Revenue Mobilisation from Taxes on Alcoholic Beverages

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1. Introduction

According to optimal taxation theory, the tax rate on a commodity ideally will be set according to the inverse of the price elasticity of demand for that commodity. The majority of normal goods are price elastic, therefore as price increases demand falls. However, in general demands for intoxicants (e.g., tobacco and tobacco products, alcoholic beverages) are relatively price-inelastic. Being habitual goods, with rising prices people often do not reduce consumption of intoxicants as much as other goods (normal goods). Therefore, to reduce the distortionary impacts of taxation and generate public resources, intoxicants attract high tax rates. It is believed that at the margin, high prices of intoxicants will discourage consumption and therefore it will help society in terms of positive externality (marginal social benefits) as well as save the health of consumers of intoxicants (positive internality). Apart from the price elasticity and cross-price elasticity (prices of substitutes), the income elasticity of demand for intoxicants is also an important factor in designing an effective tax system for intoxicants. Availability of alternatives to taxed intoxicants (e.g., supplies from informal and unregulated sources or locally made substitutes), reduces the effectiveness of the taxation system as an instrument to discourage consumption of intoxicants. Therefore, apart from the taxation system, regulations of manufacturing and distribution of intoxicants are important to control supplies of intoxicants to consumers.

The introduction of GST has changed the landscape of tax policy for state governments. While the tax buoyancy in the total GST collection has improved, many states are yet to reap the benefits of GST in terms higher share of State GST collection in nominal GSDP vis-à-vis the revenue that is subsumed into the GST. It is also important for states to explore the possibilities of raising additional revenues from other tax (non-GST) and non-tax sources to sustain the overall revenue stream of state finances. States may therefore look for options to initiate reforms in the taxation of alcoholic beverages for additional revenue mobilization.

State excise is the third largest source of the state's own tax revenue (OTR), after State GST and sales tax/VAT on items that are presently not attracting GST (viz., petrol, diesel, ATF, crude petroleum, natural gas, and alcoholic beverages for human consumption). The tax base of state excise is the consumption of alcoholic beverages (viz., IMFL, country liquor, beer) and other narcotics (opium, Indian hemp, and other narcotic drugs and narcotics) in the state. Some states also collect sales tax on alcoholic beverages in addition to state excise. Combined revenue from the state excise and sales tax on alcoholic beverages constitutes a major share of the OTR. Therefore, this study could be useful for states to understand the factors influencing state excise collection from alcoholic beverages.

The tax administration of state excise is subject to complex processes and procedures. In this study, we summarise the regulatory structure of states related to State excise duties.

1.1 Taxation of Alcoholic Beverages: Rationale

There are three objectives (drivers) to tax alcoholic beverages:

- Mobilise revenue
- Discourage consumption for health and social benefits
- Recovery of social costs associated with consumption

Apart from mobilizing revenue and discouraging consumption, the objective of internalizing social costs associated with the consumption of alcoholic beverages through taxation is often neglected. Besides levying cesses and/ or surcharges on alcoholic beverages to finance certain

specific social sector expenditures (e.g., education, health, de-addiction). The social costs or most of the adverse effects of consumption of alcoholic beverages are attributable not to consumption *per se*, but to excessive consumption. Therefore, existing tax policies as well as regulatory systems aim to restrict the consumption of alcoholic beverages in terms of quantity and also the manner of consumption (e.g., restricting consumption in public places, near schools, hospitals, and religious places). Both the policies (tax as well as regulations) intervene to restrict supply and demand for alcoholic beverages.

However, there are certain constraints of both policies, and it is important to highlight them here:

> *"There are, however, inbuilt constraints in using taxation as a means of curbing consumption. Beyond a point, high tax rates become counterproductive and encourage evasion and widespread distribution of illicit liquor. Pitching the tax rate at the appropriate point at which compliance costs are below evasion costs is critical to excise policy. This requires close understanding of price elasticities of demand for different segments of the market."* (Government of Karnataka 2001, Pg. 106)[1]

> *"[t]he effectiveness of excise policy is difficult to assess since a buoyancy factor above unity for excise duty may signify both effective enforcement and good revenue productivity as well as failure to restrain excessive consumption!"* (Government of Karnataka 2001, Pg. 107)

> *"[e]xtent and need for quantitative restrictions on inputs and products, the involvement of nationalised agencies in production and distribution, the appropriate fiscal mix of taxes and auction rentals as well as of commodity taxes and excise duties, the inter se tax structure for the three major market segments and optimal tax levels for each as well as the likely impact on the sector of WTO commitments relating to imported liquor."* (Government of Karnataka 2001, Pg. 108)

1.2 Constitutional Assignment of Taxation Power on Alcoholic Beverages

Article 246 of the Constitution of India provides exclusive power to the Parliament in making laws concerning any of the matters enumerated in List I in the Seventh Schedule to the Constitution, referred to as the 'Union List.' However, Entry 84 of List 1,[2] which enables the Union Government to levy Excise Duty on various goods manufactured in India, specifically excludes alcoholic liquor for human consumption.

