

REVIEW ARTICLE

Economics of Smokeless Tobacco in India

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Abstract

Despite the high prevalence of Smokeless Tobacco (SLT) in India, cost-effective interventions to curb smokeless tobacco use are very low. Taxation is considered as one of the most cost-effective intervention to curb overall tobacco use but taxation on SLT product is very complex and is on ad-valorem basis. Further, Goods and Service Tax has increased the price from 0.8/gram to 1.06/gram, but still the impact of increasing the tax needs to be explored so that harmony between excise revenue generated from these products and decrease in demand of these products can be maintained. Therefore, we carried out a literature review, which involved literature search, data extraction, and synthesis. The evidence suggests that the price elasticity of SLT products has gone closer to the inelastic nature with the passing time suggesting the increasing affordability of these products. The macroeconomic impact of the disease burden resulting from these SLT products is far greater than excise revenue generated by these products. More research is required in this field with updated data. The agricultural aspect of SLT products also need to be explored to determine cost-effective alternative crops for tobacco farming. Also, as the use of SLT is culturally accepted in India, appropriate public awareness program and cost-effective interventions are required to curb SLT use along with increased tax and cessation services.

Keywords

Economics; Health Economics; Smokeless Tobacco; Cost Effectiveness; Economic Evaluation; Non-Communicable Disease; Political Economy

Introduction

Unburned tobacco is known as “smokeless tobacco” (SLT), which is consumed either orally or nasally. (1) In South-East Asia (SEA) Region, India is the largest manufacturing country of smokeless tobacco. (2) According to Global Adult Tobacco Survey-2 conducted in 2016-17, out of 29% of tobacco users in India, 18% of adults use smokeless tobacco only. (3) This implies smokeless tobacco users are more than twice in India as compared to smokers. This

contribution of smokeless tobacco users is clearly depicting that smoking epidemic is being replaced by smokeless tobacco use in the country. The predominant forms of smokeless tobacco (SLT) use in India are (i) chewing tobacco – leaf, khaini, zarda, kiwam, gundi, and betel quid with tobacco, (ii) Areca nut mixtures for chewing – pan masala, gutka, Mainpuri tobacco, mawa, and dohra, (iii) Products for application – gudhaku, gul, creamy snuff, lal dantmanjan, and mishri, and finally (iv) Products for

gurgling/sipping – tuibur, hidakphu. (4) The use of SLT products varies across the states in India and is determined by socioeconomic and cultural practices. (5) The most vulnerable section bears most of the burden of mortality and morbidity due to SLT. Tobacco use leading to chronic diseases pour the significant effect on the economic and societal costs due to premature deaths, loss of income, reduced functional capacity and increased health care cost. Direct costs are the medical costs of treating tobacco related diseases whereas indirect cost includes loss in labour productivity, intangible losses due to sufferings and the costs of lives lost to premature mortality. The total direct and indirect costs due to tobacco use poses a huge burden of 1.16% on gross domestic product (GDP) and that of smokeless tobacco poses around 0.3% on GDP. (6,7) Besides this huge burden, there is a little information available on the microeconomics and macro-economic impact of these SLT products. Therefore, in this paper, we have tried to give the comprehensive picture of the economics of SLT products, its political economy, identify cost-effective interventions to curb smokeless tobacco usage and determine the priorities for future research in this field.

Setting the context for economics of SLT products

Microeconomic Impact of SLT

Increase in tax for tobacco use often have dual benefits of increasing contribution of tobacco in tax revenues as well as encouraging tobacco users to quit and discouraging tobacco initiation. However, the taxation structure on SLT products is quite complex. The tax on SLT products are on ad-valorem basis i.e. on the basis of percentage of the retail price of the product. (8) With increase in ad-valorem tax rate on SLT products, there was an increase in excise revenue from chewing tobacco. The trends in tobacco consumption from 2000-2013 shows that the share of chewing tobacco varied from 6.67% to 8.05%. However, the share of excise revenue contributed by chewing tobacco (1%) out of total excise revenue is much less than its share in consumption. (9) This clearly depicts that there is need for more taxation for these SLT products. Another argument for raising tax on SLT products is the increasing affordability of SLT products. With rise in per capita income of the population, the SLT products become more affordable as the tax increase is not commensurate with rise in income

levels. Affordability is measured as the ratio of Retail Price Index (RPI) or Whole sale Price Index (WPI) and per capita income. The declining ratio indicates increased affordability over the years.⁹ This declining trend has been observed in India as well as in other neighbouring countries for the tobacco products, thus, indicating affordability of these products. (10,11)

