Estimates of the economic contributions of the bidi manufacturing industry in India

Arindam Nandi,1 Ashvin Ashok,1 G Emmanuel Guindon,2 Frank J Chaloupka,3 Prabhjot Jha4

ABSTRACT

Background Bidis, the most common smoking tobacco product in India, remain largely untaxed and are subject to very few regulations to discourage their use. A major argument against tax increases is the large potential loss of economic activity and employment in the bidi industry from reduced consumption.

Methods We used a nationally representative survey of unorganised bidi manufacturing firms (n=2841) in India to estimate the economic contribution of the industry.

Results We find that of the 35 states and union territories of India, the bidi industry operated across 17 states, with over 95% of its production concentrated in 10 states. Bidi manufacturing firms contributed 0.50% of total sales and 0.6% of the gross value added by the manufacturing economy in 2005–2006. The industry employed approximately 3.4 million full-time workers, which comprise about 0.7% of employment in all sectors. A further 0.7 million were part-time workers. Bidi workers were also among the lowest paid employees in India. The industry offered only 0.09% of all compensation provided in the manufacturing sector (organised and unorganised).

Conclusions Considering the relatively small economic footprint of the bidi industry in India, higher excise taxes and regulations on bidis are unlikely to disrupt economic growth at an aggregate level, or lead to mass unemployment and economic hardship among small bidi workers. On average, the economic annual output per bidi worker is about US$143, which is an order of magnitude smaller than the large economic losses from the several hundred thousand deaths due to bidi smoking per year.

INTRODUCTION

Tobacco smoking caused the deaths of about 1 million Indians per year as of 2010, 70% of which occurred among individuals between the ages of 30 and 69.1 According to the Global Adult Tobacco Survey (GATS India 2009–2010), there were 120 million smokers of age 15 years or above in India in 2010. With roughly 10% of the world’s 1.3 billion smokers, India is the second largest consumer of tobacco in the world.2

Without widespread cessation, tobacco smoking is expected to lead to the premature deaths of over 50 million smokers currently alive.3

Although cigarettes are displacing it,4 bidis is still the most popular smoking tobacco product in India with a current market share of 85%.2 5 The health impacts of bidi smoking include higher risks of contracting oral cancer, tuberculosis and other respiratory or vascular diseases.6 Compared with otherwise similar non-smokers, male and female bidi smokers lose 6 and 8 years of life, respectively.7 Tobacco-related illnesses6 7 8 impose a huge economic burden as well as impoverishing approximately 15 million Indians every year.9

Beyond the burden imposed on smokers, the bidi industry also poses health risks for bidi workers, especially women and children working from home. As noted in the International Labour Organization (ILO) 2001 report, bidi workers suffer from: “Postural problems (neck and low back pains), abdominal pains, eye problems, burning sensation in the throat, cough, asthma, T.B., bronchitis, excessive bleeding during menstruation, irregular and painful menstrual cycles, leucorrhrea, anemia, anemic body aches, dizziness from constant exposure to tobacco dust”.10 A large literature has examined the health effects on bidi workers in India to reveal similar respiratory, dermatological, ophthalmic and podiatric issues.6 7 11–15

Thus, curtailing the prevalence of bidi smoking significantly improves health conditions of both smokers and bidi workers. Higher taxation of tobacco products is the single most effective intervention to reduce consumption.16 It is estimated that a 10% rise in bidi prices would reduce consumption ranging from 6% to 9.5% in India.8 17 Jha et al4 estimate that raising the sales tax on bidi from 7% to 33% would generate Rs. 24.1 billion in tax revenue, make 11 million bidi smokers quit and prevent 21.4 million youth below age 15 from starting to smoke bids.

In a review of the bidi taxation regime in India, Sunley13 points to several factors that have lowered tax contributions of the already under-taxed bidi industry. Differences in taxes on handmade and machine-made bids, excise exemptions for small producers producing fewer than 2 million bidis and intermittent and very moderate increases in excise duties are particularly noteworthy.14 The chaotic tax structure makes small impacts on retail prices and fails to discourage consumption (taxes only constitute 7% of retail prices). It also makes it extremely difficult to adjust prices of bids with income


1Bidi is made by rolling a small amount of tobacco inside tendu (or kendu) leaf.
growth and inflation. Furthermore, there are no data on the collection rates of various taxes levied on bidis, making it impossible to evaluate the effectiveness of the current tax regime. As a result, researchers have strongly argued in favour of a rationalised and simplified tax structure for tobacco products in India.1

The argument against government action to curb bidi smoking has two components. The demand side perspective argues that smokers derive utility from smoking, despite having full information about the ill effects of tobacco consumption. Bidis are often viewed as a cheap source of utility for the poor, a form of indulgence that improves their quality of life.2 However, as other researchers argue,3 4 there are considerable market failures including imperfect information, and the health and financial externalities, caused by smoking.