Entry 8 of the State List (List II) of the Constitution of India gives States full power to regulate intoxicating liquors – the production, manufacture, possession, transport, purchase, and sale of intoxicating liquors.[3] Entry 51 and 54 of the same list (List II) provide exclusive power to the State Legislature to levy tax on the manufacture and sale of alcoholic liquor for human

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[1] Government of Karnataka (2001), "First Report of the Tax Reforms Commission", Finance Department, Government of Karnataka, 12 February 2001.

[2] Entry 84 of List I (Union List): Duties of excise on tobacco and other goods manufactured or produced in India except - (a) alcoholic liquors for human consumption; (b) opium, Indian hemp and other narcotic drugs and narcotics, but including medicinal and toilet preparations containing alcohol or any substance included in sub-paragraph (b) of this entry.

[3] Entry 8 of List II (State List): Intoxicating liquors, that is to say, the production, manufacture, possession, transport, purchase and sale of intoxicating liquors.

consumption.[4] The Constitution (One Hundred and First Amendment) Act, 2016 has modified the provision under Entry 54 of List II.[5]

Article 366(12A) of the Constitution as amended by the 101st Constitutional Amendment Act, 2016 defines the Goods and Services Tax (GST) as a 'tax on supply of goods or services or both, except taxes on the supply of alcoholic liquor for human consumption'.

The Honourable Supreme Court, in a landmark judgment of *Synthetics and Chemicals Ltd. vs the State of UP*, held that the expression 'alcoholic liquor for human consumption' means any liquor which is capable of being consumed by human beings as a beverage or drink. Therefore, industrial alcohols such as ethyl alcohol, which cannot be consumed but can be used as inputs for manufacturing intoxicating liquor after processing and substantial dilution, will not qualify as alcoholic liquor for human consumption.

In the 52nd meeting of the GST Council, The GST Council recommended keeping Extra Neutral Alcohol (ENA)[6] used for manufacturing alcoholic liquor for human consumption from the ambit of GST. However, industrial use of ENA attracts 18% GST.

While alcoholic liquor meant for human consumption or potable alcohol has always been out of the scope of GST, its main input, ENA, was a grey area that several analysts assumed could be included. However, after the 52nd meeting of the GST Council and vacating the taxation right on ENA by the Union Government, the sale of ENA will attract State sales tax/VAT. In addition to State excise, the majority of States collect Sales tax on alcoholic beverages at the wholesale stage. Interstate sales of alcoholic beverages, ENA, and RS attract Central Sales Tax (CST).

2. Regulations of Alcoholic Beverages

The system of regulation for the production, manufacturing, possession, transport, purchase, and sale of alcoholic beverages varies across states. There are a plethora of acts, rules, processes, and procedural guidelines/ directives to regulate the sector. Plugging revenue leakages is a challenge that all States face and the regulatory system aims to control every aspect of the sector to control illicit supplies of alcoholic beverages. In addition to controlling supplies, the regulatory system also aims to discourage people from consuming alcoholic beverages excessively.

For a better understanding of the regulatory system prevailing for the sector, we present the industry value chain for IMFL in Figure 1.

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[4] Entry 51 of List II: Duties of excise on the following goods manufactured or produced in the State and countervailing duties at the same or lower rates on similar goods manufactured or produced elsewhere in India: - (a) alcoholic liquors for human consumption; (b) opium, Indian hemp and other narcotic drugs and narcotics; but not including medicinal and toilet preparations containing alcohol or any substance included in sub-paragraph (b) of this entry.

[5] Entry 54 of List II: Taxes on the sale of petroleum crude, high speed diesel, motor spirit (commonly known as petrol), natural gas, aviation turbine fuel and alcoholic liquor for human consumption, but not including sale in the course of inter-State trade or commerce or sale in the course of international trade or commerce of such goods.

[6] Extra-neutral alcohol (ENA) is a type of food-grade alcohol that is highly distilled and contains more than 95% of alcohol content. It is largely used to manufacture 'alcoholic liquor for human consumption,' such as whiskey, vodka, gin and rum. It is usually produced by fermenting sugarcane molasses or grains by distilling those several times to produce colourless and odourless alcohol.

