aug2018 rev1.pdf, accessed 11 March 2019).
9. Bangladesh population and housing census 2011, National Report, Volume 4. Socio-economic and demographic report. Bangladesh Bureau of Statistics; 2012.
10. Tobacco price and taxation policies in Bangladesh: Evidence of effectiveness and implications for action. Waterloo: University of Waterloo; 2014 (https://www.itcproject.org/files/ITC_Final_Bangladesh_Price_and_Tax_-_May_2014-V 2March25-2015.pdf, accessed 20 May 2019).
11. Rasheed A, Sinha S. Bidi in Bangladesh: myths and reality. The bidi producing sector in Bangladesh. Campaign for Tobacco-Free Kids; 2012 (http://www. tobaccoindustrywatchbd.org/ contents/uploaded/Bidi.pdf, accessed 11 March 2019).
12. Nargis N, Ruthbah UH, Hussain AKMG, Ashiquzzaman SM, Fong GT, Huq I. Pricing and taxation of tobacco products in Bangladesh: Findings from the wave 1 (2009) and wave 2 (2010) surveys. ITC Project Working Paper Series. Waterloo: University of Waterloo; 2011.
13. Warner KE, Fulton GA. The economic implications of tobacco product sales in a nontobacco state. JAMA 1994;271:771–6.
14. Warner KE, Fulton GA, Nicolas P, Grimes DR. Employment implications of declining tobacco product sales for the regional economies of the United States. JAMA 1996;275:1241–6.
15. Ahsan A, Wiyono N. 2007. An analysis of the impact of higher cigarettes prices on employment in Indonesia. Southeast Asia Tobacco Control Alliance, December 2007.

16. Zhang P. Economics of Tobacco Toolkit, Tool 5: Understand and evaluate the impact of tobacco control policies on employment. Washington DC: World Bank; 2013 (https://openknowledge.worldbank.org/bitstream/handle/10986/16266/805780NWP050Em0Box0379807B00PUBLIC0.pdf, accessed 11 March 2019).
17. Wage rate of working poor in Bangladesh, 2009–10. Bangladesh Bureau of Statistics; 2011.
18. Faruque GM, Wadood SN, Ahmed M, Parven R, Huq I, Chowdhury SR. The economic cost of tobacco use in Bangladesh: A health cost approach. Bangladesh: Bangladesh Cancer Society; 2019 (https://www.cancerresearchuk.org/sites/default/files/tat004_factsheet_proactt_final_print.pdf, accessed 11 March 2019).
19. Global Burden of Disease Collaborative Network. Global Burden of Disease Study (GBD 2017) Results. Seattle: Institute for Health Metrics and Evaluation; 2018 (http://ghdx.healthdata.org/gbd-results-tool accessed 11 March 2019).
20. Impact of tobacco-related illnesses in Bangladesh. New Delhi: WHO Regional Office for South-East Asia; 2007 (https://apps.who.int/iris/bitstream/handle/10665/205319/B0575.pdf, accessed 11 March 2019).
21. The health consequences of smoking: a report of the Surgeon General. Office of the Surgeon General (US); Office on Smoking and Health (US). Atlanta: Centers for Disease Control and Prevention (US); 2004 (https://www.ncbi.nlm.nih.gov/books/NBK44695/, accessed 11 March 2019).
22. Husain MJ, Khondker BH. Tobacco-free economy: A SAM-based multiplier model to quantify the impact of changes in tobacco demand in Bangladesh. Margin J Appl Econ Res 2016; 10: 55-85.
23. Bangladesh – poverty assessment: Assessing a decade of progress in reducing poverty, 2000–2010. Bangladesh Development Series Paper No. 31. Dhaka: The World Bank Office; 2013 (http://documents.worldbank.org/curated/en/109051468203350011/pdf/785590NWP0Bang00Box0377348B0PUBLIC0.pdf, accessed 11 March 2019).
24. Report on Labour Force Survey 2010. Bangladesh Bureau of Statistics; 2011.

Annex A: Technical note on estimation and simulation

A.1 Estimation of output elasticity of employment in the biri industry

The elasticity of employment with respect to output is a measure of the responsiveness of employment to changes in the output level. It is estimated by assuming the following firm level production function known as the constant elasticity of substitution (CES) function:

$$Yi = A\,[\delta K_i^{-p} + (1-\delta)L_i^{-p}]^{\frac{n}{-p}} \quad (1)$$

where, Y = total production of biri (sticks) in the last month

K = capital in BDT (value of land, building, machinery, transport and other fixed assets at the beginning of the year, plus value added over the year in development, repair and extension, less sales, transfers, damages and depreciation over the year)

L = full-time equivalent number of workers

A = efficiency parameter reflecting total factor productivity, A>0

η = returns to scale parameter, η>0 (if K and L are increased k fold, Y will increase kη fold)

δ = distribution parameter, 0 <δ< 1 (the shares of capital and labour in total output are given by δ and 1– δ respectively)

ρ = degree of substitution (between K and L) parameter, ρ> –1 (elasticity of substitution between K and L is given by σ = 1/ (1+ρ)

i = individual biri manufacturer.

The marginal productivity of labour (MP_L), given by the partial derivative of the production function with respect to labour in equation (1), can be derived as follows:

$$MP_L = \frac{\partial Y}{\partial L} = n(1-\delta)A^{-\frac{-p}{n}}\,Y^{1+\frac{p}{n}}\,L^{-(p+1)} \quad (2)$$

Equating MP_L with the market real wage w, the labour input variable can be solved to obtain the derived demand function for labour as follows:

$$n(1-\delta)A^{-\frac{-p}{n}}\,Y^{1+\frac{p}{n}}\,L^{-(p+1)} = w$$

$$or, w^{-1}\,n(1-\delta)A^{-\frac{-p}{n}}\,Y^{1+\frac{p}{n}}\,L^{-(p+1)}$$

$$\text{or, } L = [w^{-1}\,n(1-\delta)A^{-\frac{p}{n}}Y^{1+\frac{p}{n}}]^{\frac{1}{P+1}}$$

$$\text{or, } L = [w^{-1}\,n(1-\delta)A^{\frac{p}{n}}]^{\frac{1}{P+1}}\;Y^{(1+\frac{p}{n})(\frac{1}{p+1})}$$

$$\text{or, } L = \beta_o Y^{\beta_1}$$

where, $\beta_0 = \left[w^{-1}\eta(1-\delta)A^{\frac{\rho}{\eta}}\right]^{\frac{1}{\rho+1}}$ and $\beta_1 = \left(1+\frac{\rho}{\eta}\right)\left(\frac{1}{\rho+1}\right)$ (3)

Taking the logarithm on both sides of equation (3), the labour demand function is obtained as follows:

$$lnLi = ln\beta_o + \beta_1 lnY_i \qquad (4)$$

The coefficient $\beta_1 = \frac{\partial lnL_i}{\partial lnY_i}$ represents the elasticity of employment with respect to output, i.e. the percentage change in full-time equivalent employment in response to a given percentage change in output.

The following empirical model in equation (5) controls for three more factory-specific characteristics that are expected to be correlated with production level and hence can affect the estimated effect of production level on employment:

$$lnL_i = ln\beta_o + \beta_1 lnY_i + \beta_2 K_i + \sum_j \beta_2 OWN_i + \sum_k \beta_4 LOC_i + u_i \qquad (5)$$

where, L = full-time equivalent number of workers

Y = total production of biri (sticks) in the last month

K = end-of-the year net value of fixed assets (in BDT)

OWN = ownership type of factories (individual ownership, partnership, private limited company, cooperatives or others)

LOC = location of the factory (district).

A.2 Simulation of biri tax increase

The simulation is done in several successive steps.

Step 1: Calculation of biri price

The composition of the retail price per pack of biri is as follows:

Retail price (RP) = cost of production + producer profit + excise tax (ET) + value added tax (VAT) + distributor/retailer margin (M)

= producer price (PP) + retail price (RP) x [supplementary duty rate (t) + health development surcharge (h) + VAT rate (v)] + RP x distributor/retailer rate of margin as percent of retail price (m)

= PP + RP x (t + h + v + m)

where, producer price, PP = cost of production + producer profit

As of the baseline year fiscal year 2018–19, t = 30% for a 25-stick pack of nonfiltered biris and 35% for a 20-stick pack of filtered biris, v = 15% and m = 5% (retailers' margin is assumed to be 5% of the retail price). In the CBMI, manufacturers reported the average producer price (ex-factory price) at BDT 4.35 per pack and the retail price at BDT 5 per pack, which indicates that the margin for distributors and retailers is BDT 0.54 per pack or 13% of retail price. However, an independent survey of the biri price per pack in the retail outlets undertaken by NBR showed that the average retail price per pack was BDT 7 per 25-stick pack of nonfiltered biris, suggesting the distributor and retailer margins to be BDT 2.65 per pack or 38% of the retail price. Since the manufacturers themselves largely own biri distribution channels, we apportioned this margin into the retailers' portion (assuming 5% of retail price) and the producers' portion (remaining 33%) that is subsumed into producer profit.