The dominant argument against raising taxes on bidis, despite their harmful effects, is the perception that such a move would be ‘antipoor’ and would ignore the “economic and social fallouts of tobacco control”,5 especially as job losses in the bidi industry could eliminate the only source of livelihood for millions of rural workers. The bidi industry is often described as a small-scale household-level industry,6 and it is claimed that consumption taxes, by reducing demand, will have a negative effect on the bidi industry and in turn harm overall economic growth.

However, these supply side arguments are based on anecdotal evidence. The lack of precise estimates on economic parameters such as employment, production or compensation in the bidi industry contributes to uncertainty about the consequences of potential tobacco control actions. This paper is one of the first attempts to deconstruct this supply side debate. We use firm-level data from the 2005/06 National Sample Survey (NSS) to estimate the economic contributions of the unorganised sector of the bidi industry (which comprises 90% of all bidi production) in India. We then place these estimates in a broader context by measuring the relative size of the contributions with respect to the entire manufacturing industry and also by comparing with other industries.

STRUCTURE OF THE BIDI INDUSTRY IN INDIA

Bidi manufacturing is labour intensive, and bidi rolling, which employs the majority of the workforce, is done in almost all major states of India.10 The industry produces between 750 billion and 1.2 trillion bidi sticks per year.10 According to Das,19 there are about 300 major brands of bids, but there are thousands of small-scale manufacturers and contractors who account for the bulk of the bidi production in India. One representation of the fragmented nature of the industry is the fact that none of the 300 major brands command even 5% market share in India.6 19

Existing studies of the bidi industry6 20 point out that the production of bidis is organised in two main forms—factory/out-sourced and contractual systems. In the formal factory system, manufacturing is carried out within factory premises and under the direct supervision of managers/owners. Bidi rolling work is also sometimes outsourced to branches or other companies, which operate on behalf of the factory owners. However, only about 10% of bidi manufacturing takes place within this formal/organised system.10

Under the more common contractual system, a contractor/middleman supplies raw materials to workers who roll bidis in their homes and return them to the contractor. This system has shifted bargaining power away from workers to middlemen and owners who often cheat workers out of their wages.21 22

The bidi manufacturing sector’s low-fixed capital requirements and high-wage sensitivity have enabled a transition from the formal factory-based system to the informal home-based system. Regulations designed in the 1960s and 1970s to improve worker welfare, which targeted the formal sector, also accelerated the transition towards contractual arrangements.23 Years of lobbying have created complex tax and regulatory incentives that favour small-scale bidi firms (relative to larger organised firms). Moreover, opportunities for tax avoidance have encouraged the fragmentation of this industry though ownership is still concentrated among a few entrepreneurs or large holding firms.2 6 This structural shift in the industry thereby rendered welfare regulations ineffective for the majority of workers.20 23 24

According to official government estimates, there were about 4.2–4.4 million workers (including both part-time and full-time workers) in the bidi industry in 2002,25 26 and a majority of them were home-based women workers and children.26 27– 29 ILO 2001 report discusses the socioeconomic composition of the bidi workforce. Most workers belong to poor and landless households or socioeconomically disadvantaged castes (especially belonging to the government designated category of castes referred to as ‘other backward classes’ or OBC).vi 10 Muslim women are dominant in bidi work in some states, and studies link this to social norms and religious strictures.30 32 Children are sometimes employed with the notion that their smaller hands are suitable for folding bidi ends and tying threads.22 28 32

DATA AND METHODS

We use firm-level data from the NSS 62nd round (2005–2006) of India. A special questionnaire (Schedule 2.2—Unorganised Manufacturing Sector) of this survey collected data on 82 897 unorganised manufacturing enterprises in 4798 villages and 5125 urban blocks of India. An ‘enterprise’ is an organisational category in the data—approximately 98% of these enterprises were proprietary (ie, operations owned by households or individuals) with an average workforce size of just over two workers. The survey collected information on various characteristics of each firm, such as the location, nature of ownership and operations, along with economic activities, including production, sales, expenses, value added, asset holding, employment and labour earnings.