Figure 1: Alcoholic beverage industry value chain
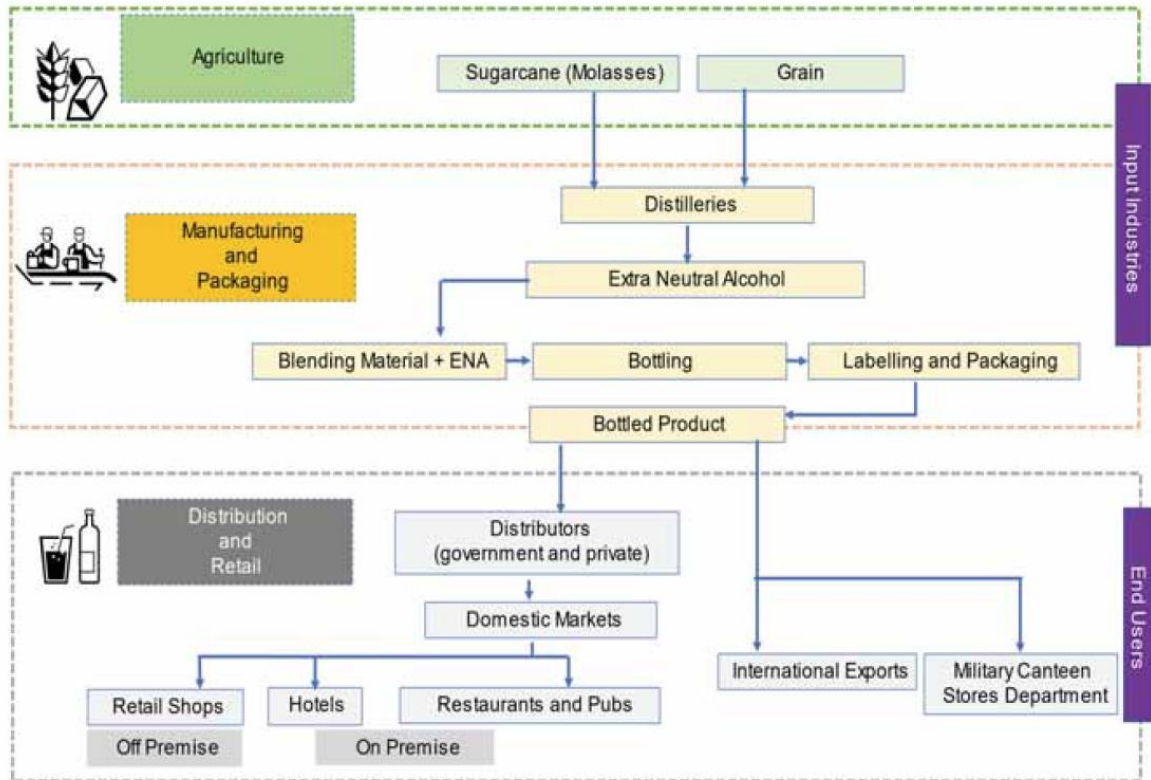
Source: ISWAI (2023, Pg. 56)[7]

Every aspect of the value chain of the sector faces regulations. In Table 1, we present broad categories of licenses/ fees/ permits prevailing across states over different stages of production and distribution of alcoholic beverages. The number of licenses/ fees applicable to the sector varies across states, e.g., there are 69 different types of licenses/ fees/permits/requisitions applicable in excise regulation for the state of West Bengal.[8]

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[7] International Spirits and Wine Association of India (ISWAI) (2023), "*Economic value of the Indian alcoholic beverage industry*", Gurgaon, Haryana.
[8] https://excise.wb.gov.in/MIS/Portal_New_etransaction.aspx (last accessed on 27 march 2024)

Table 1: Stages of Value Addition and Regulations in the Alcoholic Beverages Sector

Production (or manufacturing/ bottling)	Import	Distribution		Premises of Consumption (bars/pubs/clubs/ restaurants)	Transportation	Exports
		Storage (Warehouse)/ Wholesale	Retail			
License for Distillery/ Brewery	Import Permit for IMFL, Beer, CL	License for Foreign Liquor (FL)/ Country Liquor (CL) Warehouse	License for Retail FL/ CL Shops	IMFL Retail-On License	Retail Transport Permit for IMFL, Beer & CL	Export Permit & Export Pass
License for Liquor (FL)/ Country Liquor (CL) bottling unit	Import permit for Bulk Spirit	License for Denatured Spirit (Wholesale & Retail)	Brand/ Label Registration	One-Day Bar License	Transport Pass	
		Issuance of Excise Passes for withdrawal from the Warehouse		Licenses for Military/ Para-Military under Canteen Tenant System		

Source: Computed by Authors

The regulatory structure and taxation system varies across States and it has evolved over the years for each state. There are three dimensions of regulations - "Route To Market", Price regulations, and taxation system (State excise vis-à-vis State excise cum State sales tax/ VAT).

Route To Market (RTM): Many states have State Beverages Corporation (as parastatal) to control either wholesale and/or retail sales of alcoholic beverages. There are three types of system prevailing across Indian States, viz., Model 1 where both wholesale and retail sales are with private entities, Model 2 where the wholesale is with the public sector and retail is with the private sector and Model 3 where both wholesale and retails (either partially or fully) are with the public sector (either partially or fully) (we present detail discussion on this issue in section 6 of this report).

Price Control: The majority of states impose price controls on alcoholic beverages to protect tax revenue as well as discourage people from consuming alcoholic beverages excessively. A state having Beverages Corporation asks liquor producers/ suppliers to submit their price list (ex-distillery price or EDP) every year (before the start of a financial year) along with EDPs that they charge for supplies of different brands to neighboring states and/or all India basis. The Beverages Corporation selects the producers for procurements based on prices they quote for different brands/ varieties of alcoholic beverages. After adding all taxes and duties, Beverages Corporation either sells liquors to consumers through its network of shops or private licensed retailers, based on the RTM model that a state follows. States impose price control by approving ex-distillery prices that alcoholic beverage producers could charge. Some states also control 'maximum retail price' or 'minimum retail price' or 'minimum selling price' (Table 2).

