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No Combustion, No Smoke: Exploring an Economic Perspective on Heat Not Burn Devices in the Indian Market

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No combustion, No smoke – Exploring an economic perspective on Heat Not Burn devices in the Indian Market

Nilanjan Banik[1]

1. Introduction

In December 2019, the federal government of India made a sudden decision to ban Electronic Nicotine Delivery Systems (ENDS) – a broad category that include electronic cigarettes, vaping devices and Heat Not Burn Devices (HNBs), also known as Heated Tobacco Products (HTPs). ENDS are battery-operated electronic cigarettes that generate dosages of vaporised nicotine or non-nicotine solutions for inhalation. Their ingredients include propylene glycol and vegetable glycerine, and some even contain flavour additives. The United States Food and Drug Administration (FDA) recognises a number of devices under the umbrella of ENDS, including e-cigarettes, vaporizers, vape pens, and hookah pens. E-cigarettes and vaping devices are distinct from HTPs or HNBs – HNBs contain tobacco, while e-cigarettes do not.

Since the introduction of e-cigarettes (including vaping devices) in North America in 2007 and in India in 2016, they have gained popularity among young people due to their appealing flavors, discreet nature, and sometimes misleading perception of reduced harm compared to traditional cigarettes.[2] Studies have shown that youth who use e-cigarettes are more likely to go on to use traditional cigarettes and other substances.[3] This can lead to the development of substance use disorders at a young age. Adolescents who use e-cigarettes are more likely to also use marijuana, alcohol, and other illicit drugs compared to their non-vaping peers.[4] E-cigarettes are often perceived as cool, and addiction is frequently fuelled by

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[2] Pepper, J. K., Kurt M. Ribisl, and Noel T. Brewer. "Adolescents' interest in trying flavoured e-cigarettes." *Tobacco control* 25, no. Suppl 2 (2016): ii62-ii66.

[3] Nicksic, Nicole E., and Andrew J. Barnes. "Is susceptibility to E-cigarettes among youth associated with tobacco and other substance use behaviors one year later? Results from the PATH study." *Preventive Medicine* 121 (2019): 109-114. Also see, Gowda, MV Rajeev, and Shonali Thangiah. "Does India's Ban on Electronic Cigarettes Improve Public Health Outcomes?." *Indian Public Policy Review* 4, no. 2 (Mar-Apr) (2023): 27-54.

[4] Jackson, Dylan B., Cashen M. Boccio, Wanda E. Leal, and Michael G. Vaughn. "It's all the rage! Exploring the nuances in the link between vaping and adolescent delinquency." *Journal of Criminal Justice* 63 (2019): 58-69.

peer pressure.[5] Adolescents are more likely to use open-system e-cigarettes, which may pose health and injury risks. Strong evidence suggests that the national outbreak of electronic-cigarette, or vaping, product use–associated lung injury (EVALI) was caused by use of vitamin E acetate in cannabis vaporizers.

Unlike closed-system HNBs, which are designed to allow minimal user modification of component parts and contents, open systems allow users to readily manipulate various settings (example, power and temperature) and parts (atomizer heads/coils), and allow infinite iterations of e-liquids to be vaped through refillable tanks. Looking at the issue of substance abuse, banning e-cigarettes may seem logical. Governments and health authorities around the world are responding to this issue with regulations aimed at restricting access to e-cigarettes among minors, limiting advertising that targets youth, and implementing policies to curb youth addiction. Educational campaigns are being launched to inform parents, educators, and young people about the risks of e-cigarette use and addiction.[6]

Addressing youth addiction to e-cigarettes requires a multifaceted approach involving regulation, education, and support systems to protect young people from the harmful effects of nicotine addiction. However, HNBs differ significantly from e-cigarettes. While e-cigarettes heat a liquid solution (that may or may not contain nicotine) to produce vapors without burning tobacco leaves, HNBs actually heat tobacco without combustion, to generate an aerosol for inhalation. HNBs heat reconstituted tobacco to approximately 350°C to produce a nicotine-containing aerosol, in contrast to traditional combustible cigarettes which can reach temperatures of up to 900°C.[7]

Commercially available HNB devices consist of tobacco sticks accompanied by a charger, a holder, and plugs or capsules. These tobacco sticks are placed into the holder, where they are heated (without burning) using electronically controlled heating elements. Among the popular HNB products are GLO, manufactured by British American Tobacco (BAT), and IQOS, produced by Philip Morris (PM).[8]

HNBs hold the potential to dramatically decrease smoking-related fatalities and illnesses among the countless smokers who have struggled to quit with e-cigarettes and traditional nicotine replacement therapies, such as quitting smoking cigarettes. It is the combustion of tobacco that generates the most harmful compounds present in the cigarette that one smoke. Multiple tobacco-industry-sponsored studies on human bronchial epithelial cells, coronary arterial endothelial cells, 3D nasal culture models, gingival epithelial organotypic cultures, monocytic cells, and mouse models indicate lower toxicity of HNB aerosol compared to smoking traditional cigarettes.[9]

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[5] Stewart-Knox, Barbara J., Julie Sittlington, Jorun Rugkåsa, Sheila Harrisson, Margaret Treacy, and Pilar Santos Abaunza. "Smoking and peer groups: results from a longitudinal qualitative study of young people in Northern Ireland." *British Journal of Social Psychology* 44, no. 3 (2005): 397-414.

[6] England, Kelli J., A. L. Edwards, Amy C. Paulson, E. P. Libby, Paul Truman Harrell, and K. A. Mondejar. "Rethink Vape: Development and evaluation of a risk communication campaign to prevent youth E-cigarette use." *Addictive behaviors* 113 (2021): 106664.

[7] World Health Organization. *Heated tobacco products: a brief*. No. WHO/EURO: 2020-4571-44334-64934 (PDF). World Health Organization. Regional Office for Europe, 2020.

=][8] Other products, such as iFuse from BAT or Ploom Tech from Japan Tobacco (JT), generate vapor from a non-tobacco source and then pass it through a tobacco plug to absorb flavor and nicotine. However, they do not burn the tobacco.

[9] Upadhyay, Swapna, Mizanur Rahman, Gunnar Johanson, Lena Palmberg, and Koustav Ganguly. "Heated tobacco products: insights into composition and toxicity." *Toxics* 11, no. 8 (2023): 667.