Price elasticity is a key parameter that is defined as a measure to ascertain the percent change in demand of a good with respect to a percent change in price. The value of price elasticity less than 1 is termed as 'inelastic', which implies change in price does not influence change in demand to the great extent. The good is termed as inelastic if the price elasticity of that good is zero. There is limited evidence on the temporal trends for price elasticity of smokeless tobacco in India. Within existing evidence, the price elasticity of leaf tobacco has been reported to vary from 0.5 - 0.9. (12,13) Much of this evidence is based on analysis of NSSO data which considers zarda, kimam and surti as the three forms of leaf tobacco. The price elasticity has declined from 0.9 to 0.5 using the same methodological approach indicating that Indian consumers are becoming more inelastic to any increase in leaf tobacco price. Selvaraj *et al* has estimated this price elasticity of leaf tobacco among the economic classes where inelastic behaviour is more visible in middle wealth quartile (-0.45) as compared to poorest quartile (-0.57). Overall, the existing evidence indicates that rise in tax on SLT products has not kept pace with rising incomes and economic growth, thus leading to increase in affordability of these SLT products. (13)

Macroeconomic Impact of SLT

Macroeconomic impact of smokeless tobacco includes direct medical expenditure and indirect expenditure of chronic diseases resulting from SLT use such as cancer, cardio-vascular disease (CVD), tuberculosis (TB) and respiratory diseases. However, measurement of direct cost due to SLT in all the existing studies has excluded respiratory diseases because of lack of evidence on the magnitude of risk which smokeless tobacco poses for respiratory diseases. While direct cost is defined as medical expenditure for treatment of these diseases, indirect medical expenditure includes the costs due to travel and the expenditure of caregivers. Other costs which are included in measurement of indirect costs

include cost as a result of morbidity (because of absenteeism from work, and reduced productivity) and cost of premature mortality. In 1999, Rath and Chaudhary reported the economic cost for three major diseases caused for all forms of tobacco in India to be US\$ 6.2 billion which after updating these costs to 2002–2003 was US\$ 6.6 billion. (14) Another study by John RM *et al* on economic cost of smoked and smokeless tobacco estimated the total cost of US\$ 1.7 billion and that of SLT economic cost was US\$ 38.9 million for 2004. (15) The study conducted by John *et al* estimated the total cost including direct, indirect morbidity and mortality to be US\$ 23.3 billion and the contribution of smokeless tobacco is US\$ 5.2 billion for 2011 (conversion rate taken as 44.7). (7) The estimation of the study conducted by John RM *et al* is low because of the non-inclusion of premature mortality costs in their study. Also, they have included only four diseases cause by tobacco whereas burden of many more diseases are known to be cause or exacerbated by tobacco use which later study have used in the form of all-cause mortality. (7,15) Major limitation of these studies is that all the studies have used a non-representative small sample sized Mumbai cohort study during 1990's for relative risks and the secondary data pertaining to the last decade (NSSO-2004).

Therefore, there is need to have more representative data and need to generate updated estimates pertaining to recent NSSO data (2014-15). There is need to harmonize the methods for macroeconomic burden and future research for improvising methods to analyse indirect costs as how to value those in the informal sector and home-makers.

Political Economy of SLT products

National Sample Survey Organization (NSSO) places the direct and indirect tobacco workforce in India at approximately 7 million during 2004-05, representing approximately 1.5% of overall employment in the formal sector. The overall employment includes workers engaged in tobacco farming, manufacturing and the wholesale/retail trade, either full or part time. Around 63% of the overall workers were involved in manufacturing of tobacco products, 27% in trade whereas less than 10% were involved in cultivation. The case studies of Gujarat (16) and Karnataka (17) in early 2000's had

shown that that farmers who had switched from tobacco to multiple cropping/intercropping yielded a higher net return per hectare as compared to tobacco cultivation. (18) The studies from other neighbouring countries like China and Kenya in the last decade has shown that shifting of tobacco cropping to other crops such as white mushroom, grapes, bamboo had increased their annual income to several folds. (19) Besides the low turnover of tobacco crops, these plants deplete the soil of nutrients, including nitrogen, potassium, and phosphorus more than other food and cash crops along with being vulnerable to a variety of pests and diseases, prompting many farmers to apply large quantities of chemicals and pesticides. These can create environmental health problems in the country like India with lax regulatory standards. None of the study in India had accounted the cost of environmental harmful effect of tobacco farming, thus laying the future grounds for research in this area.