Taxation of Alcoholic Beverages: Except Himachal Pradesh and Karnataka, all states have State excise as well as sales tax on alcoholic beverages. In Karnataka, the sales tax component is subsumed into state excise as an additional duty on beer, IMFL, fenny, and wine.

In Table 2 we categorise states into three criteria to highlight the diversity of regulations.

Table 2: State-wise Regulatory Structure Prevailing in 2022-23

| State | Route To Market* | Regulation of Pricing | | Taxation |
		Ex-Distillery Price (EDP) (1 Control, 0 No Control)	Final Price of the Beverages [MRP (1)/ 0 No Control]	State Excise Only (1)/ State Excise & Sales Tax/ VAT (2)
Andhra Pradesh	3	1	1	2
Assam	1	0	1	2
Chhattisgarh	3	0	1	2
Goa	1	0	1	2
Haryana	1	1	0	2
Himachal Pradesh	2	0	1	1
Jharkhand	3	1	1	2
Karnataka	4	0	1	1
Kerala	3	1	1	2
Madhya Pradesh	2	1	1	2
Maharashtra	1	0	1	2
Odisha	2	1	1	2
Punjab	1	1	0	2
Rajasthan	2	1	1	2
Tamil Nadu	3	1	1	2
Telangana	2	1	1	2
Uttar Pradesh	1	1	1	2
West Bengal	2	0	1	2
Tripura	1	0	1	2

Notes: *-Access to Market for Alcoholic Beverages: Regulatory Structure [Route To Market]

Model 1 (Code: 1): Wholesale (Private) – Retail (Private)

Model 2 (Code: 2): Wholesale (Public) – Retail (Private)

Model 3 (Code: 3): Wholesale (Public) – Retail (Public)

Model 4 (Code: 4): Wholesale (Public) – Retail (Public & Private)

Public: Parastatal/ Government Department/ Corporation

N. A. – Not Available

3. Production, Consumption and Tax Collection from Alcoholic Beverages

National Accounts Statistics (NAS) of the Ministry of Statistics and Programme Implementation provides consumption expenditure on alcoholic beverages both at current and constant prices for the period 2011-12 to 2021-22 (2011-12 series).[9] A close look at the Sources and Methodology of NAS (CSO 2012) reveals[10] that consumption of alcoholic beverages at all India levels is estimated from the production (Value of Gross Output) of various alcoholic beverages, as available from the Annual Survey of Industries. For ready reference, we present the relevant section of the text from CSO (2012) as follows:

> **"Beverages**
> 22.25 For alcoholic and non-alcoholic beverages the value of output for the registered manufacturing sector is obtained from the ASI. For the unregistered part, output is

[9] https://www.mospi.gov.in/publication/national-accounts-statistics-2023 (last accessed on 14 march 2024).
[10] Central Statistical Office (CSO) (2012), "National Accounts Statistics – Sources and Method 2012", Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

estimated using ratios of value of output of unregistered to registered manufacturing. The value of output thus arrived at for the registered and unregistered sectors are adjusted for stocks and excise duties." (CSO 2012)

This shows that NAS adopts a production side approach to estimate consumption. It is not clear from the above statement "how does NAS actually estimate the consumption"? To understand this issue we present a relevant section from the "*Changes in Methodology and Data Sources in the New Series of National Accounts: Base Year 2011-12*" (MoS&PI, June 2015) as follows:

> "The data base for preparation of estimates of PFCE for majority of manufactured items is same as that for estimating the value added from manufacturing sector. Data on output according to compilation category estimated for compiling GVA by adopting the enterprise approach is utilized. Share of products and by-products for different industries in the total output is worked out from ASI. Also from the detailed analysis of ASI, items of final consumption are classified as per the Classification of Individual Consumption According to Purpose (COICOP) and share of these items in the total value of products and by-products is compiled. Applying these shares on the value of products and by-products estimated from the output compiled by the enterprise approach, for enterprises in Public Sector, Private Corporate Sector and Unincorporated Sector, the total value of products and by-products of different items under this group is estimated. *For unorganized manufacturing sector, the base year ratio between output of organized and unorganized manufacturing for corresponding industry groups has been used.* The total output is then supplemented by excise duty, import/import duty and net of change of stock. Further total supply is marked up by trade and transport margin to arrive at total available supply for consumption. Finally exports, government consumption, capital formation and inter-industry consumption are subtracted from total availability to arrive at PFCE." (MoS&PI 2015)

We find that ASI reports various information for three 4-Digit Industries Group (NIC 2008) related to alcoholic beverages (viz., 1101 - distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials, 1102 - Manufacture of wines, and 1103 - Manufacture of malt liquors and malt). We compile "Gross Value of Output" and "Addition of Goods in Finished Stock" for the three industries group for the period 2011-12 to 2021-22. To estimate the "Value of Output" for the unregistered sector, we use "Value of Output - Unregistered Manufacturing (at current prices)" to "Value of Output - Registered Manufacturing (at current prices)" for 2011-12, as available from 2004-05 Series of National Accounts Statistics (i.e., 0.24). We use the same ratio to estimate the value of output from the unregistered sector for the period 2011-12 to 2021-22. We also adjust the total production (combined registered and unregistered) of various alcoholic beverages for "Addition of Goods in Finished Stock", as available from the ASI database. We get the value of the production of alcoholic beverages at current prices. We adjust it using all India CPI Index (Base 2012=100) for alcoholic beverages by combining 4 indices corresponding to alcoholic beverages, viz., "country liquor", "foreign/refined liquor or wine", "toddy", "beer" by using their respective weights (see Appendix for detail methodology).