The surveyed firms are classified according to the National Industry Classification (NIC 2004) code of India. For our analysis, we only consider the subsample of 2841 bidi manufacturing firms (NIC code 16002). From this, we estimate that there were over 2.7 million small, unorganised bidi enterprises in India during 2005–2006. We present estimates of the following economic activities of these firms—sales, gross value added (GVA), employment and compensation.91

As expressed in former Indian Prime Minister AB Vajpayee’s speech on 7 January 2000 at the World Health Organization Conference, New Delhi.
Also, as with every industry, the bidi industry has various forward and backward linkages. It uses inputs such as raw materials from the tobacco and tendu leaf farming sectors, and there may be a distribution and retail network for the final product. Any change in economic activities in the bidi industry may affect these allied sectors. However, due to lack of data on the economic linkages of the bidi industry, in this paper we do not analyse the allied sectors.

RESULTS
Annual sales and GVA
Tables 1 and 2 present state-wise annual turnover and GVA by the Indian bidi industry. The estimated total sales of the industry, for the year 2005–2006, was Rs. 31.6 billion, approximately 0.5% of total sales of all manufacturing and about 1.8% of total sales of all unorganised manufacturing.\textsuperscript{viii} The presence of a large organised sector in Jharkhand implies that its GVA contribution is significantly smaller (1.4%). Measures such as GVA per worker and GVA per firm reflect significant differences in productivity across states. By this measure, Assam (23,710) and Gujarat (19,861) have the highest GVA per firm while Tamil Nadu (11,109) and Gujarat (10,964) yield the highest GVA per worker.

We also test the notion that bidi production is largely based in rural India. We find that although 78.5% of the overall bidi industry GVA can be attributed to rural production, there is significant variation across states. While states like Jharkhand (99%), Orissa (98%) and Gujarat (94%) derive most of bidi GVA from the rural sector, Tamil Nadu (54%) and Madhya Pradesh (58%) are less dependent on the rural sector for GVA contributions.

\textsuperscript{viii}There are other methods of calculating GVA, such as the modified apportioning method used by the National Commission for Enterprises in the Unorganized Sector (NCEUS) of India.\textsuperscript{34} However, due to lack of data, such analysis is beyond the scope of our study.

\textsuperscript{vii}The survey also collected data on a few unorganised cigarette-producing firms. However, due to the small size of the sample (less than 30), and the organised nature of the vast majority of cigarette production, we do not analyse these data in this paper.

\textsuperscript{ix}The average exchange rate during year 2003–2006 was US$1 = Rs. 44.3 (Reserve Bank of India). Also, to put these estimates in perspective, the annual average wholesale price index (base 1993–1994) in 2005–2006 was 195.6, yielding a total sales of Rs. 161.6 million in 1993–1994 constant prices.

\textsuperscript{x}We estimate the total production of approximately 1.02 trillion bidi sticks from our NSS data. However, NSS does not separately provide data on sold and unsold inventory.
Employment and wages

Bidi manufacturing employment estimates are presented in table 4. We estimate that 4.16 million workers were employed in bidi manufacturing in 2005–2006. Of this, 3.42 million workers were engaged in full-time work while 0.74 million workers were employed part time. The bidi sector accounts for about 11% of unorganised manufacturing employment, and full-time workers comprised about 0.74% of total employment in India, estimated at about 457 million formal workers in 2004. Including full-time and part-time workers, the bidi sector contributed 0.9% of total employment. The above estimates for the number of workers (which include owners, hired workers and helpers—who may not necessarily receive a regular wage) are considerably lower than trade union claims of as many as 10 million bidi workers. In comparison, industries such as textiles directly employ about 35 million workers (table 4). The handloom sector, which is a cottage industry and structurally similar to bidi (both are unorganised home-based industries of which the bidi industry accounted for about 2.7% of total employment. In Madhya Pradesh, bidi accounted for about 2.5% of the 28 million workers employed in the state.