The unknown part in the price equation is the PP calculated as:

PP = RP – RP x (t + h +v + m)
= RP x (1 – t – h – v – m)

Next, we applied diverse scenarios to the new biri tax system and calculated the new retail price level.

Scenario 1: Increase supplementary duty to 55% of retail price (current rate for "low" type cigarettes)

RP1 = PP x (1 + r) + RP1 x (t' + h + v + m)
or, RP1 x (1 – t' – h - v – m) = PP x (1 + r)
or, RP1 = PP x (1+r) / (1 – t' – h - v – m)

where, new supplementary duty rate t' = 55%.

The PP in the base year was adjusted for expected annual inflation under the assumption that PP would remain constant in real terms. This may not necessarily be the case. If producers increase PP, the price increase could be greater than that predicted in the analysis. The annual rate of increase in the retail price of biri from 2009–10 to 2018–19 was 1.2%, while the tax per 25-stick pack of nonfiltered biris increased at an annual rate of 11%. This implies that historically producers absorbed the tax increase – they may have lowered the producer price and compromised with lower profit per pack.

Scenario 2: Introduce specific tax of BDT 0.20 per stick with supplementary duty at 40% of retail price

$RP2 = PP \times (1 + r) + RP2 \times (t' + h + v + m) + s$
or, $RP1 \times (1 - t' - h - v - m) = PP \times (1 + r) + s$
or, $RP1 = [PP \times (1+r) + s]/ (1 - t' - h - v - m)$

where s is the specific tax per pack; s = BDT 5.00 for a 25-stick pack of nonfiltered biri and BDT 4.00 for a 20-stick pack of filtered biri.

Step 2: Estimation of decrease in aggregate biri consumption

Suppose the initial level of annual biri consumption is C1 and the reduced level of consumption is C2. The percentage increase in the price per pack would be given by (RP'-RP)/RP, where RP' (the new price level after tax increase), and the price elasticity of biri consumption (ε) are multiplied to estimate the expected reduction in biri consumption (∆C) in a year following the tax increase:

$C2 - C1 = \Delta C = \varepsilon \times [(RP' - RP)/RP]$
Thus, $C2 = C1 + \Delta C = C1 + \varepsilon \times [(RP' - RP)/RP]$

Step 3: Estimation of decrease in aggregate production and employment in the biri industry

Presuming that a reduction in consumption would result in an equivalent reduction in production, which would be reflected in reduced level of employment in the industry, the reduction in full-time equivalent employment (∆E) in the biri industry resulting from the tax increase was estimated as:

$\Delta E = \beta_1 \times \Delta C$

where, β_1 is the output elasticity of employment estimated from equation (5) above.

Step 4: Estimation of income loss

Given that the average annual income per full-time employed person is Y, the annual income loss from unemployment of biri workers induced by tax and price increase would be given by:
$\Delta Y = \Delta E \times Y$

Step 5: Estimation of additional biri tax revenue

The baseline level of annual tax revenue collection from biri would be given by:

$TR1 = C1 \times RP \times (t + h + v)$

The new tax revenue collection after the tax increase would be given by:

- $TR21 = C2 \times RP1 \times (t' + h + v)$ in Scenario 1
- $TR22 = C2 \times [RP1 \times (t' + h + v) + s]$ in Scenario 2

The revenue gain was given by, $\Delta TR = TR2 – TR1$

The ratio of income loss to revenue gain, $\Delta Y/\Delta TR$, showed the cost–benefit ratio of raising excise tax on biri. Providing that this ratio was less than 1, raising tax on biri would be an economically feasible policy option for the government. The lower the value, the stronger would be the appeal for the choice. However, the consequent employment loss may not be socially acceptable and would therefore be politically constrained. In order to ease that constraint, it would be necessary to compensate unemployed biri workers by using a portion of the fund raised from higher revenues.

Step 6: Estimation of public health gain

The cost–benefit ratio measured in Step 5 did not take into account that reduction in biri consumption would accrue huge health gain to society. Adding the public health component (in addition to revenue) to the denominator of the cost–benefit ratio would lower its value further. While the loss of employment involved political risk in the current period, the saving of lives and public health gain from higher taxes would be gains in the long term. In contrast to the comparison of annual loss of income and annual gain of tax revenue calculated in the previous step, the public health gain would be measured from a long-term perspective in terms of the number of lives saved from premature deaths of all biri smokers currently living, and future smokers among the current young population.

In this simulation, we first estimated the total number of premature deaths that could potentially occur among current adult biri smokers and potential biri smokers from the young population (below age 15 years). Then we attributed a fraction of these premature deaths to biri smoking. The next step was to estimate the number of biri smokers who would quit after the tax and price increases. Under the assumption that a certain fraction of those who completely quit could survive up to their normal expected lifetime, we estimated the number of premature deaths that could be averted by the tax increase.

Annex B: Tables

Table 1: Employed persons aged 15 years and over in tobacco agriculture and manufacturing by gender in 2005–06#

Name of activity	Total	Male	Female
Employment in growing tobacco, ganza and narcotic plants	115,533	28,363	87,170
Total employment in agriculture, hunting and forestry	21,672,000	14,168,000	7,504,000
Employment in tobacco agriculture as % of all agricultural employment*	0.5	0.2	1.2
Employment in manufacturing of cigarettes	5,893	5,758	135
Employment in manufacturing of cigars and cherots	4,678	3,284	1,393
Employment in manufacturing of biri	112,117	38,259	73,858
Employment in manufacturing of tobacco steaming and redrying	2,483	1,788	695
Employment in manufacturing of zarda and quivam	3,851	3,452	399
Total employment in all tobacco manufacturing activities	129,022	52,541	76,480
Employment in all manufacturing activities	5,224,000	3,926,000	1,298,000
Employment in all tobacco manufacturing as % of all manufacturing employment	2.5	1.3	5.9
Total employment in tobacco agriculture and manufacturing	244,555	80,904	163,650
Total employment in all sectors of the economy**	47,357,000	36,080,000	11,277,000
Employment in tobacco agriculture and manufacturing as % of total employment	0.5	0.2	1.5

The employment statistics for the tobacco sector was not available for more recent years.

* Employment in tobacco agriculture as % of all agricultural employment showed an overestimate because the employment figure in tobacco growing was reported altogether with the employment figures in ganza and narcotic plants.

** Included the following sectors: (i) agriculture, hunting and forestry; (ii) fishing; (iii) mining and quarrying; (iv) manufacturing; (v) electricity, gas and water supply; (vi) construction, (vii) wholesale and retail trade; (viii) hotels and restaurants; (ix) transport, storage and communications; (x) financial intermediation; (xi) real estate, renting and business activities; (xii) public administration and defence; (xiii) education; (xiv) health and social work; (xv) other community, social and personal service activities.

Sources: Statistical yearbook of Bangladesh 2014, Bangladesh Bureau of Statistics, January 2016.

Table 2: Biri excise tax system in Bangladesh, 2005–06 to 2018–19

Category (number of biri sticks per pack)	FY 2005–06 to 2007–08		FY 2008–09 to 2010–11			
	Nonfiltered		Nonfiltered		Filtered	
	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)
25	2.63	20%	3.15	20%		
20					3.43	25%

Category (number of biri sticks per pack)	FY 2011–12 to 2012–13				FY 2013–14				FY 2014–15			
	Nonfiltered		Filtered		Nonfiltered		Filtered		Nonfiltered		Filtered	
	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)
25	3.15	20%			3.88	20%			4.27	25%		
20			3.43	25%			4.22	25%			4.64	30%
12	1.52	20%			1.95	20%			2.05	25%		
10			1.72	25%			2.11	25%			2.32	30%
8	1.01	20%			1.24	20%			1.37	25%		

Category (number of biri sticks per pack)	FY 2015–16				FY 2016–17				FY 2017–18 to 2018–19			
	Nonfiltered		Filtered		Nonfiltered		Filtered		Nonfiltered		Filtered	
	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Tariff value (BDT)	SD (%)	Retail price (BDT)	SD (%)	Tariff value (BDT)	SD (%)
25	4.91	25%			7.10	20%			12.50	30%		
20			5.34	30%			7.72	35%			15.00	35%
12	2.35	25%			3.40	30%			6.00	30%		
10			2.69	30%			3.85	35%			7.50	35%
8	1.58	25%			2.25	30%			4.00	30%		

FY = fiscal year, SD = supplementary duty.
Source: National Board of Revenue, Government of Bangladesh.