We present the production and consumption of alcoholic beverages (at current prices) along with State excise collection in Table 3 to assess the trend.
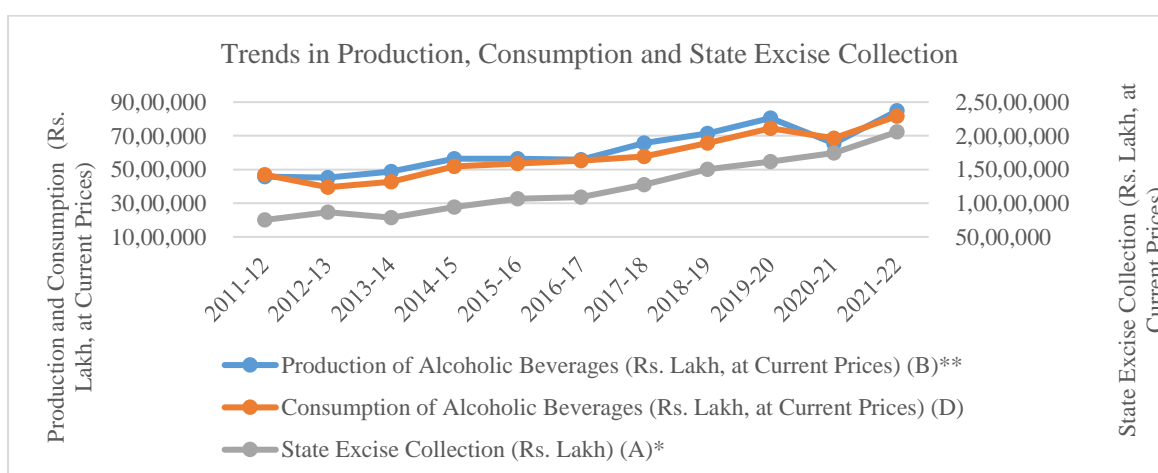
Table 3: Production and Consumption of Alcoholic Beverages (at Current prices) and State Excise Collections

Year	State Excise Collection (Rs. Lakh) (A)*	Production of Alcoholic Beverages (Rs. Lakh, at Current Prices) (B)**	State Excise Collection (as % of Production) (C=B/A*100)	Consumption of Alcoholic Beverages (Rs. Lakh, at Current Prices) (D)#	State Excise Collection (as % of Consumption) (E=B/D*100)
2011-12	75,12,492	45,79,581	164	46,81,100	160
2012-13	86,44,195	45,18,385	191	39,49,700	219
2013-14	78,38,036	48,89,266	160	42,75,700	183
2014-15	94,17,757	56,40,573	167	51,91,600	181
2015-16	1,06,59,984	56,38,540	189	53,51,300	199
2016-17	1,09,12,926	55,82,294	195	55,21,077	198
2017-18	1,27,46,907	65,78,774	194	57,74,710	221
2018-19	1,50,34,138	71,44,413	210	65,74,795	229
2019-20	1,61,61,481	80,59,566	201	74,50,367	217
2020-21	1,74,48,317	65,53,100	266	68,58,910	254
2021-22	2,05,79,276	84,80,634	243	81,71,828	252

Source: *-The CAG's Combined Finance and Revenue Accounts - Union & State (various years), The Union and State Finance Accounts (various years), and State Budget Documents (for 2023-24 & 2024-25). **-Annual Survey of Industries (ASI) (various years). #-National Accounts Statistics 2023 (Table 5.1).

Figure 2 shows that the consumption of alcoholic beverages (as available from National Accounts Statistics) is lower than the production of alcoholic beverages (as available from the Annual Survey of Industries), except for a few years. It is not clear the reason, even if not including imports of alcoholic beverages, for lower consumption than production, as available from published sources of data. State excise collection is much higher than both consumption and production of alcoholic beverages.
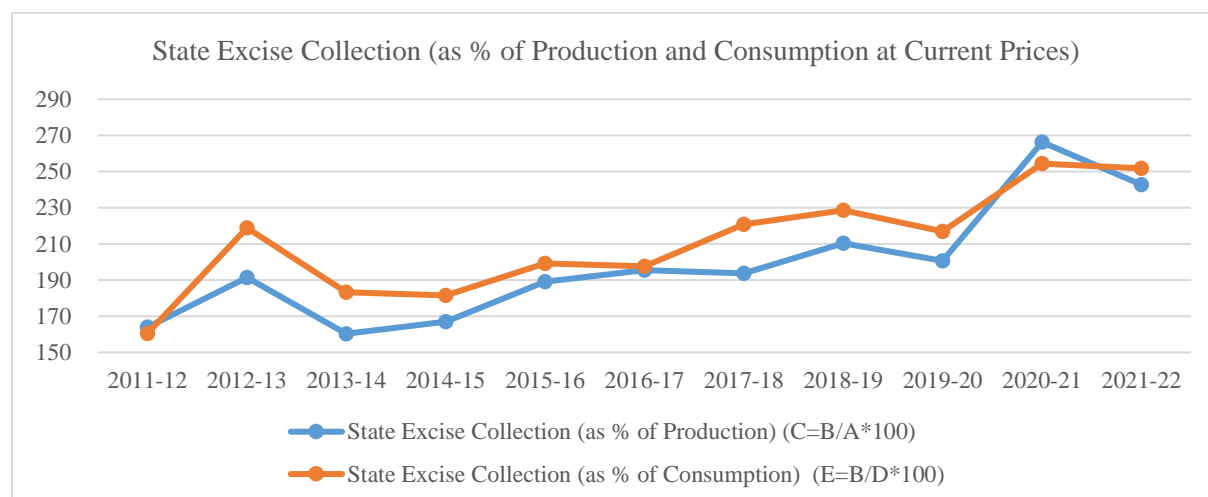
Figure 2: Trends in Production and Consumption of Alcoholic Beverages (at current prices) and State Excise Collection (Rs. Lakh)