In a separate measurement, the Annual Report of the Ministry of Labour of India (2000–2001) estimated that 4.4 million individuals were employed in the bidi manufacturing sector. However, the distribution across states in this report varies from our estimates. In the report, Madhya Pradesh was found to employ the highest number of bidi workers at 750,000, while Andhra Pradesh came second by employing 625,000 people. West Bengal, which is the largest bidi employer in our data, was found to employ 497,758 people by the Ministry report. The differences are possibly due to changes in state employment levels over time. For example, a recent government document puts the number of bidi workers in West Bengal in 2012 at 2 million. This is more than twice of our estimates from the 2005–2006 NSS data, and four times the estimates of the Ministry of Labour 2000–2001 report. Also, any difference in data collection methods and estimation techniques used by the Ministry and the NSS across states may also contribute to the difference in estimates. Since the bidi industry is primarily unorganised, only large-scale data collection exercises can generate reliable statistics.

### Table 2  Estimated share of GVA in bidi producing states

<table>
<thead>
<tr>
<th>State</th>
<th>Total bidi GVA (INR millions)</th>
<th>Share of rural sector of bidi GVA (%)</th>
<th>Bidi GVA per firm (INR)</th>
<th>Bidi GVA per worker (INR)</th>
<th>Bidi GVA as % of unorganised manufacturing sector</th>
<th>Bidi GVA as % of all manufacturing sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Bengal</td>
<td>5283</td>
<td>91.23</td>
<td>7478</td>
<td>5355</td>
<td>6.32</td>
<td>2.63</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>3574</td>
<td>54.60</td>
<td>15 431</td>
<td>11 109</td>
<td>4.35</td>
<td>0.85</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>3272</td>
<td>77.15</td>
<td>8861</td>
<td>7907</td>
<td>7.12</td>
<td>1.28</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>2780</td>
<td>57.54</td>
<td>7788</td>
<td>3952</td>
<td>11.03</td>
<td>2.51</td>
</tr>
<tr>
<td>Bihar</td>
<td>2610</td>
<td>93.94</td>
<td>17 172</td>
<td>8770</td>
<td>12.87</td>
<td>9.68</td>
</tr>
<tr>
<td>Karnataka</td>
<td>2353</td>
<td>73.38</td>
<td>7678</td>
<td>6353</td>
<td>4.65</td>
<td>0.80</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>2144</td>
<td>75.84</td>
<td>9421</td>
<td>5100</td>
<td>2.20</td>
<td>0.73</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>2075</td>
<td>99.17</td>
<td>8750</td>
<td>6621</td>
<td>15.20</td>
<td>1.35</td>
</tr>
<tr>
<td>Orissa</td>
<td>712</td>
<td>98.42</td>
<td>8868</td>
<td>5302</td>
<td>3.66</td>
<td>0.73</td>
</tr>
<tr>
<td>Gujarat</td>
<td>480</td>
<td>94.01</td>
<td>19 861</td>
<td>10 964</td>
<td>0.77</td>
<td>0.08</td>
</tr>
<tr>
<td>Kerala</td>
<td>331</td>
<td>80.37</td>
<td>8200</td>
<td>7101</td>
<td>0.97</td>
<td>0.38</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>265</td>
<td>69.53</td>
<td>5540</td>
<td>3840</td>
<td>0.19</td>
<td>0.03</td>
</tr>
<tr>
<td>Tripura</td>
<td>99</td>
<td>99.78</td>
<td>10 681</td>
<td>8519</td>
<td>2.93</td>
<td>2.18</td>
</tr>
<tr>
<td>Assam</td>
<td>68</td>
<td>65.23</td>
<td>23 710</td>
<td>9862</td>
<td>0.50</td>
<td>0.12</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>65</td>
<td>NA</td>
<td>9088</td>
<td>5542</td>
<td>0.17</td>
<td>0.05</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>30</td>
<td>81.02</td>
<td>11 549</td>
<td>5498</td>
<td>0.35</td>
<td>0.03</td>
</tr>
<tr>
<td>Daman &amp; Diu</td>
<td>0.44</td>
<td>0.00</td>
<td>6754</td>
<td>4065</td>
<td>0.07</td>
<td>0.00</td>
</tr>
<tr>
<td>All India</td>
<td>26 141</td>
<td>78.52</td>
<td>9329</td>
<td>6289</td>
<td>3.11</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Source: NSS Round 62 Schedule 2.2 (July 2005–June 2006) data. Receipts are based on the survey statistics, and estimated to population level using sample weights. All manufacturing sector contributions include organised sector contributions as well. These were obtained from Annual Survey of Industries (2005–2006). Percentage estimates reported for the all India level include unorganised manufacturing industry and organised manufacturing industry economic activities in non-bidi-producing states. The share of rural sector GVA for bidi industry was not available for Rajasthan possibly due to missing data. GVA, gross value added; INR, Indian Rupees; NSS, National Sample Survey.