Table 3: The excise and total tax share in the retail price of biri in Bangladesh, 2013–14 and 2017–18

	2013–14		2017–18	
	Nonfiltered (per 25-stick pack)	Filtered (per 20-stick pack)	Nonfiltered (per 25-stick pack)	Filtered (per 20-stick pack)
Retail price: BDT USD	 7.00 0.09	 10.00 0.13	 12.50 0.15	 15.00 0.18
Tariff value (tax base) per 25-stick pack: BDT USD	 3.88 0.05	 4.22 0.05	 -	 -
Supplementary duty % of tariff value % of maximum retail price	20%	25%	30%	35%
Health development surcharge % of tariff value % of maximum retail price	-	-	1%	1%
Value-added tax (VAT) % of tariff value + excise tax % of maximum retail price	15%	15%	15%	15%
Excise tax per pack (BDT)	0.78	1.06	3.88	5.40
VAT per pack (BDT)	0.70	0.79	1.88	2.25
Total tax per pack (BDT)	1.47	1.85	5.75	7.65
Excise tax share in retail price (%)	11.1%	10.6%	31.0%	36.0%
Total tax share in retail price (%)	21.1%	18.5%	46.0%	51.0%

- Excise tax includes supplementary duty and health development surcharge in 2017–18. Total tax includes excise and VAT.
- USD 1.00 = BDT 77.75 (Bangladesh Bank, December 30, 2013), BDT 82.70 (Bangladesh Bank, December 28, 2017).

Table 4: Number of workers with regular employment on the factory premises of 198 biri factories in Bangladesh, 2012

Employee category	Total number of employees
1. Owner employee	
Male	249
Female	23
2. Managerial staff	
Male	343
Female	6
3. Clerk	
Male	876
Female	20
4. Regular production worker	
Male	1,047
Female	159
5. Daily labourer	
Male	18,819
Female	10,156
6. Unpaid family worker	
Male	277
Female	205
7. All employee types	
Male	21,611
Female	10,569
Grand total	**32,180**

Source: Census of biri manufacturing industries, 2012.

Table 5: Characteristics of production workers on the factory premises of 198 biri factories in Bangladesh, 2012

Employee category	Total number of employees
Permanent	
Male	1,107
Female	144
Child (below 18 years)	4
Temporary	
Male	18,316
Female	9,947
Child (below 18 years)	1,145
Total	30,663
Full-time	
Male	4,461
Female	2,813
Child (below 18 years)	401
Part-time	
Male	14,967
Female	7,273
Child (below 18 years)	748
Total	**30,663**
Skilled	
Male	17,763
Female	9,511
Child (below 18 years)	594
Semi-skilled	
Male	1,508
Female	521
Child (below 18 years)	428
Unskilled	
Male	153
Female	58
Child (below 18 years)	127
Total	**30,663**

Source: Census of biri manufacturing industries, 2012.

Table 6: Number of workers with contract employment in 198 biri factories in Bangladesh, 2012

	Total number of persons
Contractors for rolling biri	
Male	721
Female	864
Child (below 18 years)	60
Contract workers for rolling biri	
Male	7,010
Female	58,783
Child (below 18 years)	21,015
Contractors for filling tobacco	
Male	8,780
Female	3,234
Child (below 18 years)	352
Contract workers for filling tobacco	
Male	16,572
Female	8,733
Child (below 18 years)	8,803
Total	**134,927**

Table 7: Effect of biri tax increase on biri sale, employment and income of biri workers, and government revenue

Baseline scenario	Nonfiltered biri (25-stick pack)	Filtered biri (20-stick pack)	Total
Retail price in 2018–19 (BDT)	12.50	15.00	
Supplementary duty (%)	30%	35%	
Health development surcharge (%)	1%	1%	
Value-added tax (%)	15%	15%	
Excise tax (BDT)	3.88	5.40	
Total tax (BDT)	5.75	7.65	
Net-of-tax price (BDT)	6.75	7.35	
Retailer margin (%)	5%	5%	
Retailer margin (BDT)	0.63	0.75	
Producer price in 2018–19 (BDT)	6.13	6.60	
Excise tax share (%)	31%	36%	
Total tax share (%)	46%	51%	
Annual biri sale (billion sticks), 2016–17	37.27	0.26	37.53
Annual biri sale (billion sticks), expected in 2018–19	31.91	0.22	32.13
Full-time equivalent employment (persons), 2012	46,595	322	46,916
Full-time equivalent employment (persons), predicted in 2016–17	41,772	288	42,060
Full-time equivalent employment (persons), expected in 2018–19	39,551	273	39,824
Average monthly income of a biri worker (BDT), 2012	2,061	2,061	
Average monthly income of a biri worker (BDT), 2018–19	2,651	2,651	
Annual biri tax revenue (million BDT), 2016–17	5,676	21	5,697
Annual biri tax revenue (million BDT), expected in 2018–19	7,340	67	7,408

Scenario 1: Increase supplementary duty to 55% of retail price (current rate for 'low' type cigarettes)	Nonfiltered biri (25-stick pack)	Filtered biri (20-stick pack)	Total
Proposed supplementary duty (%)	55%	55%	
Health development surcharge (%)	1%	1%	
Value-added tax (%)	15%	15%	
Expected retail price (BDT)	28.00	30.00	
Excise tax (BDT)	15.68	16.80	
Total tax (BDT)	19.88	21.30	
Net-of-tax price (BDT)	8.12	8.70	
Retailer margin (%)	5%	5%	
Retailer margin (BDT)	1.40	1.50	
Producer price (BDT)	6.49	7.00	
Excise tax share (%)	56%	56%	
Total tax share (%)	71%	71%	
% change in price (adjusted for inflation)	111%	89%	
Price elasticity of biri consumption	-0.22	-0.22	
Expected decrease in biri sales due to price increase (%)	-24%	-20%	-24%
Expected decrease in biri sales due to price increase (billion sticks)	-7.82	-0.04	-7.86
Expected decrease in biri sales due to declining trend (%)	-8.5%	-8.5%	
Expected decrease in biri sales due to declining trend (billion sticks)	-2.07	-0.01	-2.09
Total expected decrease in biri sales (billion sticks)	-9.89	-0.06	-9.95
Expected annual biri sale (billion sticks)	22.03	0.16	22.19

Scenario 1: Increase supplementary duty to 55% of retail price (current rate for 'low' type cigarettes)	Nonfiltered biri (25-stick pack)	Filtered biri (20-stick pack)	Total
Output elasticity of employment	0.72	0.72	
Expected decrease in FTE employment due to price increase (%)	−18%	−14%	−18%
Expected decrease in FTE employment due to price increase (persons)	−6,973	−38	−7,012
Expected decrease in FTE employment due to declining trend (%)	−4.7%	−4.7%	
Expected decrease in FTE employment due to declining trend (persons)	−1,850	−13	−1,862
Total expected decrease in FTE employment (persons)	−8,823	−51	−8,874
Expected loss of annual income of biri workers due to price increase (million BDT)	−282	−2	−283
Expected loss of annual income of biri workers due to structural decline (million BDT)	−75	−1	−75
Total expected loss of annual income of biri workers (million BDT)	−356	−2	−359
Expected biri revenue (million BDT)	17,515	139	17,654
Expected biri revenue (million USD)	209	2	211
Expected increase in biri revenue (million BDT)	10,175	71	10,246
Expected increase in biri revenue (million USD)	121	1	122
Expected increase in biri revenue adjusted for inflation (%)	125%	94%	125%
Total expected annual income loss of biri workers as % of additional biri revenue	3.5%	2.9%	3.5%