Cost-effectiveness of interventions to curb SLT prevalence

Taxation has been considered as the most cost-effective interventions to curb the prevalence of tobacco use. Direct health expenditure (INR 5257 crore) for diseases attributable to SLT is five times more as compared to the total excise revenue generated through these SLT products (INR 1429 crore). The economic cost that includes direct and indirect health expenditures (INR 23,364 crore) is way too high from the SLT excise revenue. (7,9) This is a good measure anti-tobacco advocacy to decrease the marketing of SLT products in India. Despite a change in epidemic from smoking tobacco to smokeless tobacco (20) evidence on the cost-effectiveness of interventions to curb smokeless tobacco use in India is very limited. Only two studies on cost-effective interventions on smoking tobacco in schools has been reported in a systematic review of economic evaluations from India. (21) The cost benefit ratio use of mass media to control tobacco use was US\$0.06 per quit attempt, US\$2.6 per permanent quit and US\$9.2 per death averted. (22) Health warning labels on packaging of tobacco products has been considered second most cost-effective measure to control tobacco use after taxation with no cost to the government. (23) However, a cohort study conducted in India (24) has shown the low effectiveness of health warnings on

SLT packages in India and the change from the early scorpion symbolic warning (pre-policy) to graphic health warning labels (post-policy) did not lead to significant effect on curbing the use of SLT products. This calls for the critical need to implement health warning labels on SLT products to be larger in size to generate its cost-effectiveness and impact fullness so as to drive forward the gains of the anti-tobacco movement in the country.

Critical gaps in Evidence

There is an urgent need to generate credible evidence at each stage of tobacco cycle starting from growing, manufacturing, packaging and labelling, marketing, product usage and disposal.

At the point of growing tobacco leaves in the ground, it is crucial to do assessment of the techno-commercial viability of alternative farming, impact of tobacco on farmers' health, possible alternate uses of tobacco crop itself, developing agricultural subsidy products for alternative farming to incentivize farmers, and evaluate the effect of tobacco crop on soil erosion. It is important to involve agricultural universities for finding alternatives to tobacco farming. The involvement of non-formal sector engaged in tobacco employment can be brought under coverage for viable alternatives by linking them to the banks and through AADHAR card drive. The examples from the neighbouring country like Bangladesh where the government is providing easy-term loans to cultivate alternate crops should be brought into action.¹⁹ Bank loans for tobacco cultivation and banning subsidies on fertilizer to tobacco farms should be done besides finding solutions for alternative cropping for tobacco.

The patterns of SLT market is still need to be explored. Besides banning free chewable tobacco products, there is need for updating price elasticities regularly as this entity is highly dependent on income level. The future research in terms of estimating price elasticity of SLT products should focus on the income elasticity effect as well as cross-price elasticity as a result of changes of alternate forms of tobacco. There is a limited literature on the estimation of elasticity effects separately for never-users, and those who are chronic users. Other important aspect that needs to be explored is the effect of GST application on price, tobacco consumption and revenue. It is important to have

more accurate measures for relative risks of developing health disease states following the use of SLT products, in order to determine the magnitude of health effects attributable to SLT.

NCDs poses huge burden in developing countries. From 2011-2025, US\$ 7 trillion is the cumulative lost output due to NCDs in developing countries. Around half of this (US\$ 170 billion) is the overall cost to scale up action by implementing a set of "best buy" interventions between 2011 and 2025, identified as priority actions by WHO and one tenth (US\$ 620 billion) is the overall cost to scale up action for tobacco use. (25) Smokeless tobacco products impose huge challenges on tobacco regulation such as taxation and pictorial health warnings. There is need for reviewing evidence on the efficacy and cost benefit analysis of SLT related cessation interventions including pharmacological, behavioural and tradition methods. The cost-effective interventions could be pharmacological (including for example nicotine replacement therapy (NRT) and bupropion) or behavioural (for example, SLT users visiting the dentist, attending school or working) and could be directed at individual SLT users or at groups of users. A meta-analyses of effectiveness of such interventions suggested that behavioural interventions such as the use of telephone counselling or an oral examination can be effective for SLT users, but the pharmacological interventions and nicotine replacement therapy (gum, patch) are still in question for its effectiveness on the abstinence rates for smokeless tobacco. (26) Therefore, more studies to assess the effectiveness and cost-effectiveness of pharmacological and behavioural interventions for SLT use cessation are recommended.

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