In India, all tobacco products are governed by the 'The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003' (COTPA). In spite of being less hazardous in comparison to traditional cigarettes and e-cigarettes, HNBs are classified as unapproved drugs in several states, such as Punjab, paralleling the treatment of e-cigarettes.[10] Treating other newer forms of heated tobacco systems such as HNBs equally to e-cigarettes does not appear logical. HNBs were specifically prohibited under the Prohibition of Electronic Cigarettes (Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement) Act, 2019 ("ENDS Act"). By grouping HNB products together with e-cigarettes, the government has essentially prohibited all activities related to the manufacturing, import, export, transport, sale, distribution, storage, and advertisement of HNBs. This should not be the case.

Figure 1: KT&G introduces the first Korean HNB cigarettes[11]

Source: Representative Figure

The modern-day HNB products emerged following a series of experiments. The concept of 'safer' heated tobacco products, which deliver nicotine while limiting emissions of tar or carbon monoxide (CO), has been around for half a century. The initial attempts to introduce the HNBs were unsuccessful, beginning in 1988 with 'Premier' by the RJ Reynolds Tobacco Company (RJR), followed by 'Eclipse' (RJR) and 'Accord' (PM). This led to research aimed at refining the products to significantly lower health hazards, ultimately resulting in the successful launch of the newer versions.

Yet, while cigarettes remain legal, it's perplexing that HNB, with significantly lower health risks is banned in India.

[10] State Tobacco Control Cell, Punjab. Available at: https://health.punjab.gov.in/sites/default/files/2%28a%29.pdf

[11] https://koreajoongangdaily.joins.com/2017/11/07/industry/KTampG-introduces-the-first-Korean-heatnotburn-cigarette/3040475.html

Interestingly, the whitepaper on ENDS released by Indian Council of Medical Research in 2019[12], the recommendations of which became the basis of the ban, was based on e-cigarettes (that contain nicotine solution) and has no mention of heated tobacco systems or HNB devices. The Union Finance Minister who announced the ban at the time said, "*The Union Cabinet has given the approval to ban e-cigarettes. It means the production, manufacturing, import/export, transport, sale, distribution, storage and advertising related to e-cigarettes are banned*," at a press conference in New Delhi.[13]

In this working paper, I argue that HNBs are distinct from e-cigarettes, and there is a rationale for 'regulating' instead of 'prohibiting' these products, as HNBs pose a significantly lower health hazard compared to traditional cigarettes. Interestingly, in the Finance Bill of 2021, the federal government recognized the differences between traditional cigarettes, e-cigarettes, and HNBs for taxation purposes. However, this distinction is not reflected in the banning of HNBs, as they are categorized similarly to e-cigarettes.[14]
In addition to the health considerations, lifting the ban on HNBs could yield various other benefits, such as improving the livelihoods of farmers, creating job opportunities, tapping into export opportunities, and attracting foreign direct investment. Over the next sections, we analyse each one of these factors.

2. Heat Not Burn Devices and Health

Corollary: HNBs are considered to be less hazardous than smoking traditional cigarettes.

To understand the health implication of smoking controlled lab experiments are conducted on smokers. For undertaking experiments, tobacco products' emissions are typically categorized into mainstream, sidestream, and secondhand smoke. Mainstream smoke refers to the smoke that a user inhales and is quantified in laboratories using standardized machine smoking regimens designed to mimic human smoking. Sidestream smoke, on the other hand, emanates from the lit end of a burning tobacco product and is assessed in both indoor and outdoor settings using standardized methods, which may involve recruiting smokers or employing machine smoking tests. Secondhand smoke comprises a combination of exhaled mainstream and sidestream smoke.[15] In India, every year, the deaths of eight to nine lakh people are attributed to tobacco consumption.[16]

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[12] https://ntcp.mohfw.gov.in/assets/document/White_Paper_by_Indian_Council_of_Medical_Research.pdf
[13] https://www.hindustantimes.com/india-news/e-cigarettes-banned-announces-nirmala-sitharaman-after-cabinet-meet/story-N5z4sc91iiUzXsYrGVhRIK.html#:~:text=The%20minister%20made%20the%20announcement,Delhi%20after%20the%20Cabinet%20meet.&text=%E2%80%9CThe%20Union%20Cabinet%20has%20given,are%20banned%2C%E2%80%9D%20said%20Sitharaman.
[14] Mediawire, *Tobacco control: An alternative agenda for India on harm reduction,* Times of India, Available at: https://timesofindia.indiatimes.com/business/india-business/tobacco-control-an-alternative-agenda-for-india-on-harm-reduction/articleshow/109506715.cms
[15] National Cancer Institute, *NCI Dictionary of Cancer Terms*, Available at: https://www.cancer.gov/publications/dictionaries/cancer-terms/
[16] Reddy, K. Srinath, and Prakash C. Gupta. "Tobacco control in India." *New delhi: ministry of health and family welfare, Government of India* (2004): 43-47.

To measure the impact of using HNB products compared to cigarettes, studies on HNB emissions typically employed either the International Organization for Standardization machine smoking regimen (ISO; 35 mL puff volume, 2-second puff duration, 30-second intervals between puffs, 14 puffs) or the Health Canada Intense regimen (HCI; 55 mL puff volume, 2-second puff duration, 30-second intervals between puffs, 14 puffs).[17] A literature review of scientific materials published between 2015 and 2018, reveals relative to cigarettes, HNB products delivered up to 83% of nicotine while also exhibiting reduced levels of harmful and potentially harmful toxicants by at least 62% and particulate matter by at least 75%.[18] In India, where tobacco consumption already poses a significant public health concern, contemplating alternatives with much lower adverse health impacts, such as HNBs, becomes crucial.

From a macro perspective, health constitutes a vital component of development and is factored into the ranking of countries in terms of the Human Development Index. Countries investing in health are likely to have a stronger and more productive workforce (the measure of goods and services produced per unit of labor input), and hence grow faster than countries with a less healthy workforce.[19] Citizens living in developed nations live almost nineteen years longer in comparison to their counterparts in less developed countries.[20] In nations where workers achieve high productivity levels are also healthier and smarter. Developed countries experiences a higher standard of living. Conversely, in nations with lower productivity rates and poor health, many endure a more modest existence. Evidence suggests 5% of the poor income-households residing in the low and middle-income countries, spend disproportionately more than the rich as a percentage of household income on health care.

The poor people are not insured and this expenditure incurred by them is primarily on account of visiting healthcare facilities run by the private sectors.[21] To top it all, governments in less developed economies spend less on public healthcare infrastructure, which generally comes free of charge.[22] In India, for instance, the government spends less than $75 per person per year towards provision of public healthcare.[23] The corresponding figures for the U.S. and the U.K. are $9,536 and $4,396, respectively. The Indian government spends less on healthcare and as a result 63.21% of healthcare expenses are “out-of-pocket” expenses for Indian citizens. [24]

It is to be noted that India is among the signatories to the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC), a comprehensive global public health treaty. This evidence-based initiative aims to safeguard the right of all individuals to

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[17] Belushkin, M., M. Esposito, G. Jaccard, C. Jeannet, A. Korneliou, and D. Tafin Djoko. "Role of testing standards in smoke-free product assessments." *Regulatory Toxicology and Pharmacology* 98 (2018): 1-8.

