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Data Article

Estimating the annual production data of bidi sticks in India using the "back-of-the-envelop-method"

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ABSTRACT

The Indian bidi industry is largely unorganised with poorly implemented regulations along with laxed taxations. The unaccounted production of bidi sticks might potentiate its illicit circulation and therefore, unchecked availability to the minors. Specific production estimates may lead to stricter compliance with the existing regulatory norms. Due to the paucity of evidence and wide variability in production numbers, this estimation of the exact number of bidi sticks produced annually within the country was conducted. The annual number of produced sticks were estimated using the available literature till May 2023, on: a) the quantity of auctioned tendu leaves, b) number of bidi rollers, and c) bidi tobacco cultivated. Around 10 % attritions were considered during each stage of the manufacturing process to arrive at the production estimates. Annual bidi stick production was estimated as a) 319.83 billion, b) 600 billion to 1 trillion, and c) 974 billion to 1.19 trillion. This research provides a cru-

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cial estimate of the alarming number of bidi sticks produced and address the significant gap in reliable data of production figures. These insights underscore the urgency for stringent policy measures and regulation of bidi industry to safeguard health and curtail illicit practices.

Specifications Table

Subject	Health and Medical Sciences
Specific subject area	Public Health and Health Policy, Epidemiology
Type of data	Chart, Figure Analysed
Data collection	Secondary data
Data source location	Government reports – Ministry of Labour and Employment and Forest Department
Data accessibility	Repository name: Mendeley Data Data identification number: 10.17632/9b3k6k4hc4.2 Direct URL to data: https://data.mendeley.com/datasets/9b3k6k4hc4/2

1. Value of the Data

- Estimating the annual output is the most crucial step to understand the value chain dynamics of the bidi industry in India.
- Addresses the significant gap and at the same time, raises pertinent questions around the discrepancy in the reported versus the reality – a potentially significant contributor in the unorganised nature of this trade.
- This data highlights the importance of addressing the adverse health and economic consequences associated with bidi smoking. It underscores the need for policy decisions aimed at comprehensively understanding the scope and impact of the bidi trade, thereby facilitating the development of effective regulatory measures.

2. Background

Bidi, is a traditional Indian cigarillo, wherein tobacco is wrapped in *tendu* leaf, and is marketed as a cheap alternative to cigarettes. There is a high variability in the actual production numbers and those claimed by bidi manufacturers in the country. This arises as a result of lax regulatory policies and tax relaxations for bidi manufacturers paving way for a large number of unaccounted bidi sticks bypassing the official regulatory channels, making the bidi industry highly fragmented and unorganised. As a result of this, an enormous hazard is posed in terms of illicit circulation and unchecked availability of the bidi sticks to minors. Any policy reform in context to bidi control can only be stringently enforced if the actual range of annual production numbers are estimated based on the available evidences of resource inputs.

3. Data Description

The data sets for the estimations include three sources, namely annual quantity of tendu leaves auctioned by the state forest departments across India based on available literature and forest department data [1], annual tonnes of bidi tobacco cultivated across all Indian states based

on available literature [2] and number of workers involved in bidi rolling process across the country based on official government report [3].

From the tendu leaves approach, an estimated 319.23 billion bidi sticks are estimated from reported 50 lakh standard bags and a weighted average of 52,548 leaves per bag. The estimates were arrived after accounting for 10 % wastage each during auctions and processing and considering known estimated for illicit tendu patta. (Supplementary Data File)

From the bidi tobacco approach, 264 thousand tonnes of annual bidi tobacco was produced in the country and 61 thousand tonnes exported. Considering an average 0.18–0.22 g of tobacco per bidi stick [4] yielded a range of 972 billion to 1.19 trillion sticks annually.

The Bidi Rollers approach considered 50 lakh worders who roll bidi with an average of 300 working days per-year. Further, an average 400–700 sticks per-day yield [5] was considered to arrive at 600 billion to 1.05 trillion sticks produced annually.

4. Experimental Design, Materials and Methods

Based on the available literature of quantities of raw material and human resource inputs which goes into the production of bidi sticks, a framework was designed to calculate final pro-