Source: As in Table 3

State excise collection (as % of production as well as consumption) is increasing over the years (Figure 3). The increase in the State excise collection may be driven by an actual increase in the consumption and/or increase in the prices of alcoholic beverages.

Figure 3: State Excise Collection (as % of Production and Consumption at Current Prices)

Source: As in Table 3

In Table 4, we present the production and consumption of alcoholic beverages at 2011-12 prices and State excise collection as a percentage of production and consumption.
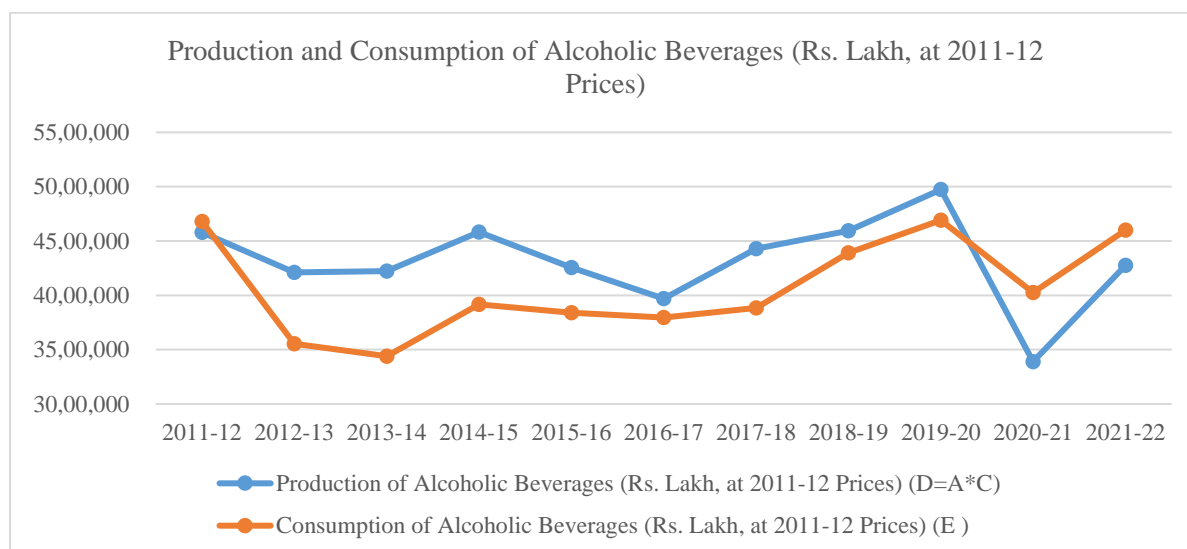
Table 4: Production and Consumption of Alcoholic Beverages (at 2011-12 prices) and State Excise Collections

Year	Production of Alcoholic Beverages (Rs. Lakh, at Current Prices) (A)	CPI of Alcoholic Beverages (2012=100) (B)*	Price Deflator $[P_o/P_i]$ (C) $(P_o=2011\text{-}12)$	Production of Alcoholic Beverages (Rs. Lakh, at 2011-12 Prices) (D=A*C)	Consumption of Alcoholic Beverages (Rs. Lakh, at 2011-12 Prices) (E)**	State Excise Collection (as % of Production) (F)	State Excise Collection (as % of Consumption) (G)
2011-12	45,79,581	94.9	1.00	45,79,581	46,81,100	164	160
2012-13	45,18,385	101.9	0.93	42,09,825	35,53,300	205	243
2013-14	48,89,266	109.9	0.86	42,23,776	34,39,800	186	228
2014-15	56,40,573	116.8	0.81	45,83,288	39,17,500	205	240
2015-16	56,38,540	125.8	0.75	42,55,132	38,41,400	251	278
2016-17	55,82,294	133.5	0.71	39,69,373	37,95,076	275	288
2017-18	65,78,774	141.0	0.67	44,29,386	38,83,852	288	328
2018-19	71,44,413	147.6	0.64	45,94,029	43,90,071	327	342
2019-20	80,59,566	153.8	0.62	49,73,034	46,91,161	325	345
2020-21	65,53,100	183.5	0.52	33,89,912	40,24,525	515	434
2021-22	84,80,634	188.2	0.50	42,76,299	46,00,169	481	447

Sources: As in Table 3 & *- https://cpi.mospi.gov.in/Default1.aspx, **- National Accounts Statistics 2023 (Table 5.1).