[18] Simonavicius, Erikas, Ann McNeill, Lion Shahab, and Leonie S. Brose. "Heat-not-burn tobacco products: a systematic literature review." *Tobacco control* 28, no. 5 (2019): 582-594.

[19] World Health Organization. "Working for health and growth: investing in the health workforce." (2016).

[20] UNDP. *Human Development Report 2019: Beyond Income, Beyond Averages, Beyond Today-Inequalities in Human Development in the 21st Century*. UN, 2019.

[21] Grant, Ken, and Rachel Grant. "Health insurance and the poor in low income countries." *World Hospitals and Health Services: The Official Journal of the International Hospital Federation* 39, no. 1 (2003): 19-22.

[22] THE WORLD BANK, World Development Indicators, Available at: https://databank.worldbank.org/source/world-development-indicators

[23] Nilanjan Banik, *Dealing with a Health Catastrophe*, Times of India, Available at: https://timesofindia.indiatimes.com/blogs/info-nomics/dealing-with-a-health-catastrophe/.

[24] Chaisse, Julien, and Nilanjan Banik. "Global health law & governance amidst the pandemic." *Annals Health L.* 30 (2021): 207.

the highest attainable standard of health by implementing effective tobacco control measures.[25] However, it remains a challenging task for the government to reduce tobacco consumption. Specifically, Article 17 of the FCTC mandates governments to promote economically viable alternatives for tobacco workers, growers, and individual sellers. Given such circumstances, advocating for less harmful alternatives, such as permitting the usage of HNB products is advisable.

3. Heat Not Burn Devices and Income Distribution

Corollary: HNBs can alleviate the financial strain associated with cigarette smoking, which often leads to medical expenses and loss of income.

With a reduced state support in terms of healthcare infrastructure, insurance coverage, and a high out-of-pocket medical expense, it is prudent for the government to promote the adoption of less harmful products like HNBs. This is particularly true as it is challenging to alter the behavioral aspect of smoking. In India, over half of men and approximately one-tenth of women utilize one or more forms of tobacco, a trend that consistently rises as wealth quintiles decrease. This poses significant risks, particularly for poorer smokers, who face heightened susceptibility to illness and the added risk of not receiving adequate treatment, potentially exacerbating their financial hardship. Moreover, the financial resources spent on tobacco could otherwise be allocated towards essential needs such as food, shelter, education, and healthcare. Such choices contribute to a cycle of poverty and ill-health that can persist within families.[26]

According to the Government of India's report for the year 2014, the direct medical costs for hospital care and treatment of tobacco-attributable diseases amounted to Rs 16,800 crore ($3.6 billion), with an additional Rs 14,700 crore ($3.1 billion) attributed to associated morbidity costs. Furthermore, the cost of premature mortality was estimated at Rs 73,000 crores ($15.6 billion).[27] India is ranked 67th out of 189 countries in terms of out-of-pocket expenses, primarily utilized for outpatient care and purchasing medicines. Between 47% and 50% of expenditure in India is allocated to meeting out-of-pocket medical expenses.

Non-communicable diseases (NCDs) stand as the foremost cause of death worldwide, with India witnessing NCDs accounting for 60% of all deaths. Over 80% of all NCD-related deaths in India are attributed to four major diseases: cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes. Cardiovascular diseases bore the greatest burden (Rs 3600 crores) of direct medical and indirect morbidity costs due to tobacco use, followed by respiratory diseases (Rs 2800 crores) and cancers (Rs 1400 crores).[28] Tobacco-related cancers accounted for nearly half (48.7%) of the cancer burden in 2021. Tobacco consumption emerges as the predominant contributing factor to adverse outcomes related to these diseases, which could have been prevented through intervention or modification.

[25] World Health Organization. *WHO framework convention on tobacco control*. No. SEA-Tobacco-6. WHO Regional Office for South-East Asia, 2004.

[26] Majra, J. P., and A. Gur. "Poverty, tobacco, and health: an Indian scenario." *Journal of health, population, and nutrition* 27, no. 3 (2009): 316.

[27] John, R., S. Rout, B. Kumar, and M. Arora. "Economic burden of tobacco-related diseases in India." *New Delhi: Ministry of Health and Family Welfare, Government of India* (2015).

[28] *Ibid.*

With a significant number of individuals succumbing to tobacco-related illnesses each year in India, families are left devastated emotionally and financially. The loss of a loved one due to tobacco-related diseases not only creates a void in the family but also imposes a heavy burden on them to navigate the aftermath. The financial strain, stemming from medical expenses and loss of income, can plunge families into poverty, further exacerbating their already challenging circumstances.[29] This perpetuates existing social inequalities and widens the gap between different segments of the population. Unfortunately, smoking is often a deeply ingrained habit, and quitting can be challenging, especially when the demand remains relatively unaffected by price changes, exhibiting inelasticity. Therefore, adopting less harmful alternatives such as HNBs could help reduce the economic burden and mitigate income inequality.

4. Heat Not Burn Devices and Livelihood

Corollary: Permitting HNBs that utilize reconstituted tobacco could result in greater value addition in tobacco farming, consequently increasing income for the farmers.

India's agriculture sector is the backbone of its economy, with a significant portion of the population engaged in farming activities. Out of the 93.09 million agricultural households in India, a staggering 82% belong to the category of small and marginal farmers, typically holding less than 2 hectares of land.[30] Despite being the lifeblood of the nation's food production, the average monthly income of Indian farmers hovers around a mere $125 per month, starkly lower than the national average per-capita income of $200 per month.[31] Because of the small landholding size, Indian farmers in general cannot gain from economies of scale in production and through mechanization of agriculture. Even operating a tractor in a meaningful way often necessitates landholdings larger than 2 hectares, a size that the majority of farmers in India do not possess and at times the land parcels are also not contiguous.[32]

In a situation when opportunities to mechanize is limited, the only viable option for farmers to increase crop production is to resort to extensive farming rather than intensive methods. Indian farmers rely heavily on land, labor, and animal inputs rather than embracing modern technology. Consequently, agricultural productivity, measured in output per hectare, has historically lagged behind. As productivity and income are closely linked, a lower farm productivity results in lower per-capita income. For instance, in potato farming, the productivity of Indian farmers is less than half that of counterparts in the US, Germany, and the Netherlands. Similarly, in rice cultivation, Indian yields are less than half those of the US

[29] Mohan, Priya, Harry A. Lando, and Sigamani Panneer. "Assessment of tobacco consumption and control in India." *Indian Journal of Clinical Medicine* 9 (2018): 1179916118759289.