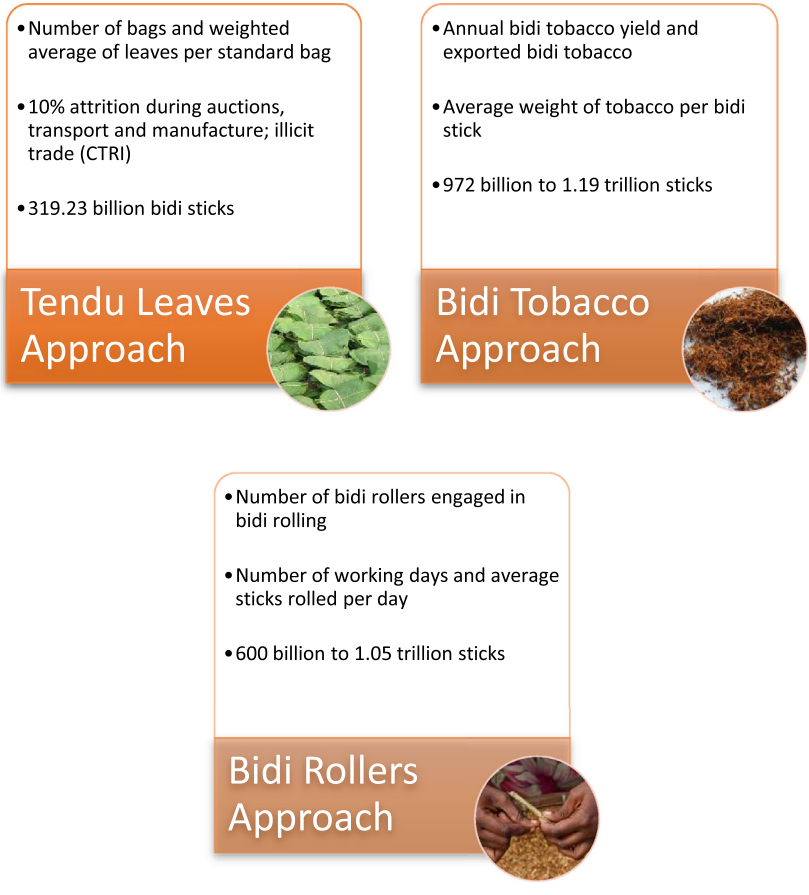

Fig. 1. The estimation process considering the three input data sets with and range of annual bidi sticks production estimated.

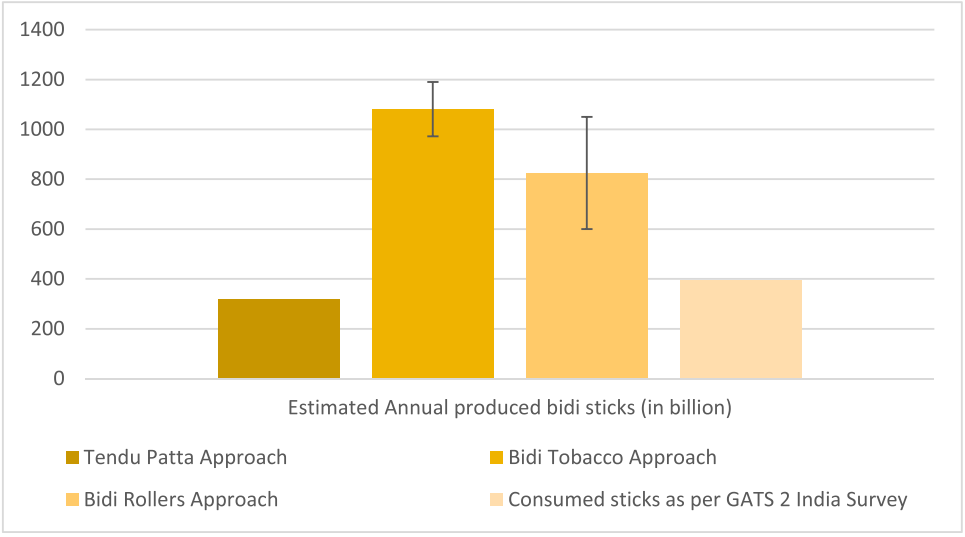

Fig. 2. Estimated annual bidi sticks production in India using various input resources.

duction values. At each stage of the process, namely, raw material auctions, collection and distribution, 10 % attrition was considered to account for the wastage and transportation losses. Further, based on literary evidence, known percentages of illicit trade of tendu patta (49 %) were added to finally arrive at three ranges of bidi sticks production, annually in India [6]. The entire scoping exercise was carried out based on available secondary literature and a wide range of fragmented data sets, that was based on official forest department reports, state-wise forest department declared cultivation figures and annual reports of the Ministry of Labour and Employment. MS Office Suite (v2019) was used for calculations and representation of data (Figs. 1 and 2).

Limitations

Not applicable

Ethics Statement

The authors hereby confirm to have read and follow the ethical requirements for publication in Data in Brief and confirm that the current work does not involve human subjects, animal experiments, or any data collected from social media platforms.

The ethical clearance was obtained by the institutional ethical committee of All India Institute of Medical Sciences, Ethical Clearance Certificate number: AIIMS/IEC/2022/4208.

CRediT Author Statement

Yogesh Kumar Jain: Conceptualisation, Software, Formal Analysis, Investigation, Resources, Data Curation, Writing Original Draft. **Pankaj Bhardwaj**: Validation, Writing Review and Editing, Supervision, Project Administration. **Nitin Kumar Joshi**: Methodology, Validation, Data Curation, Writing Review and Editing, Funding Acquisition. **Pranay Lal**: Conceptualisation, Method-

ology, Validation, Resources, Supervision. **Rana Jugdeep Singh**: Validation, Supervision, Project Administration. **Ashish Kumar Pandey**: Validation, Supervision, Project Administration. **Shivam Kapoor**: Formal Analysis, Data Curation, Writing Review and Editing, Supervision.

Data Availability

Report and Spreadsheet (Original data) (Mendeley Data)

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.dib.2024.110782.

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