Scenario 2: Introduce specific tax of BDT 0.20 per stick with supplementary duty at 40% of retail price	Nonfiltered biri (25-stick pack)	Filtered biri (20-stick pack)	Total
Proposed supplementary duty (%)	40%	40%	
Proposed specific excise (BDT/stick)	0.20	0.20	
Health development surcharge (%)	1%	1%	
Value-added tax (%)	15%	15%	
Expected retail price (BDT)	28.00	30.00	
Excise tax (BDT)	16.48	16.30	
Total tax (BDT)	20.68	20.80	
Net-of-tax price (BDT)	7.32	9.20	
Retailer margin (%)	5%	5%	
Retailer margin (BDT)	1.40	1.50	
Producer price (BDT)	6.49	7.00	
Excise tax share (%)	59%	54%	
Total tax share (%)	74%	69%	
% change in price (adjusted for inflation)	111%	99%	
Price elasticity of biri consumption	−0.22	−0.22	
Expected decrease in biri sales due to price increase (%)	−24%	−20%	
Expected decrease in biri sales due to price increase (billion sticks)	−7.82	−0.04	−7.86
Expected decrease in biri sales due to declining trend (%)	−8.5%	−8.5%	
Expected decrease in biri sales due to declining trend (billion sticks)	−2.07	−0.01	−2.09
Total expected decrease in biri sales (billion sticks)	−9.89	−0.06	−9.95
Expected annual biri sale (billion sticks)	22.03	0.16	22.19

Scenario 2: Introduce specific tax of BDT 0.20 per stick with supplementary duty at 40% of retail price	Nonfiltered biri (25-stick pack)	Filtered biri (20-stick pack)	Total
Output elasticity of employment	0.72	0.72	
Expected decrease in FTE employment due to price increase (%)	−18%	−14%	−18%
Expected decrease in FTE employment due to price increase (persons)	−6,973	-38	−7,012
Expected decrease in FTE employment due to declining trend (%)	−4.7%	−4.7%	
Expected decrease in FTE employment due to declining trend (persons)	−1,850	−13	−1,862
Total expected decrease in FTE employment (persons)	−8,823	−51	−8,874
Expected loss of annual income of biri workers due to price increase (million BDT)	−282	−2	−283
Expected loss of annual income of biri workers due to declining trend (million BDT)	−75	−1	−75
Total expected loss of annual income of biri workers (million BDT)	−356	−2	−359
Expected biri revenue (million BDT)	18,220	136	18,356
Expected biri revenue (million USD)	218	2	219
Expected increase in biri revenue (million BDT)	10,880	68	10,948
Expected increase in biri revenue (million USD)	130	1	131
Expected increase in biri revenue adjusted for inflation (%)	134%	90%	134%
Total expected annual income loss of biri workers as % of additional biri revenue	3%	3%	3%

Table 8: Premature mortality attributable to biri smoking that can be averted by biri tax increase

Baseline scenario	
Total population (million)	159.5
Adult population, ≥15 years (million)	115.9
Youth population, 0–14 years (million)	43.5
Adult biri smoking prevalence (%)	5.0%
Number of current adult biri smokers (million)	5.80
Number of future biri smokers (million)	2.18
% of smokers who die prematurely	40%
Premature deaths in current biri smokers (million)	2.32
Premature deaths in future biri smokers (million)	0.87
Total premature deaths in current and future biri smokers (million)	3.19
Price elasticity of biri consumption	–0.22
Price elasticity of adult biri smoking prevalence	–0.11
Price elasticity of youth biri smoking prevalence	–0.22
Post tax increase scenario	
Survival rate in case of quitting (%)	70%
Relative reduction in current biri smoking prevalence (%)	–12.2%
Expected current biri smoking prevalence (%)	4.4%
Expected adult population, ≥15 years (million), 2019	117.8
Expected number of current biri smokers (million)	5.17
Reduction in number of current biri smokers	–628,467
Expected number of premature deaths in current biri smokers (million)	2.07
Reduction in number of premature deaths in current biri smokers	–175,971
Relative reduction in future biri smoking prevalence (%)	–24.5%
Expected future biri smoking prevalence (%)	3.8%
Expected youth population, 0–14 years (million), 2019	43.3
Expected number of future biri smokers (million)	1.63
Reduction in number of future biri smokers	–541,909
Expected number of premature deaths in future biri smokers (million)	0.65
Reduction in number of premature deaths in future biri smokers	–216,763
Total reduction in number of premature deaths in current and future biri smokers	–392,734
Percentage of premature deaths averted by higher taxes (%)	–12.3%

Table 9: Incidence of poverty (head count rate) in Bangladesh by division based on cost of basic needs approach, 2010–2016

	2010			2016		
	National (%)	Rural (%)	Urban (%)	National (%)	Rural (%)	Urban (%)
National	31.5	35.2	21.3	24.3	26.4	18.9
Barisal	39.4	39.2	39.9	26.5	25.7	30.4
Chittagong	26.2	31.0	11.8	18.4	19.4	15.9
Dhaka	30.5	38.8	18.0	16.0	19.2	12.5
Khulna	32.1	31.0	35.8	27.5	27.3	28.3
Mymensingh	-	-	-	32.8	32.9	32.0
Rajshahi	29.8	30.0	29.0	28.9	30.6	22.5
Rangpur	42.3	44.5	27.9	47.2	48.2	41.5
Sylhet	28.1	30.5	15.0	16.2	15.6	19.5

Source: Household income and expenditure survey, 2010, 2016; Bangladesh Bureau of Statistics 2010, 2016.
Note: Mymensingh was under Dhaka division during the Household income and expenditure survey 2010.

Table 10: Distribution of people employed in biri factories by district

District	Number of factories	Total number of regular employees	Total number of contractual workers	Total number of people employed	% of total number of people employed
Rangpur	53	11,736	50,365	62,101	37.2%
Kushtia	13	1,142	33,646	34,788	20.8%
Lalmonirhat	12	4,428	7,044	11,472	6.9%
Bagerhat	3	2,647	8,008	10,655	6.4%
Jessore	3	199	10,101	10,300	6.2%
Barisal	5	1,830	5,055	6,885	4.1%
Pabna	8	1,900	4,977	6,877	4.1%
Tangail	15	1,504	2,552	4,056	2.4%
Sherpur	3	682	2,665	3,347	2.0%
Kishoreganj	9	1,564	1,711	3,275	2.0%
Sirajganj	7	141	2,668	2,809	1.7%
Khulna	1	1,090	900	1,990	1.2%
Bogra	10	507	1,302	1,809	1.1%
Mymensingh	4	650	1,117	1,767	1.1%
Jhalokathi	1	214	640	854	0.5%
Potuakhali	1	193	480	673	0.4%
Netrokona	2	343	247	590	0.4%
Comilla	1	104	440	544	0.3%
Kurigram	3	302	161	463	0.3%
Natore	4	169	270	439	0.3%
Jamalpur	7	347	13	360	0.2%
Pirojpur	2	66	140	206	0.1%
Gaibandha	3	134	59	193	0.1%
Feni	1	36	125	161	0.1%
Narayanganj	4	54	92	146	0.1%
Narshingdi	2	24	39	63	0.0%
Manikganj	5	57	0	57	0.0%
Gazipur	1	22	27	49	0.0%
Shariatpur	3	21	26	47	0.0%
Naogaon	2	15	20	35	0.0%
Laxmipur	1	9	21	30	0.0%
Chittagong	4	9	9	18	0.0%
Chandpur	1	12	0	12	0.0%
Dhaka	1	11	0	11	0.0%
Madaripur	1	6	3	9	0.0%
Rajshahi	1	9	0	9	0.0%
Hobiganj	1	4	4	8	0.0%
Total	198	32,180	134,927	167,107	100%

Source: Census of biri manufacturing industries, 2012.