[30] Food and Agriculture Organization of United Nations, *India at a Glance,* Available at: India at a glance | FAO in India | Food and Agriculture Organization of the United Nations

[31] Government of India, *Situation Assessment of Agricultural Households and Land and Holdings of Households in Rural India, 2019,* Available at: https://mospi.gov.in/sites/default/files/publication_reports/Report_587m_0.pdf

[32] Banik, Nilanjan. "Are loan waivers a panacea for rural distress?." *Economic & Political Weekly* 53, no. 47 (2018): 14-16.

and Egypt, while in wheat production, they fall short of the benchmarks set by the UK and Egypt.[33]

With the majority of India's population engaged in farming activities, it is not surprising that the per capita income is low. India's per capita income in 2022 stands at $2410, while that of the US is $76330.[34] Much of this disparity in income can be attributed to the difference in productivity between the two countries. According to International Labour Organization (ILO) estimates in 2024, India is producing an output of US$ 20,108 per worker, significantly lower than United States of America's average of US$ 130,942 per worker.[35]

Additionally, because of advancement of technology, it is increasingly becoming difficult to get a job in the manufacturing and the services sectors. According to the Periodic Labour Force Survey Annual Report 2022-23, the majority of jobs are being created in the low-paying agricultural sector and in the category of self-employment in the urban sector.[36] According to this report, in rural areas, the Labor Force Participation Rate (LFPR) rose from 48.9% in 2017-18 to 56.7% in 2022-23, while in urban informal sector (including self-employment categories), LFPR increased from 47.1% to 49.4%.

Table1: Changing Pattern of Population and Employment (India) 2001 to 2021

For age 15-64	2001	2011	2021
Working Age Population (Million)	656	809	950
Labour Force (Million)	400	449	523
Labour Force Participation Rate	61	55.5	55
Workforce (Employment, million)	382	433	487
Workforce Participation Rate	58.3	53.5	51.3
Change Per Decade		2001-2011	2011-2021
Working Age Population		153.3	141.2
Labour Force		49.0	73.6
Workforce		50.5	54.6

[33] Banik, N. "The Technology Bug that India's Economic Advisory Council MustW Tackle." *The Wire Journal (October 23, 2017)* (2017).

[34] World Bank, *World Development Indicators,* Available at: https://databank.worldbank.org/source/world-development-indicators

[35] International Labour Organization, *ILOSTAT Data Explorer*, Available at: https://rshiny.ilo.org/dataexplorer54/?lang=en&id=GDP_211P_NOC_NB_A

[36] Ministry of Statistics and Program Implementation, *Periodic Labour Force Survey (PLFS) Annual Report 2022-2023,* Available at: https://www.mospi.gov.in/publication/annual-report-periodic-labour-force-survey-plfs-july-2022-june-2023

Source: Labour Force and workforce participation rates from NSS/PLFS surveys 2022.

Given the aforementioned narrative, it is pertinent to acknowledge that permitting HNBs that utilizes reconstituted tobacco could potentially result in greater value addition in tobacco farming, consequently increasing income for the farmers. It is to be noted that the bidi industry employing majority of the labourers, contributed to only 0.65% of the total gross value added by the entire manufacturing industry. Around 4.5 million people are bidi workers. Employment in this industry was primarily through contractors. Bidi workers earned only 17% of wages compared to workers in other manufacturing industries. Although females constituted the majority of bidi workers, they earned between Rs 7,000 and Rs 8,000 less than male bidi workers annually. Despite the increase in bidi industry profits from Rs 1.7 billion in 2005–2006 to Rs 12.8 billion in 2010–2011, the wages of bidi workers have continued to decline over this period.[37]

5. Heat Not Burn Devices and Tax Revenue

Corollary: The government can increase tax revenue by integrating newer products like HNBs into the tax framework instead of levying additional taxes on existing tobacco products.

Tobacco stands as one of the foremost economically significant agricultural cash crops globally. In India, although tobacco is cultivated in 12 different states, a significant majority of production is concentrated in four states: Gujarat (47%), Andhra Pradesh (23%), Uttar Pradesh (12%), and Karnataka (10%). In India, the tobacco crop is cultivated in an area of 0.45 million hectares, accounting for approximately 0.27% of the total cultivated area, yielding around 750 million kilograms of tobacco leaf. India ranks as the second-largest producer and exporter of tobacco, following China and Brazil, respectively.[38]

In India, a diverse varieties of tobacco types and products are cultivated and manufactured, including Flue Cured Virginia (FCV), bidi, chewing tobacco, hookah tobacco, cigars, cheroots, snuff, natu (country tobacco), burley, Lanka, and Harvel De Bouxo Rio Grande (premium burley varieties predominantly used in traditional cigarettes). India produces an average of 750 million kg of raw tobacco. Of this around 300 kg of FCV tobacco is used for machine-produced cigarettes.[39] In the tobacco industry, nicotine stands out as a key driver of growth, commanding a market share estimated at $500 million by the Indian conglomerate major ITC.[40] There is a potential 50% gap between demand and supply expected in the coming years. High-end nicotine is seeing growing demand due to the rise of vapes and pouches globally. Indian tobacco is well placed since it has a high nicotine content.

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[37] Arora, Monika, Pritam Datta, Avnika Barman, Praveen Sinha, Vineet Gill Munish, Deepika Bahl, Soumyadeep Bhaumik, Gaurang P. Nazar, and Fikru Tullu. "The Indian bidi industry: trends in employment and wage differentials." *Frontiers in Public Health* 8 (2020): 572638.

[38] ICAR-Central Tobacco Research Institute, *Tobacco in Indian Economy,* Available at: https://ctri.icar.gov.in/for_tobaccoEconomy.php

[39] Nayak, Nayanatara S. "Estimates of tobacco-dependent employment in India." *Econ Polit Weekly.* 53, no. 40 (2018): 58-62.