### Table 3  Comparison of employment and turnover between bidi and selected major industries in India

<table>
<thead>
<tr>
<th>Category</th>
<th>Bidi</th>
<th>Textile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment (millions)</td>
<td>4.16</td>
<td>35</td>
</tr>
<tr>
<td>Annual turnover (Rs. billion)</td>
<td>31.6</td>
<td>1350</td>
</tr>
<tr>
<td>Turnover’s share of GDP (%)</td>
<td>0.10%</td>
<td>4.15%</td>
</tr>
</tbody>
</table>

Therefore, it is no surprise that there are very few available sources of data on bidi employment. Wage sensitivity in the bidi industry has meant that workers, especially the poor and/or rural women, have been vulnerable to wage discrimination, harassment and exploitation. In West Bengal, Madhya Pradesh and Maharashtra, studies have found that the minimum wage laws were not obeyed by any bidi manufactoring firm.  

Table 5 shows that the total compensation offered to bidi workers only constituted 0.38% of compensation to workers in unorganised manufacturing and 0.09% of all manufacturing in 2005–2006. While the bidi industry employs nearly 11% of all unorganised manufacturing workers, they are not compensated in a commensurate way. In contrast, industries such as unorganised food manufacturing (2.8%) and unorganised textile manufacturing (4.3%) contribute significantly more as a share of total compensation even though they make up only 1.4% of total employment.

While advocates of the industry often use its economic contributions to argue against government action, it is important to realise that industrial transition—as determined by free market forces—are far more important for the long-term growth, rise in national income and poverty reduction in India. For example, even the handloom sector, which is similar in size and structure to the bidi industry, is experiencing a decline and a labour shift away from the industry.  

Despite the evidence on the harmful effects of bidis, the resistance to bidi control policies arises more from political clout rather than from economic impact.  

Before concluding, we must note some limitations of our study. First, the NSS data used in this paper are from 2005 to 2006, the most recent years for which data on unorganised manufacturing industries are available. Therefore, we are unable to capture any changes in the structure and economic contributions of the bidi industry since 2006. Second, our NSS dataset only includes unorganised bidi manufacturing firms. There may be other organised and registered bidi firms outside the scope of
survey. However, we separately examined data from contemporary Annual Survey of Industries of organised sectors in India to find very few such bidi firms. The economic output of such organised firms was negligible as compared with the unorganised bidi industry. Finally, as discussed earlier, there is strong evidence on the economic mobility and coping capabilities of displaced workers in many industries, including small-scale industries such as handloom. However, while some studies have explored transition options for bidi workers in some regions,49 more research on the bidi industry is necessary to predict the exact nature of the mobility of workers, particularly of women and other economically vulnerable groups.

CONCLUSION
In this paper, we use firm-level data to find that the unorganised bidi manufacturing industry is a small contributor to the national economy. In a nation with roughly 457 million employed individuals, only 4.2 million full-time and part-time workers are employed by the bidi industry.41 At the regional level, bidi manufacturing contributes to a significant share of employment and economic activity in only a few states.

At the national level, the bidi industry’s annual sales (Rs. 31.6 billion) are much smaller than economic powerhouses such as the textile industry (annual turnover of more than Rs. 1350 billion). With respect to employment, the number of workers in the bidi manufacturing sector is comparable to the handloom industry, which employs about 6.5 million people.