Figure 4 shows that both production and consumption of alcoholic beverages at 2011-12 prices do not show any trend. This shows that according to the macro-statistics of the sector, there is no increase in either the production or consumption the alcoholic beverages.

Figure 4: Production and Consumption of Alcoholic Beverages (Rs. Lakh, at 2011-12 Prices)

Source: As in Table 4

State excise collection is increasing both as percentage of production and consumption (Figure 5).

Figure 5: State Excise Collection (as % of Production/ Consumption of Alcoholic Beverages)
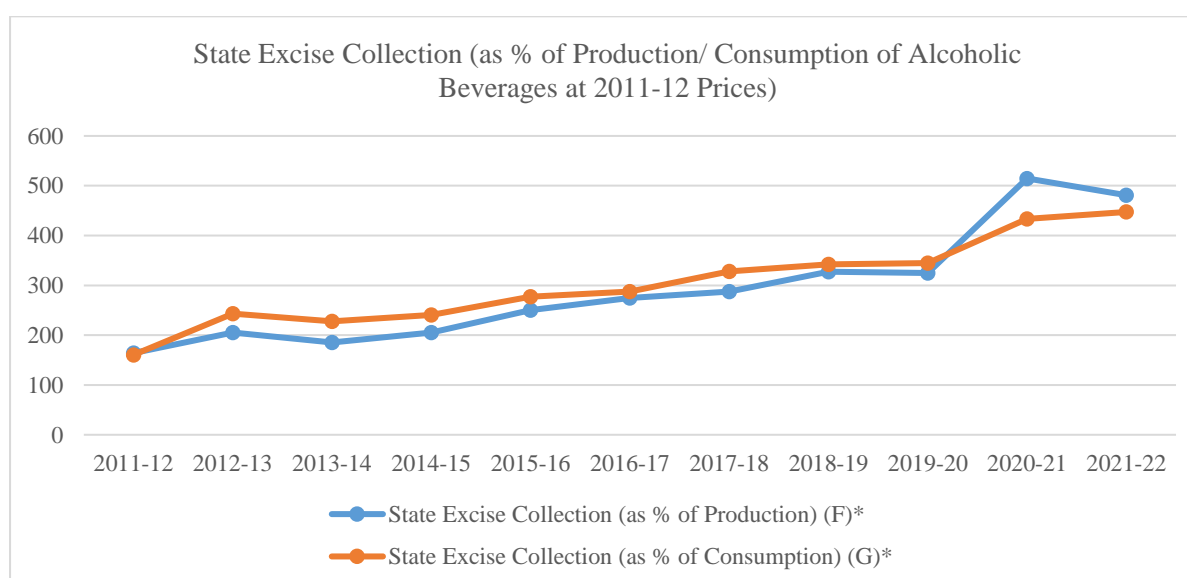
Note: Production and Consumption of alcoholic beverages at 2011-12 prices
Source: As in Table 4

We find that State excise collection as percentage of production and consumption of alcoholic beverages is very high. This could be due to under-estimation of production and consumption

of alcoholic beverage or it may be a case that a large part of State excise revenue collected from issuance of licenses for manufacturing, bottling, warehouse, and retail trades, registration of brands and labels, import and exports licenses, retail transport permits etc. In absence of actual consumption and/ or sales data along with revenue generated from various licenses/ fees, it is difficult to assess the tax base of a state for alcoholic beverages.

It is also to be highlighted that in addition to State excise duty, majority of Indian States (except Himachal Pradesh and Karnataka) also collect State sales tax / VAT on alcoholic beverages. Unlike State excise duty portion of tax on alcoholic beverages, revenue generated from State sales tax/ VAT on alcoholic beverages cannot be ascertained from State Finance Account or State Budget Documents. Therefore, if we add total tax collection (State excise duties as well as State sales tax) from alcoholic beverages, the share of tax collection vis-à-vis production or consumption would be much higher than figures presented above.

In comparison to macro-estimate of consumption expenditure (from supply/ production side), it is expected that micro-estimate of consumption expenditure (based on household consumption expenditure) would be much reliable. To assess this hypothesis, we present both the official estimate of household consumption expenditure for 2011-12 (based on NSSO's 68th Round of Household Consumption Expenditure Survey: July 2011-June 2012) as well as estimates based on the CMIE's Consumer Pyramids Household Survey (CPHS) data for the period 2014-15 to 2022-23 in the following section.