[40] For more on this, see: https://economictimes.indiatimes.com/markets/stocks/news/itc-spots-another-500-million-opportunity-in-tobacco-business/articleshow/105963133.cms?from=mdr

In terms of tax contribution, tobacco accounts for over 10% of the total excise duty earnings in India. **HNBs will be a substitution to conventional tobacco, will not yield tax increases.** Excise taxes are levied on specific goods like alcohol, gasoline, or tobacco, aimed at various purposes. They can generate revenue for the government, discourage consumption (such as "sin" taxes on alcohol and tobacco), fund public goods (like building new roads, ports, and airports), or address negative externalities of consumption (like prevent smoking in public spaces). The price elasticity of demand for tobacco products is relatively low, ranging from 0.3 to 0.5.[41] This finding serves as an argument in favour of enhancing the fiscal role of excise taxation on tobacco products. Increasing excise rates does not substantially decrease the consumption of these goods, thereby creating conditions for increasing budget revenues.[42] However, as demonstrated by the Laffer Curve principle, this may not always hold true. The Laffer Curve capture the relationship between tax rates and government tax revenues. A change in tax rates yields two effects on revenues. Initially when tax rates rise, tax revenues per unit of tax base tend to increase. However, too higher a tax rates can dampen consumption and promote a shift towards lower-taxed substitutes or even illicit tobacco products, consequently reducing collection of tax revenues. A lower tax revenue collection also means that government has lower money to spend on welfare activities, such as building hospitals to treat patient.

In the Indian context, a survey conducted among 1,727 retailers revealed that 2.73% of the cigarettes sold are illicit. Prevalence of illicit packs varied significantly across locations, with the highest observed in the town of Aizawl near the Bangladesh and Myanmar border (35.87%). Notably, the share of illicit cigarettes was substantially higher (13.77%) among the cheapest cigarette brands.[43] This result implies that the current 28% GST tax slab on tobacco products may have surpassed the optimal tax tipping point as suggested by the Laffer principle. The Government of India could enhance its approach by encompassing newer products such as HNBs within the tax framework, rather than further increasing taxes on existing tobacco products.

Table 2: GST rates on Tobacco Products

[41] Koshchuk, Tetiana, Volodymyr Korotun, Nadiia Novytska, and Inna Khliebnikova. "Tax Regulation of the Tobacco Products Market in the Conditions of its Transformation." (2020).
[42] Chaloupka, Frank J., David Sweanor, and Kenneth E. Warner. "Differential Taxes for Differential Risks--Toward Reduced Harm from Nicotine-Yielding Products." (2015).
[43] John, Rijo M., and Hana Ross. "Illicit cigarette sales in Indian cities: findings from a retail survey." *Tobacco Control* 27, no. 6 (2018): 684-688.

Sr.	Description of tobacco and tobacco products	Rate of Tax	Cess
1	whole tobacco leaf in original form	5	0
2	Processed tobacco ingredients other than whole tobacco leaf such as oraksha, nas, nasdana, rava, garda etc.	28	0
3	Unmanufactured tobacco (without lime tube) bearing a brand name	28	71 %
4	Unmanufactured tobacco (with lime tube) bearing a brand name	28	65 %
5	Tobacco refuse, bearing a brand name	28	61 %
6	"Homogenized" or "reconstituted" tobacco, bearing a brand name	28	72 %
7	Preparations containing snuff	28	72 %
8	Chewing tobacco(with lime tube)	28	142 %
9	Chewing tobacco(without lime tube)	28	160 %
10	Filter khaini	28	160 %
11	Jarda scented tobacco	28	160 %
12	Pan masala containing tobacco 'Gutkha'	28	204 %
13	Tobacco extracts and essence bearing a brand name	28	72 %
14	Tobacco extracts and essence bearing a brand name	28	65 %
15	'Hookah' or 'gudaku' tobacco not bearing a brand name	28	72 %
16	Tobacco used for smoking 'hookah' or 'chilam' commonly known as 'hookah' tobacco or 'gudaku' not bearing a brand name	28	17 %
17	Other water pipe smoking tobacco not bearing a brand name	28	11 %
18	Smoking mixtures for pipes and cigarettes	28	290 %
19	Other smoking tobacco bearing a brand name	28	49 %
20	Cigar and cheroots	28	21 % or Rs. 4170 per thousand, whichever is higher

Source: GST Council, Government of India[44]

6. Heat Not Burn Devices and FDI

Corollary: In addition to generating job opportunities and government tax revenue, allowing HNBs in the Indian market can attract foreign direct investment.

As of 2020, HNBs were available in over 52 countries, highlighting a thriving global market for such items.[45] Among the current HNB products, iQOS was launched in several cities in Japan, Italy, and Switzerland in 2014. iFuse was released in Romania in 2015, while GLO and Ploom Tech were introduced to Japanese cities in 2016. Japan remains the biggest market for HNBs, although UK was among the first countries to assign a separate taxation category for HNB products.[46] The awareness surrounding HNBs is increasing, indicating a shift in smoking behaviour towards these newer options. A higher percentage of young adults who were currently smoking reported being aware of, interested in trying, and inclined to try HNBs. Additionally, interest in trying HNBs was evident among non-smokers as well. Intriguingly, urge to try HNBs (25.1%) surpassed that of traditional cigarettes (19.3%), albeit it remained lower than that for e-cigarettes (29.1%).[47] Japan, due to regulations restricting

[44] Available at: https://gstcouncil.gov.in/sites/default/files/Tobacco_Aligarh.pdf

[45] Jhanjee, Sonali, Raka Jain, and Abhishek Gupta. "Symposium: Heat-not-burn tobacco products: Current Understanding." *Indian Journal of Psychiatry* 64, no. Suppl 3 (2022): S622.

[46] University of Bath, *Tobacco Tactics,* Available at: https://tobaccotactics.org/article/heated-tobacco-products/#:~:text=Key%20markets,-The%20key%20regional&text=Japan%20remains%20by%20far%20the%20biggest%20single%20country%20market%20for%20HNBs.

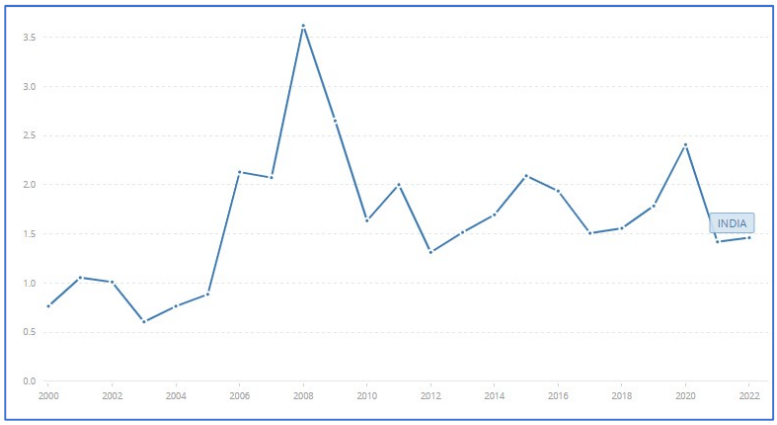
[47] Ratajczak, Aleksandra, Piotr Jankowski, Piotr Strus, and Wojciech Feleszko. "Heat not burn tobacco product—a new global trend: impact of heat-not-burn tobacco products on public health, a systematic review." *International journal of environmental research and public health* 17, no. 2 (2020): 409.

the sale of nicotine-containing e-cigarettes, emerged as a fertile market for HNB producers, indicating the potential for explosive global growth.