Table 11: Household economic resource indicators of biri manufacturing workers

A. Land and housing condition				
	Mean	N	Minimum	Maximum
Land size (decimal)	16.3	636	1	450
Size of the house (decimal)	4.2	1,746	1	52
Number of rooms in the house	1.6	1,746	1	6
	%			%
Ownership of property		Toilet facility		
Owned housing	87.2	Ring slab - non-water sealed		45.7
Free housing owned by others	6.7	Pit - permanent		22.9
Rented housing	3.9	Ring slab - water sealed		10.8
Employer's housing	1.3	Pit - temporary		9.1
Public property	0.8	Sanitary (with flush)		5.0
Others	0.1	Sanitary (without flush)		4.9
		Open space		1.7
Type of housing		Primary source of fuel for cooking		
Tin-shed	81.7	Cowdung/straw/leaves		53.7
Thatched	12.7	Firewood		44.8
Semi-brick built tin-shed	5.0	Natural gas (pipeline)		1.2
Brick-built	0.6	Electricity		0.3
		Not cooking at home		0.1
Water supply		Primary source of lighting		
Tubewell/deep tubewell	90.8	Electricity		63.32
Canal/river/pond	9.0	Kerosene oil		36.62
Water supply and sewerage authority (WASA)	0.1	Solar power		0.06
Well	0.1			
B. Household assets				
	%			%
Mobile phone	44.9	Refrigerator/fridge		0.5
Electric fan	41.4	Telephone (landline)		0.3
Poultry	40.2	Car		0.3
Cattle	22.9	Dairy farm		0.1
Television/cable network	20.2	Fishery		0.2
Bicycle/motor cycle	12.2	Nursery		0.1
Others	1.5	Cottage industry		0.2
Sewing machine	1.4	Air cooler/air conditioner		0.1
Radio/tape recorder/two-in-one/DVD	1.3	Computer/Internet connection		0.0
C. Main source of household income				
	%			%
Bidi making	43.4	Service		8.9
Trade	31.6	Self-employment		6.2
Day labour	9.0	Others		1.0

Source: Labour force survey of biri workers in Bangladesh, 2012.

Table 12: Percentage of workers by number of days worked per week and number of hours worked per day

	Work day per week								
Hours per day	0	1	2	3	4	5	6	7	**Total**
0	1.15	0	0	0	0	0	0	0	1.15
1	0	0	0	0	0	0	0.06	0	0.06
2	0	0	0.06	0.12	0	0	0.12	0.06	0.35
3	0	0	0.23	1.27	0.58	0.81	1.1	0.58	4.56
4	0	0.58	0.98	2.54	1.73	2.48	1.96	0.69	10.97
5	0	0.17	0.81	2.02	1.73	2.02	2.25	1.39	10.39
6	0	0.58	1.04	3.35	2.02	2.02	1.44	1.1	11.55
7	0	2.08	3.29	3.41	2.25	0.98	0.87	0.64	13.51
8	0	6.64	5.31	4.62	3.58	1.96	3.52	1.15	26.79
9	0	2.19	1.1	1.91	0.87	0.58	1.21	0.12	7.97
10	0	0.12	1.04	1.04	1.15	1.62	2.94	0.35	8.26
11	0	0	0.29	0.17	0	0.12	1.44	0	2.02
12	0	0	0.12	0.64	0	0.58	0.69	0.17	2.19
13	0	0	0.06	0.12	0	0	0	0	0.17
18	0	0	0	0	0.06	0	0	0	0.06
Total	1.15	12.36	14.32	21.19	13.97	13.16	17.61	6.24	100

Legend:

- <10 hours per week
- 10–20 hours per week
- 20–30 hours per week
- 30–40 hours per week
- ≥=40 hours per week

Source: Labour force survey of biri workers in Bangladesh, 2012.

Table 13: List of economic activities of biri workers other than biri making

Agriculture: farming, fisheries, hatchery, poultry, dairy
Nonagricultural self-employment activities: carpenter, mason, electrician, tailor, quilt maker, daily labour for digging soil, domestic servant, hand fan maker, handicrafts-man, hotel/restaurant business, tea stall, laundryman, moneylender, painter, Arabic instructor, tobacco selling, private tutor, vegetable/fruit vendor, cycle mechanic, snack selling, food delivery
Manufacturing industry: brickfield, press, garments, candle, oil, saw mill, furniture
Transport: rickshaw puller, auto rickshaw/van driver
Service: security guard, army personnel, NGO worker, office bearer
Transfer income: widow allowance, elderly allowance, disability allowance, house rent

Source: Labour force survey of Biri workers in Bangladesh, 2012.

Table 14: Reasons for willingness and reluctance of workers to switch occupation from biri making

Why willing to switch occupation?	Why reluctant to switch occupation?
1. Biri making is harmful for health, causes breathing problems and also cancer. 2. Biri factory is not running full time. It cannot provide full time and regular work. 3. Biri making is too laborious. Any other job is better than biri making. 4. The wage from biri making is low compared to the workload. It is insufficient to live on with family. Earning from other jobs would be higher. 5. Biri making is not the main occupation, doing it as a supplementary source of income. 6. Biri factory owners do not provide other work-related benefits/facilities. 7. The potential for increasing income from biri making is bleak. 8. Children do not like this job. 9. This job is not socially respectful.	1. Women can work from home. They can make biri at leisure after completing household chores. 2. Aged family members cannot travel far to find work in other places. 3. Because of age, do not have the ability to learn new skills required for other jobs. 4. There is no other employment opportunity/or industry in the locality. 5. Unable or unwilling to leave home to find work in some other areas. 6. Have been in this occupation for a long time. Do not know any other work. 7. Can do biri making along with other businesses. It is good as a part-time job. 8. Students can make biri at home after school hours. 9. Have long experience and expertise in biri making. 10. Enjoy the flexibility of work hours and independence of work. 11. The factory owners treat workers well. 12. Guaranteed cash payment on the spot upon delivery of biris. 13. Cannot do any other work because of ill health/disability/autism. 14. Have free housing from the factory. 15. The workplace is close to home. It does not require traveling far every day or leaving home for work.

Source: Labour force survey of biri workers, 2012.

Table 15: Past and future occupations other than biri making

Past occupations prior to engagement in biri making			Potential occupations in the event of closure of biri factory		
	N	%		N	%
Agricultural farm labour	68	4.4%	Agricultural farm labour	71	7.1%
Agricultural nonfarm self-employment	12	0.8%	Agricultural nonfarm self-employment	1	0.1%
Nonagricultural self-employment	51	3.3%	Nonagricultural self-employment	145	14.5%
Industrial labour	11	0.7%	Industrial labour	61	6.1%
Transport worker	14	0.9%	Transport worker	2	0.2%
Service	4	0.3%	Service	27	2.7%
Day labourer	88	5.7%	Day labourer	47	4.7%
Domestic servant	6	0.4%	Domestic servant	16	1.6%
Unemployed	11	0.7%	Migrate to urban area or abroad	7	0.7%
Biri making is the first occupation	971	62.9%	Retire	5	0.5%
Student	10	0.6%	Beggar/thief	4	0.4%
Unpaid family labour/housewife	297	19.2%	Do not know/cannot do any other work	585	58.3%
			Dependent on family/housewife	30	3.0%
			Searching for employment	2	0.2%
	1,543	100.0%		1,003	100.0%

Source: Labour force survey of biri workers, 2012.

Annex C: Census of biri manufacturing industries (CBMI)

Government of the People's Republic of Bangladesh
Tobacco Tax Cell
National Board of Revenue
Segunbagicha, Dhaka

Form code					

Census of biri manufacturing industries (CBMI) questionnaire, 2012

Name of the interviewer (1): **Code:**

Name of the interviewer (2): **Code:**

Name of enumerator from National Board of Revenue: **Code:**

Date: _____/ _____/ _____/

Day Month Year

(Start the interview by taking consent)

Section 1: **Identification of the industry**

1.1 **Name of the industrial unit:**_____

1.2 **Address of the industry:**

(a) Address of the factory _____

Upazila/Thana _____ Code: __ __

Zila _____ Code: __ __

Phone number: _____

(b) Address of the office (if the office is away from the factory):

_____

Phone number: _____

1.3 Type of ownership (please tick):

Government	1
Private	2
Joint-ownership (national and international)	3

1.4 Current operational status (please tick):

Running	1	
Temporarily closed	2	Date of closure: dd / mm / yyyy ____/____/____
Permanently closed	3	Date of closure: ____/____/____

If answer to question 1.4 is '2' or '3', then go to Section 5

Individual private ownership	1
Partnership	2
Private limited Co.	3
Pub ic imited Co.	4
Government ownership	5
Cooperative and others	6

1.6 Year of commencement of production: _____

VAT Registration number and date: _____

1.7 Accounting year: _____ to _____

month/year month/year

1.8 On average, how many days was the factory operational in a week during the past month? ____ days

1.9 On average, how many hours was the factory operational in a given day during the past month? _____ hours

Section 2: Fixed asset of the establishment in a fiscal year, and wages and salary of labour/staff