Although no study has attempted to estimate the impact of higher bidi sales taxes on the industry in India, researchers argue that such legislation is unlikely to have an egregious impact at the macro level.50 51 Using input output models, most independent studies estimate a negligible impact on economic activity from eliminating or reducing expenditure on tobacco.51

Roy et al.52 examine this effect by measuring the perceived economic importance of the bidi industry in Bangladesh. The authors estimate that poor smokers on an average spend 4.5% of their daily income to purchase bidis. The total annual spending on bidis by the poor is large enough to be equivalent to about 41.6% of the total national expenditure on health. Due to the exploitative nature of the employment in bidi industry (also discussed in Rasheed and Sinha),53 a majority of the money spent on bidis does not reach bidi workers, but rather goes to owners.

Given this evidence, higher bidi taxes in India are unlikely to result in economic fallout at the macroeconomic level. Nevertheless, concerns about the displacement of bidi workers at the micro level can be addressed through safeguards such as using a part of the additional tax revenue to assist bidi workers in making the transition to other productive livelihoods, following international examples of such policies, for example, in Turkey.54

Thus, the main consideration is the minimisation of transition costs of bidi smoking. Already, evidence that manufactured cigarettes (which are more capital intensive) are displacing bidi consumption among younger Indians suggests that future employment in the bidi sector will be smaller.55 Past reviews have demonstrated that efforts to ‘buy out’ (ie, providing direct economic transfer to stop production) tobacco growers do not work well.50 51 As long as demand continues, another grower will replace the grower bought out. However, targeted schemes to provide job training, skill development, and better primary and secondary education would reduce the attractiveness of bidi production.

In evaluating societal tradeoffs of higher bidi taxes, we must consider not only jobs but also the quality of jobs and health impacts. The basic tradeoff is between 1 million smoking deaths, 70% of which occur during productive ages 30–69 years, and a few million bidi industry jobs that can be moved to other sectors. Raising taxes on bidis can raise billions of rupees in tax revenue and prevent millions of people from smoking.4 Conservatively, each bidi job’s economic output is about Rs. 7600 (US$143) annually, resulting in a total output of $713 million in our data. In comparison, the direct medical cost of treating all smoking-related diseases alone was estimated at $907 million in 2004, most of which was caused by bidi smoking.5 The economic loss from premature deaths and poverty traps from about 1 million smoking deaths is certainly a much greater order of magnitude.

What this paper adds

▸ Researchers have shown worldwide that taxes on tobacco products are the single most effective method of reducing tobacco consumption and the related health and economic burden. However, bidis (small handmade cigarettes), the most common form of smoking tobacco product sold in India, remain largely untaxed. One common argument against higher taxes on bidis is the potential loss of economic activity and employment in the bidi industry from reduced consumption. However, this argument is founded less on evidence and more on political dynamics of the industry.

▸ Our paper is the first to deconstruct this debate by estimating the economic contribution of the bidi industry in India. We find that the economic footprint of the industry is rather small when measured in terms of output, value added and employment. The employees in this industry are also severely underpaid. We argue that the positive gains from higher taxes and reduced bidi consumption, therefore, may well outweigh any temporary loss in economic activity. In addition, as with many declining industries, the displaced workforce could be rehabilitated in other industries, resulting in a net gain.

Contributors AN and AA conducted the data analysis. All authors interpreted the results and wrote the manuscript.

Funding This work was supported by the Bill and Melinda Gates Foundation (Disease Control Priorities 3 project) grant nos. 51447 and 720165.

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement This study uses publicly available data from the National Sample Survey of India. The authors are prohibited from sharing these data. Interested readers can obtain the data by contacting the Ministry of Statistics and Programme Implementation of India (http://www.mospi.gov.in).

REFERENCES
47

If bidi employment is studied as a share of the labour force, the contribution diminishes further. As per the Planning Commission, the unemployment rate in 2004–2005 was about 8.28%, which means that of the 499 million strong labour force, bidi only constituted 0.83%.

374
Estimates of the economic contributions of the bidi manufacturing industry in India

Arindam Nandi, Ashvin Ashok, G Emmanuel Guindon, Frank J Chaloupka and Prabhat Jha

*Tob Control* 2015 24: 369-375 originally published online April 30, 2014
doi: 10.1136/tobaccocontrol-2013-051404

Updated information and services can be found at:
http://tobaccocontrol.bmj.com/content/24/4/369

These include:

**References**

This article cites 18 articles, 4 of which you can access for free at:
http://tobaccocontrol.bmj.com/content/24/4/369#BIBL

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Notes**

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/