While developed countries such as Japan, the UK, and the USA have allowed use of HNBs as safer alternatives supported by scientific evidence, in India, where tobacco consumption poses a significant public health challenge, it becomes crucial to explore less harmful alternatives than cigarettes, like HNBs. The global acceptance of HNBs is evident from significant regulatory shifts. Starting January 1, 2022, the World Customs Organization Council amended the Harmonized System, introducing a distinct new category, Heading "2404," specifically for novel tobacco and nicotine products. HNBs products fall under tariff heading 2404.11.

Allowing HNBs and bringing it under the ambit of regulations will have a broader impact on the economy. In addition to generating job opportunities and government tax revenue, allowing HNBs in the Indian market can attract foreign direct investment (FDI). This may include establishing factories that manufacture reconstituted tobacco, a key ingredient for HNBs. Charting FDI inflows as a percentage of GDP over the past decade points a dismal performance.

Figure 2: FDI inflow as a percentage of GDP, India.



Source: World Bank, World Development Indicators (2024) [48]

In fact, FDI flow took a hit after India initiated the unilateral mass termination of bilateral investment treaties (BITs) in 2016. BIT termination led to a significant decrease in FDI inflows from the country with which India terminated the agreement.[49] Drawing from China's experience, it's evident that technology plays a pivotal role in propelling any nation to the forefront of manufacturing, and in this manufacturing HNBs can be one such industry.

[48] Available at: https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS?end=2022&locations=IN&start=2000

[49] Kotyrlo, Elena, and Hryhorii M. Kalachyhin. "The effects of India's bilateral investment treaties termination on foreign direct investment inflows." *Economics of Transition and Institutional Change* 31, no. 4 (2023): 1007-1033.

Unfortunately, FDI Policy in the manufacturing of tobacco products, such as cigars, cheroots, cigarillos, cigarettes, and substitutes are prohibited.[50] However, this was not the case, as until 2010, FDI inflow in the manufacturing of cigars, cheroots, cigarillos, cigarettes, of tobacco products or of tobacco substitutes (tobacco products) were allowed after obtaining prior permission of the prior permission of the erstwhile Foreign Investment Promotion Board. It is to be noted that over the years, India ratified the WHO Framework on Tobacco Control in 2004 and the Protocol to Eliminate Illicit Trade in Tobacco Products in 2018. To adhere to global tobacco control standards, the Indian Government enacted COTPA and consistently introduces amendments, rules, and updates to align with evolving regulations on tobacco consumption.

Despite efforts to regulate the consumption and sale of tobacco products, India remains a significant exporter, with exports exceeding $923.6 million in 2021-2022 (this contradicts later data on stagnating exports). In India, the tobacco industry as a whole provides employment to approximately 36 million people engaged in farming, processing, manufacturing, and related export activities.[51] Given this context, it may seem advantageous for India to leverage the growing tobacco market by producing and manufacturing tobacco products, while ensuring strict adherence to regulations like COTPA. However, it's crucial to prevent a rise in domestic consumption and maintain strict compliance with regulatory frameworks. Similar to what happened prior to 2010, the government could consider permitting 100% FDI in tobacco manufacturing. If needed the government can put condition that the production is primarily earmarked for export, with no allowance for domestic sales. Such a policy will help complement India's FDI number.

7. Heat Not Burn Devices and Exports

Corollary: Exports of tobacco originating from India have largely stagnated, presenting an opportunity for India to diversify its export portfolio by including HNBs instead of banning them. Whats the economic rationale IN as an export base? What competitive advantages o we have?

In recent times an increase in India's current account deficit (CAD) has caught media attention.[52] According to India Ratings & Research (Fitch Rating Services), during the first quarter of the fiscal 2022-2023, India's CAD widened to a 9-year high of 3.4% of GDP. In the fiscal year 2023-2024, merchandise exports experienced a 3.11% decline year-on-year, amounting to $437.06 billion. However, imports didn't decrease significantly, largely due to

[50] The FDI regulatory framework in India has evolved over time with the aim of promoting and streamlining FDI inflows. The FDI Policy distinguishes between investments allowed through the automatic route, which require no government approval, and those requiring prior approval through the government route

[51] Andre Jaggi, *India: Prohibition of FDI Manufacture of Tobacco: Solution or Circumvention,* Available at: https://www.mondaq.com/india/inward-foreign-investment/1430106/prohibition-of-fdi-in-manufacture-of-tobacco-solution-or-circumvention

[52] CAD comprises trade account (imports and exports of merchandise goods), services account (imports and exports of services), and net income from abroad (such as remittances). Out of these three components trade account is the largest. As per the latest data, surplus in the services account and net income from abroad are smaller in comparison to deficit in the trade account.

substantial imports of crude/energy, crucial for a growing economy like that of India. For the fiscal 2023-2024, the trade deficit stood at $240.17 billion.[53]

A search on items using the harmonized system (HS) at the 2-digit level reveals that there are 6 items (among the top ten merchandize tradable items) that are of intra-industry types[54] and contribute more than 50% of India's total trade share.[55] These 6 items of interest are mineral fuels, oils, and bituminous substances (HS Code 27); natural or cultured pearls, semiprecious stones, diamonds, and gold (HS Code 71); electrical machinery and equipment, sound recorders, and tv (HS Code 85); nuclear reactor boilers, machinery and mechanical equipment (HS Code 84); and organic chemicals (HS Code 29); and iron and steel (HS Code 72). A few other items fall in the category of inter-industry trade, which features among the top 10 merchandize exports and imports. For example, India typically exports vehicles other than railway or tramway rolling stock (HS Code 87); and articles of apparel and clothing accessories, not knitted or crocheted (HS Code 61 and HS Code 62); whereas imports plastics and articles thereof (HS Code 39); and animal and vegetable fats and oils (HS Code 15).