2.1 Information on fixed assets as of last fiscal year (in BDT):

Types of fixed assets	Code	Opening balance (in BDT)	Expenditure for repairing, alteration and extension		Amount of sale, transfer and damage in current year (in BDT)	Depreciation (in BDT)	Net value of the asset at the end of the year (in BDT) (2)+(3)–(5)–(6)
			Local (in BDT)	Foreign (in USD)			
(1)		(2)	(3)	(4)	(5)	(6)	(7)
Land	01						
Development of land	02						
Building/room (for resident and factory)	03						
Machinery and equipment	04						
Transport and equipment	05						
Other fixed assets	06						
Total							

2.2 Information on wages and salary of labour/staff working in this industry

Type of labour/staff/officers	Sex	Code	Average number of employees working daily (in the past month)	How many days was the factory operational during the past month	Total expenditure (in BDT) for salary and wages (including dearness allowance, bonus and other benefits) in the past month			
					Salary/ wages/ honorarium (BDT)	Cash/ noncash benefits	Expenditure for social security and pension provided by the organization	Total (4)+(5)+(6)
(1)			(2)	(3)	(4)	(5)	(6)	(7)
Administrative and managerial staff	M	1						
	F	2						
Clerks and salesman	M	3						
	F	4						
Permanent labour related to production	M	5						
	F	6						
Labour employed on temporary basis/daily wage	M	7						
	F	8						
Unpaid family workers	M	9						
	F	10						
Owner/ director/ partner employee	M	11						
	F	12						
Total	M	13						
	F	14						
Grand total								

2.3.1 Type of labour employed in the factory for production

Type of labour	Male	Female	Below 18 years of age	Total
Type of appointment				
Permanent				
Temporary				
Working hours				
Full-time				
Part-time				
Skill level				
Skilled				
Semi-skilled				
Unskilled				
Total				

2.3.2 Number of contractual suppliers (biri shell/manufactured biri)*

Name of the product	Type	Male	Female	Below 18 years of age	Total
Biri shell	Number of contractors				
	Total number of labour working under contractors				
Manufactured biri	Number of contractors				
	Total number of labour working under contractors				

* Do not double count labour in 2.3.2 that are already counted in 2.3.1

2.3.3 List of labourers (add pages if necessary)

Serial no.	Name	Age (in years)	Gender		Serial no.	Name	Age (in years)	Gender

2.3.4 Detailed information of labourers (please use extra sheet if needed)

(Collect information from one in every ten persons following the list of 2.3.3)

Serial No	Name	Age (in years)	Gender	Type of labour*	Working at which level of production**	Full time = 1 Part time = 2	How many days did you work in the past one month?	On an average how many hours did you work in a day?	In the past one month, how many days you could not work for biri production due to illness?

* 1 = permanent worker; 2 = workers employed on daily basis/temporary appointment; 3 = unpaid family member

** 1 = making biri shell; 2 = filling biri shell with tobacco; 3 = packing; 4 = fixing tickets; 5 = making raw material from tobacco leaf; 6 = almost all types of work; 7 = all types of work; 99 = others

2.3.4. Detailed information of labour (continued)

Serial No.	Level of education (up to which class have you studied?)	Number of years in present job	Wage/salary			Cash/noncash benefits per month (BDT)	Social security payments received per month (BDT)	Average monthly income (BDT)
			Amount (BDT)	Time unit of wage/salary (in BDT) =	Salary/ wage per 1000 sticks of biri production (in BDT)			
= 1 = hour; 2 = day; 3 = month; 4 = year.								

Section 3: Expenditure for raw materials, fuel and other costs of production per month

3.1 Raw materials and other supplies

Raw material and other supplies	Code	Unit of measurement		Raw materials and supplies used in the past month	
		Unit	Code	Quantity	Value (BDT)
Name of raw materials					
• Paper for biri shell	1	Rim			
• Tobacco	2	Kilogram			
• Glue	3	Kilogram			
• Others	4				
Material used for packing	5				
Spare parts for machinery and equipment	6				
Other supplies (except electricity and fuel)	7				
Total expenditure					

3.2 Expenditure for fuel and electricity used for production in the past month

Type of fuel	Code	Unit of measurement		Fuel used in the past month	
		Unit	Code	Quantity	Value (BDT)
• Fire wood	1	metric tonnes			
• Coal/hard coal	2	metric tonnes			
• Furnace oil	3	litre			
• Diesel	4	litre			
• Kerosene	5	litre			
• Petrol (motor sprit)	6	litre			
• Other fuel (oil)	7	litre			
• Natural gas	8	cubic feet			
• Electricity	9	kilo watt			
• No fuel used	10				
Total expenditure for fuel and electricity in the past month					

3.3 Other expenditures for production in the past month

Type of expenditure	Code	Value (in BDT)
Expenditure for getting the production done by others on contract basis with raw materials supplied by the factory	01	
Expenditure for repair and maintenance	02	
Other expenditure (please specify)	03	
Total		

Comments:

3.4 Expenditure for excise tax, income tax and other expenditures in the past month

Type of expenditure	Code	Value (in BDT)
Band roll (VAT + SD)	04	
Overhead and other expenditures (office supply, advertisement, water, transport, telephone, audit, license fee, legal fee, postage, etc.)	05	
Tax/rent for fixed property*	06	
Bank interest/interest of other loans taken	07	
Income tax	08	
Total		

* Estimated rent, if the factory building is owned by the company.

Section 4: Goods produced, sold and stored in a month; capacity of production

Name of produced goods	Code	Unit of measurement		Monthly production capacity	Actual production in the past month	Ex-factory price of pack of 25 sticks (in BDT)	Retail price of pack of 25 sticks (in BDT)	Total sale in the past month			
								Local market		Foreign market	
		Unit	Code					Quantity	Value (in BDT)	Quantity	Value (in USD)
Major goods produced											
• Biri	01	Stick									
By product											
	02										
Total faulty production	03										
Total	04										

4.1 Are you thinking of changing the business of biri production (for example, engaging your workers in the production of pickles or handicrafts)? ☐ Yes ☐ No

4.2 If the answer is 'yes', why do you want to change the business?

Thank the interviewee.

Comments by the interviewer:
The information given above by the authority is –

- Believable
- Somewhat believable
- Unwilling response of the interviewee
- Absolutely not believable

(Fill up section 5 if the answer to question 1.4 is '2' or '3; i.e the establishment is closed).

Section 5: Information about the closed establishment

□ Closed temporarily □ Closed permanently

5.1 What is the reason for closing down the factory?

5.2 How many workers were employed at the time of the closure? ———

5.3 Can you provide names and addresses of former biri workers who were employed in your factory?

□ Yes □ No □ Some can be provided

List six workers who were employed in this biri factory (ex-worker)

Serial No.	Name	Address	Mobile phone number
1.			
2.			
3.			
4.			
5.			
6.			

Thank the interviewee.

Annex D: Labour force survey of biri workers

Confidential

(Personal information will not be disclosed)

Form No.					

Government of the People's Republic of Bangladesh

Tobacco Tax Cell, National Board of Revenue

Segunbagicha, Dhaka

Survey of the labour force employed in the tobacco industry (biri sector), 2012

Section 1: Identification of the sample area		
Sample area particulars	Name	Code No.
Zila		
Upzila/Thana		
Union and ward		
Mouza/Mohalla		
Area (rural-1, urban-2)		
Sample household no.		
Name of head of the household		
Name of respondent labour		☐ male ☐ female Age ..... years
Mobile number		☐ working in factory ☐ working at home
If the respondent is a married man, how many wives does he currently have?		
If the respondent is married, how many alive children does he have?		