A conspicuous feature of this intra-industry trade is that among the top six items that India trades in there is a deficit for most of the items. The exception is iron and steel (HS Code 72) recording both trade deficits and surpluses over the last five years. However, incurring total trade deficit is not a new phenomenon. Since 2004-2005, India never had current account surplus. India had current account surpluses for three consecutive years: 2001-2002, 2002-2003, and 2003-2004. Prior to 2000, India had a current account surplus in only two years: 1972-1973 and 1976-1977. In fact, current account surpluses during the early part of 2000s, prompted India to join several Regional Trading Agreements and sign many BITs. However, this step has backfired as India's trade deficit has widened from $40.5 billion in 2005 to $155.6 billion in 2019. Trade deficit as a percentage of GDP increased from 3.7% in 2005 to 5.7% in 2019.[56] To prevent a further rise in trade deficit India's pulled out of several RTAs, BITs, and raised simple average tariff rates from 8.9% in 2010 to 16.3% in 2020.[57] However, trade deficit continued to widen. In fact, focusing solely on the primary component of India's imports, mineral fuels, oils, and bituminous substances (HS Code 27), during the first seven months of the calendar year 2022, the deficit surpassed the proceeds from total services exports.

Figure 3: Comparison of Service Exports and Imports of Mineral Fuels, Oils, and Bituminous Substances

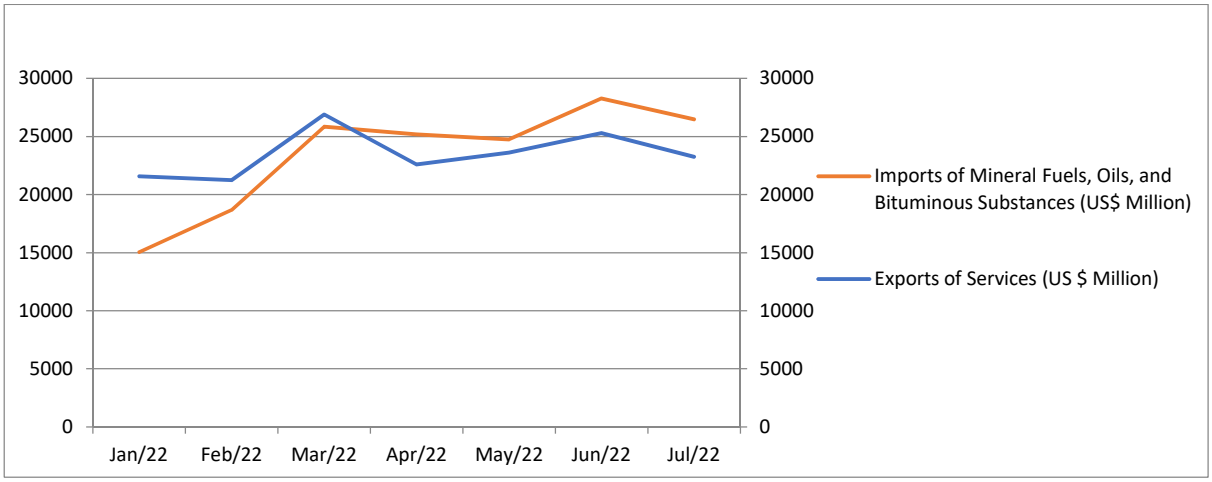
[53] Ministry of Commerce and Industry, *Trade Figures,* Available at: https://pib.gov.in/PressReleasePage.aspx?PRID=2017942#:~:text=India's%20trade%20deficit%20has%20shown,decline%20of%20(%2D)%2035.77%20percent.

[54] "Intra-industry trade," means simultaneous exports and imports of merchandize items within the same sectors.

[55] Ministry of Commerce and Industry, *Trade Statistics,* Available at: https://commerce.gov.in/trade-statistics/

[56] World Bank, *World Development Indicators,* Available at: https://databank.worldbank.org/source/world-development-indicators

[57] Aggarwal, Sakshi, Debashis Chakraborty, and Nilanjan Banik. "Does difference in environmental standard influence India's bilateral IIT flows? Evidence from GMM results." *Journal of Emerging Market Finance* 22, no. 1 (2023): 7-30.



Source: Ministry of Commerce and Industry, *Trade Statistics;* and Reserve Bank of India, *Statistics*.

Over the past four years, items classified under HS Code 27 have been contributing approximately $93.31 billion annually to the trade deficit on average. However, during the current fiscal, in the first quarter alone, items under HS Code 27 have contributed a deficit of $68.03 billion.[58] This sudden rise in import bills on account of mineral fuels has to do with a rise in the price of crude oil in the international market because of war, and a stronger US dollar. For instance, oil prices went up from around $84 a barrel in January 2022, to around $118 in June 2022. Furthermore, commencing in 2023, the value of the Indian rupee has been consistently declining, depreciating by over 7% and hitting a historic low of Rs 83 against the dollar.[59]

Items falling under HS Code 27 are income-elastic, that is, the imports are likely to increase when any economy is growing. India is one of the fastest growing large economies, with GDP projected to growing in excess of 7% in 2023-2024. Therefore, it is not surprising that India will need more mineral fuels, such as coal, petroleum and natural gas to sustain growth.

Apart from mineral fuels, another product category that has contributed to the rising CAD is natural or cultured pearls, semiprecious stones, diamonds, and gold (HS Code 71). This category, namely, pearl, diamonds, and semiprecious stones suffered because of the Russia-Ukraine war. Due to a shortage in supply of rough diamonds and semiprecious stones from Russia, India had to import similar items from high-cost supplying countries in Africa and United Arab Emirates. India is a diamond polishing hub, importing rough diamonds and semiprecious stones, polishes and designs them into jewellery, and thereafter re-export. The case for gold is a little different. During 2021 India imported 1067 tons of gold which was highest during the last 10 years.[60] Gold is perceived as a hedge against inflation, and the

[58] Ministry of Commerce and Industry, *Trade Statistics,* Available at: https://commerce.gov.in/trade-statistics/

[59] Economic Times, Rupee falls to Lifetime low, notches weekly decline, Available at: https://economictimes.indiatimes.com/markets/forex/rupee-falls-to-lifetime-low-notches-weekly-decline/articleshow/105123223.cms?from=mdr

[60] Banik, Nilanjan, and S. Ramakrishna Velamuri. "The 'What,''Why,'and 'How'of a Widening Current Account Deficit." *Economic & Political Weekly* 58, no. 3 (2023): 39.

current surge in gold prices during the first quarter of 2024 can be attributed to a high inflation rates in the US, and an uncertain geopolitical landscape.

Another item, namely, organic chemicals (HS Code 29) contributed sporadically to widen the trade deficit. During COVID times, India was dependent heavily on raw materials or active pharmaceutical imports (APIs) used for manufacturing medicines, from China. The percentage share of API imports from China increased from a tiny 1% in 1991 to 70% in 2019.[61] Organic chemicals also find usage in the making of personal protective equipment kits and other dyes used during COVID times. Although India is a leading exporter of generic drugs, the trade deficit for this category widened since the start of the pandemic.