Description of the visit

Visit	Date	Progress of data collection (encircle the appropriate answer)		
1st visit		1- Complete	2 - Incomplete	3 - Refused
2nd visit		1- Complete	2 - Incomplete	3 - Refused

Investigator and editor/coder	Name	Signature	Date	Code	
Name of the interviewer (1)					
Name of the interviewer (2)					
Name of enumerator from the National Board of Revenue					

Section 2: Household/dwelling information (circle appropriate answer)

2.1	Ownership of house 1. Owned 2. Rent free 3. Rented 4. House provided by company 5. House in Khas land 99. Others (specify)	2.7	Primary source of fuel for cooking 1. Firewood 2. Dung/Straw/leaf 3. Electricity 4. Natural gas (pipeline supply) 5. Cylinder gas 8. Kerosene oil 99. Others (specify) _____	☐
2.2	Type of dwelling unit 1. Kutcha 2. House made of tin 3. Semi-pucca – Tin roof 4. Pucca 99. Others (specify).....	2.8	Primary source of lighting 1. Electricity 2. Kerosene oil 3. Solar 99. Others (specify) _____	☐

2.3	Number of rooms in dwelling unit (Except kitchen and toilet) ☐☐	2.9	Does the household own any of the following? (Multiple responses possible) 1. Radio/tape recorder/two-in-one/CD player 2. Television/cable network 3. Freezer/refrigerator 4. Telephone (land) 5. Air cooler/air conditioner 6. Electric fan 7. Cycle/motorcycle 8. Private car 9. Computer/Internet connection 10. Sewing machine 11. Mobile phone 99. Others (specify) ..... 13. None of the above
2.4	Area of dwelling unit ☐☐☐ (decimal)		
2.5	Toilet Facilities 1. Sanitary toilet 2. Pucca toilet (non-flushed) 3. Ring slab –water sealed 4. Ring slab – non-water sealed 5. Kaccha toilet (permanent) 6. Kaccha toilet (temporary) 7. Open space		
2.6	Primary source of drinking water 1. Shallow tube well 2. Deep tube well 3. Canal/river/pond 4. Water supply and sewerage authority (WASA)/municipality 5. Others (specify)	2.10	Household's own land ☐☐ (Compute all land owned by all members of the household) Decimal

Section 2: Household/dwelling information (circle appropriate answer)			
2.11	Does the household own any of the following? (Multiple response possible) 1. Cattle 2. Poultry/pigeon 3. Dairy farm 4. Fish farm 5. Horticulture (nursery) 6. Small/cottage industry (manufacturing) 7. None of the above		
2.12	Main source of household income 1. Self employed (agricultural work in own land) 2. Self employed (cottage industry) 3. Business 4. Service 5. Day labour 6. Recipient of income (house rent, foreign remittance, pension, etc.) 7. Bidi manufacturing 8. Others (specify) ...		

Section 3: Characteristics of the household

For all household members

Household member serial no.	Name of all household members (Members residing in the household permanently, include members who are temporarily absent but will return within six months Exclude visitors and strangers)	Relationship to head of family/household 1. Household head 2. Husband/wife 3. Son/daughter 4. Brother/sister 5. Grandson/granddaughter 6. Son-in-law/daughter-in-law 7. Father/mother 8. Other relatives 9. Non-relation 10. House servant	Sex 1. Male 2. Female	Age as of last birthday (If less than 12 months write '00')	Educational qualification (Up to which class/year you studied?)

Section 4: Current activity status (for respondent aged 18 years and above)

Household member serial no.	In the past seven days, have you been involved in any activity related to bri production for at least one hour or more? 1. Yes → 4.3 2. No → 4.2		Please, provide the reason why you did not work during the past seven days or more: 1. Personal leave 2. Maternity leave 3. Sick leave 4. Bri factory closed temporarily 5. Bri factory closed permanently/Jobless bri worker 98. Others (specify) [1,2,3,4 or 98 → go to 4.4 and 5 → go to section 5]	What task do you perform? * Activity	What is the name of bri factory where you work most of the time or what is your main activity at home?	What is the main activity of bri factory (where you work most of the time) or what is your main activity at home?		Where do you mainly undertake your work? Fixed premises • For persons working at home 1. At my home with no special work space 2. At my home with work space mostly attached to the home • For persons working outside home 3. At factory 4. At owner's residence Unspecified work place 5. No fixed location (moves on the streets by going door-to-door) 96. Others (specify) _____
						Main activity *		
	4.1		4.2	4.3	4.4	4.5	4.6	4.7

* Activity code: 1 = preparation of raw material from tobacco leaf; 2 = making bri shell; 3 = filling bri shell with tobacco; 4 = closing the mouth of bri shell; 5 = packing; 6 = fixing sand roll; 8 = not applicable; 7 = all tasks related to making bri; 98 = Others (specify)

Section 4: Current activity status (continued) …										
Household member serial no.		What is your employment status? 1. Permanent labour at the factory 2. Temporary worker at the factory 3. Casual/irregular labour 4. Labour working at home 5. Unpaid family member	What is the type of ownership of the enterprise in which you work? 1. Private ownership 2. Private limited company 3. Public limited company 4. Do not know 5. Farm at home	How many persons (including yourself) work in the bidi factory where you are employed? How many persons at home make bidi (male / female / child below 18 years of age)	What do you get your salary/wage? 1. Daily 2. Weekly 3. Monthly 4. Based on quantity of output 99. Others (specify)	Did you receive any payment/income * BDT and/or its equivalent to money in the last seven days?			What is your basic activity place where you are employed/what is your job at home?	
						Yes		If no, enter 2		
						In BDT	In goods (equivalent BDT)		Activity *	
		4.8	4.9	4.10	4.11	4.12	4.13	4.14	4.15	4.16

* Activity code: 1 = preparation of raw material from tobacco leaf; 2 = making bidi shell; 3 = filling bidi shell with tobacco; 4 = closing the mouth of bidi shell; 5 = packing; 6 = tying band roll; 6 = most applicable; 7 = all tasks related to making bidi; 99 = Others (specify)

Section 4: Current activity status (continued)

Household member serial no.		What is your type of employment? 1. Permanent →4.19 2. Temporary 3. Seasonal 4. Part-time 5. Casual 6. Work from home	What is the reason for not having a permanent job? 1. Did not want a permanent job 2. Unable to work 3. Could not find a permanent job 99. Others (specify)	Work timings 1. Full time → 4.21 2. Part time	Why do you work part time? 1. Not at my will/ unable to take full-time work 2. Unable to find full-time work 3. Because of the employer's lack of initiative 4. As the task is finished within a specific time 5. As the factory operates part time 6. As I work from home 99. Others (specify)	How much time did you actually work during the last seven days?		Contract	
								Do you have a job contract? 1. Yes, written contract 2. Yes, verbal contract 3. No 4. I work from home → 4.23	Do you get a pay slip? 1. Yes, with complete information 2. Yes, but it does not contain detailed information 3. No
						Days worked in the last seven days	Hours on an average per day		
		4.17	4.18	4.19	4.20	4.21		4.22	4.23

Section 4: Current activity status (continued)

Household member serial no.		What benefits are provided by the employer?									In the company where you work/work from you supply			
		Write "1" if Yes, write "2" if No, and "3" if Do not know								If you are terminated, would you be given notice? 1. Yes 2. No 88. Do not know	How long have you been in this job? (months)	For how many months has the enterprise been operating during the past 12 months? 88. Do not know	Is the business registered under any national or local government authority? 1. Yes 2. In the process of being registered 3. No 4. Do not want to answer 88. Do not know	What are the main difficulty in setting-up the business? 1. Acquisition of capital/credit 2. Lack of knowledge 3. Registration 4. Legal requirements 5. Acquisition of new technologies 6. Finding qualified workers 7. Acquisition or rent of a place 8. No difficulties 9. Others, specify..... 88. Do not know
		Had leave:			Free subsidized meals	Free subsidized lodging	Bonus	Work dress	Pension fund contribution by employer					
		Earned leave:	Sick leave:	Maternity leave:										
		4.24	4.25	4.26	4.27	4.28	4.29	4.30	4.31	4.32	4.33	4.34	4.35	4.36

For the interviewer: If the member of the household is engaged in more than one activity, please record information about those in separate lines.

Section 4: Current activity status (continued)

Household member serial no.		Please give the exact number of bidi workers in your factory/room:			How many men and workers?			Do you do anything else other than making bidi?	Why are you doing another job?	Did you look for another job during the next four months?	Why did you look for another job?
		Men	Women	Children below 18 years of age	Men	Women	Children below 18 years of age	1. Yes 2. No → 4.43	1. Bidi making does not provide enough income 2. Need additional money for special purposes 3. Want to work more hours or full time as I am left with time to attend many days after bidi making 4. Main employment does not correspond to my qualification/specialty 5. Need to help relatives 6. Job of bidi making is not available many day 99. Others (specify)	1. Yes, I looked for an additional job 2. Yes, I looked for a new job 3. No → Section 6	1. Reduction of scope of work/job not available many day 2. Contract is going to end 3. Mismatch between my qualification and current job 4. Unsatisfactory working conditions 5. Health issues 6. Low salary/low income 99. Others (specify) …. → Section 6
		4.37	4.38	4.39	4.40	4.41	4.42	4.43	4.44	4.45	4.46

Section 5: Unemployed biri worker (aged 18 years and above)

Household member serial no.	Did you look for a job or try to start your own business during the last four weeks? 1. Yes, I looked for a job 2. Yes, I tried to start my own business 3. No →5.3	What did you do to get a job? (multiple answers possible) 1. Contacted to get a government job 2. Contacted to get a job in non-government organizations 3. Contacted employers directly 4. Looked for job in various sectors and factories 5. Contacted friends/relatives 6. Applied to newspaper advertisements 7. Applied through internet 96. Others (specify) → 5.4	Why have you not looked for a job during the last seven days? 1. Waiting for appointment 2. Received appointment letter, waiting to join 3. Did not get a good job 4. Studying 5. Got engaged in household work 6. Retired – will not work any more 7. Do not need to work any more 8. Cannot work because of sickness, injury 9. Tired of looking for job/ Exhausted 10. No job opportunity in the area 96. Others (specify)	How long have you not worked in the last 12 months? (in months)	If there is a job available, would you be able and ready to join? 1. Yes 2. No
	5.1	5.2	5.3	5.4	5.5

Section 6: Questions related to alternative livelihood (circle appropriate answer)

6.1 What is your place of birth?

District: _____ Code _____

6.2 If not born in the same place where you are working:

a. In which year did you migrate _____

b. How did you migrate?

1. Through marriage

2. Through work

3. Others (specify) ...

c. I was born in the district, where I am working

6.3 How long have you been making biris? (fill up one option below)

____ (years) ____ (months) ____ (weeks) _____ (days)

6.4 Which stage of biri production do you work in?

1. Preparing raw material from tobacco leaf

2. Rolling biri paper/ making biri shell

3. Filling biri shell with tobacco dust

4. Closing the mouth of biri shell

5. Packaging

6. Fixing band roll

7. Almost all

8. All work related to making biri

99. Others (specify) ...

6.5 Did any of your parents/parents-in-law work in biri making?

1 Yes
2 No

6.6 Did any of your grandparents work in the biri industry?

1 Yes
2 No

6.7 On an average, how many days in a week do you make biris? _____ days

6.8 On an average how many hours in a day do you make biris? _____hours

6.9 Is the biri industry your only source of income?

1 Yes
2 No

6.10 What other sources of income do you have (name up to three)?

1 _____ _____

2_____

3_____

B.11 What are your average earnings (BDT) per month from each source?

Biri making _____

1 _____
2 _____
3 _____

B.12 What percent of your total income is from making biri?

_____ %

B.13 Do other members of your family make biri?

1 Yes

2 No → B.15

B.14a How many people of your family make biri? _____

B.14b Please provide the serial number of your family members who are making biri; and stage of production where she works.

Household member serial no.	Stage of production*

* Use code used for question B.4

B.15a Do you think your children would make biri as a major source of income?

1 Yes → B.16
2 No

B.15b If 'No', explain why?

_____

_____

B.16a Is the income you earn from your current employment in the biri industry enough to live on?

1 Yes → B.17
2 No

B.16b If 'No', what would you do to earn extra money?
(Multiple response possible)

1 Borrow from bank and start a business
2 Borrow from friends/family
3 Borrow from microcredit institutions
4 Borrow from biri worker cooperatives/associations
5 Borrow from moneylenders
6 Start a business with own money
7 Supplement income from farming/ agriculture
8 Supplement income from cottage industry
9 Supplement income with other private sector jobs
10 Try for a government job
11 Apply for government low-income social benefits
12 Use savings
13 Do nothing
14 Depend on family income
99. Others (specify: ....

6.17a If there is a job opportunity that would offer the same income as you are earning from biri-making now, would you give up biri making?

1 Yes, shall give up biri making

2 No, shall continue biri making

6.17b Explain why.

_____

_____

6.18 Has your income from making biris increased/decreased/remained same compared to income five years ago?

1 Increased
2 Decreased
3 Remained the same

6.19 What was your profession before you started biri making?

6.20 If the biri factory closes, what type of work do you see yourself earning your livelihood in?

6.21a Do you have the necessary skills to be employed in this type of work?

1 Ye › 6.22
2 No

6.21b If No, are you willing to learn the necessary skills?

1 Yes
2 No

6.22 Would you be willing to do another job full time or just part time?

1 want to give up biri making completely and to do something else

2 want to continue biri making plus do another job part time

6.23a If the government launches a redeployment programme for biri workers, would you consider giving up biri making?

1 Yes
2 No

6.23b Explain why.

_____

6.24 How much income per month do you expect an alternative livelihood could provide you if you were to switch to it from biri making?

_____

6.25 Are you, or any of your family members, member of any NGOs/MFIs?

1 Yes
2 N › 6.26

8.26 What is the name of the organization(s) that you, or your family member, is affiliated with?(name up to three organizations)

1. ----------
2. ----------
3. ----------

8.27 What kind of services do you avail of these organizations?

1. ----------
2. ----------
3. ----------

8.28 Is there any government poverty alleviation/safety net programme in your area?

1. Yes
2. → 8.32
3. Do not know → 8.32

8.29 Please enumerate three government poverty alleviation/ safety net programmes

1. ----------
2. ----------
3. ----------

8.30 Are you or any of your family members benefiting from these programmes?

1. Yes
2. → 8.32

8.31. What type of service (such as cash, empathy, employment in public works programme) do you or your family members receive from these programmes?

1. ----------
2. ----------
3. ----------

8.32 Thank the respondent.

~~~~~~

Interviewer: This question is for you to respond.

Overall evaluation about the interview.

1 Reliable
2 Somewhat reliable
3 The respondent responded against his will
4 Not at all reliable at all
~~~~~~

Annex E: Focus group note taking form

Instructions: Please use this form to record the proceedings of the focus group. Notes should be extensive and accurately reflect the content of the discussion, as well as any salient observations of nonverbal behaviour, such as facial expressions, hand movements, group dynamics.

Please specify which focus group you are recording (please check one):

- ☐ Biri factory owners
- ☐ Biri worker association
- ☐ Local NGOs
- ☐ Members of civil society (such as teachers, physicians, engineers, technocrats)
- ☐ Owners of business enterprises other than biri

Date of focus group : _____

Location of focus group : _____

Name of note taker : _____

Name of facilitator : _____

Five ground rules for discussion:

Rule 1 : Only one person talks at a time.

Rule 2 : Confidentiality is assured. “What is shared in the room stays in the room.”

Rule 3 : It is important for us to hear everyone’s ideas and opinions. There is no right or wrong answer to questions – just ideas, experiences and opinions, all of which are valuable.

Rule 4 : It is important for us to hear all sides of an issue – both positive and negative.

Rule 5 : It is important for ideas from women and men to be equally represented and respected.

Question 1: What are the main sources of employment/income in your area?

Question 2: How important is the biri industry in providing employment/ income to the people in your area?

Question 3: Describe the socioeconomic status of the people who are employed in the biri industry.

Question4: Are you aware of the tobacco control policies of the government? Do you know that these policies may affect biri consumption and production?

Question 5: How is the contraction of biri industry going to affect your own or your organization's business?

Question 6: If the biri industry cuts down employment gradually, where do you think the workers freed from the biri industry can be absorbed?

Question 7: Do you or your organization have any capacity to employ displaced biri workers?

Question 8: Would you consider hiring laid off biri workers? Why or why not?

Question 9: Are there NGOs/MFIs that are working to support or can potentially support displaced biri workers?

Question 10: What government programmes exist to support displaced biri workers?

Question 11: Are there community-based programmes, such as cooperatives that can support displaced biri workers?

Question 12: What type of training needs to be provided for skill development of displaced biri workers to help them find alternative sources of livelihood?

zuestion 13: What else can be done to support workers displaced from the biri industry?

Question 14: Are you aware of people who used to work in a biri factory and are currently employed in some other place?

Question 15: Are you aware of people who used to work in a biri factory that are currently unemployed?

Question 16: What is your overall opinion about the government's initiative to cut down tobacco consumption in the country?

Annex F: Map of Bangladesh

Source: http://www.lged.gov.bd/ViewMap.aspx

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