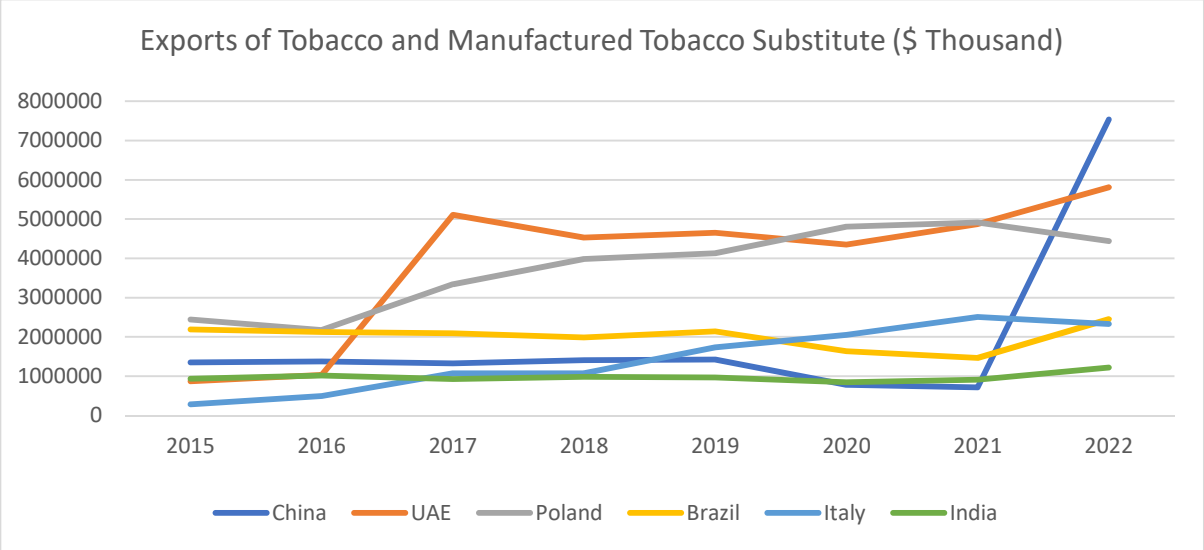
To reduce CAD, a viable approach involves exploring fresh markets or broadening our export portfolio, consequently allowing India to pay for her energy imports.

By prohibiting the export of e-cigarettes, including various forms of electronic nicotine delivery systems like HNB products and e-Hookah, the government is missing out on potential foreign currency earnings that could have aided in reducing the CAD. India, despite being one of the largest tobacco producers, faces a shortfall in international trade value, primarily because the majority of its exports comprise low-value tobacco items such as raw tobacco leaves, tobacco refuse (HS Code 2401), and various forms of cigarettes, cheroots, cigars, and cigarillos (HS Code 2402). India's export and production potential in high-value tobacco items, like reconstituted tobacco, nicotine, or substitutes used in HNBs (HS Code 2404), remain untapped due to existing bans within the country (why cant we produce substitutes used in HNBs (HS Code 2404) for export rather than consumption? What are the R&D and productions economics?).

The global market for HNBs was valued at $13,700.32 million in 2021 and is projected to grow at a CAGR of 18.46% through the forecast period, reaching $37,864.43 million by 2027.[62] Predominantly, the market for HNB products is concentrated in developed countries such as the US, UK, France, Germany, Japan, Mexico, Italy, South Korea, and the UAE. **A comparative analysis of reconstituted tobacco product exports (HS Code 2404) highlights Italy and the UAE as rapidly emerging leaders in this sector (Figure 4) (again exports vs domestic use).** Exports of tobacco originating from India have largely stagnated, showing minimal to no change between 2015 and 2022. India should seize the opportunity to broaden its export portfolio by including instead of banning Heat Not Burn Devices (HNBs). **I'm not getting the causal link between domestic usage and exports, which to my mind is the key question in permitting HNBs in India**

Figure 4: **Exports of Tobacco Product**s (China and UAE needs explanation)

[61] *Ibid.*
[62] Precision Reports, *Heat-Not-Burn Tobacco Products Market Detailed Analysis of Current Scenario,* Available at: https://www.linkedin.com/pulse/heat-not-burn-tobacco-products-market-detailed-erohf



Source: The International Trade Center, *Trade Map*[63]

8. Conclusion

Heat Not Burn Devices represents a paradigm shift in the tobacco landscape, offering a novel approach to nicotine consumption with potential implications for public health, regulation, and societal norms. Unlike conventional smoking, where tobacco burns at high temperatures, HNB devices generate an aerosol by heating tobacco, thereby releasing nicotine and flavourings without producing significant levels of harmful combustion by-products like tar and carbon monoxide. These products have the potential to disrupt existing tobacco markets, influence consumer behaviours, and shape public perceptions of smoking and harm reduction.

As HNBs continue to gain traction worldwide, it is imperative to prioritize rigorous scientific research, comprehensive regulation, and proactive public health measures to maximize the potential benefits and minimize the risks associated with these emerging technologies. Studies conducted to examine the short-term health impact, suggest HNBs a potentially less harmful alternatives to traditional smoking. Proponents argue that because HNB devices avoid the combustion process, they produce fewer toxicants, thereby reducing the associated health risks. It is for this reason, some countries (mostly developed with a higher health standard) have embraced these products as part of harm reduction strategies.

However, while studies suggest that HNB aerosols contain lower levels of harmful chemicals compared to cigarette smoke, the long-term health effects of these products remained to be tested. **India has banned use of HNBs.** Instead of implementing an outright ban on HNBs, it is crucial to establish stringent regulations (what are these??) aimed at monitoring the use of these products among young people.

Additionally, **measures should be taken to counteract deceptive marketing practices** that could glamorize or misrepresent these alternatives, rather than resorting to a ban. The

[63] Available at: https://www.trademap.org/Index.aspx

Indian government must devise comprehensive strategies addressing both the accessibility and promotion of these products to safeguard public health and safety.

By regulating, and not by prohibiting the use of HNB products, **India can potentially stimulate FDI inflow and create employment opportunities (doubtful if HNB tech will contribute to employment, since this is tech work in factories)**. Additionally, this move could contribute to public health initiatives aimed at reducing tobacco-related harm by offering smokers a potentially less harmful alternative to traditional cigarettes. Through facilitating a transition to HNBs, policymakers could significantly lower tobacco-related morbidity and mortality rates, thus advancing overarching public health goals.

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