4. Consumption and Tax Collection from Alcoholic Beverages - Evidences from Household Consumption Expenditure Surveys

We present all India average monthly per capita consumption expenditure (MPCE) on various alcoholic beverages by residence in Table 5. This is based on the NSSO's 68th round Household Consumption Expenditure Survey (July 2011-June 2012). We estimate the all India total consumption expenditure on alcoholic beverage by taking weighted average MPCE where weights are respective share of population in rural and urban areas in total population of 2011 (based on 2011 Census population of India). We find that State excise collection as percentage of consumption expenditure is 288 per cent. This shows that the estimated consumption expenditure on alcoholic beverages for 2011-12 based on NSSO's Household Consumption Expenditure Survey is much lower than (only 56%) consumption expenditure figure presented in the National Accounts Statistics for 2011-12 (i.e., Rs. 46,81,100 lakh, at current prices). It is also to be highlighted that both NAS consumption estimate as well as consumption expenditure survey figures are at market prices and therefore includes all indirect taxes.

Table 5: All India Average Monthly Per Capita Consumption Expenditure on Alcoholic Beverages and State Excise Collection

	Value per 30 Days (MMRP)*		
Item Description	Rural	Urban	Total
Toddy (Rs.)	1.57	0.21	
Country liquor (Rs.)	6.72	4.49	
Beer (Rs.)	1.3	3.03	
Foreign/ refined liquor or wine (Rs.)	6.86	8.56	
Other intoxicants (Rs.)	1.95	0.47	
Intoxicants - Total (Rs.) (A)	**18.47**	**16.77**	
Population - 2011 (in lakh) (B)**	8,337	3,771	12,109
Total Consumption Expenditure (Rs. Lakh) (C=A*B*12)	18,47,921	7,58,888	26,06,809
State Excise Collection (Rs. Lakh) (D)#			75,12,492
State Excise Collection (as % of Total Consumption) (E=D/C*100)			288

Sources: *-Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Pg. 57, 63)
**- Census 2011 - Primary Census Abstract - Record Structure
#- Combined Finance and Revenue Accounts of the Comptroller and Auditor General (CAG) of India.

Based on NSSO's 68th round of household consumption expenditure survey, we present state-wise state excise collection (as % of total annual expenditure on alcoholic beverages) in Figure 6. We find the lowest tax collection was in Jharkhand (67%) and the highest was in Goa (722%).

Figure 6: State Excise Collection (as % of Total Annual Expenditure on Alcoholic Beverages)

Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&2U)

Under-reporting of consumption expenditures on alcoholic beverages in the household expenditure survey cannot be ruled out. First of all, sample households may be reluctant to respond to the question about consumption of alcoholic beverages. Secondly, they may not reveal their actual expenditure. To support this argument we find a positive relationship between percentages of households responded to the question of consumption of alcoholic beverages of any variant and their average monthly per capita expenditure on alcoholic beverages. Figure 7 shows that both in rural and urban areas, there is a positive relationship between response to the question of consumption and average monthly per capita consumption expenditure on alcoholic beverages across states.

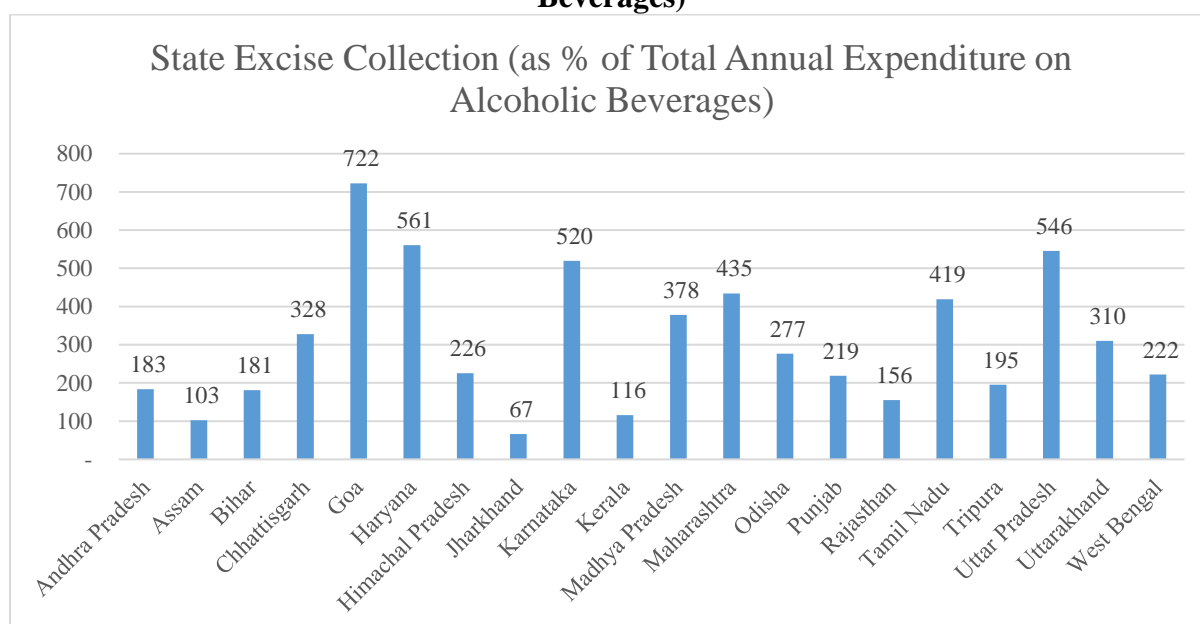**Figure 7: Relationship between Reporting and Consumption of Alcoholic Beverages**
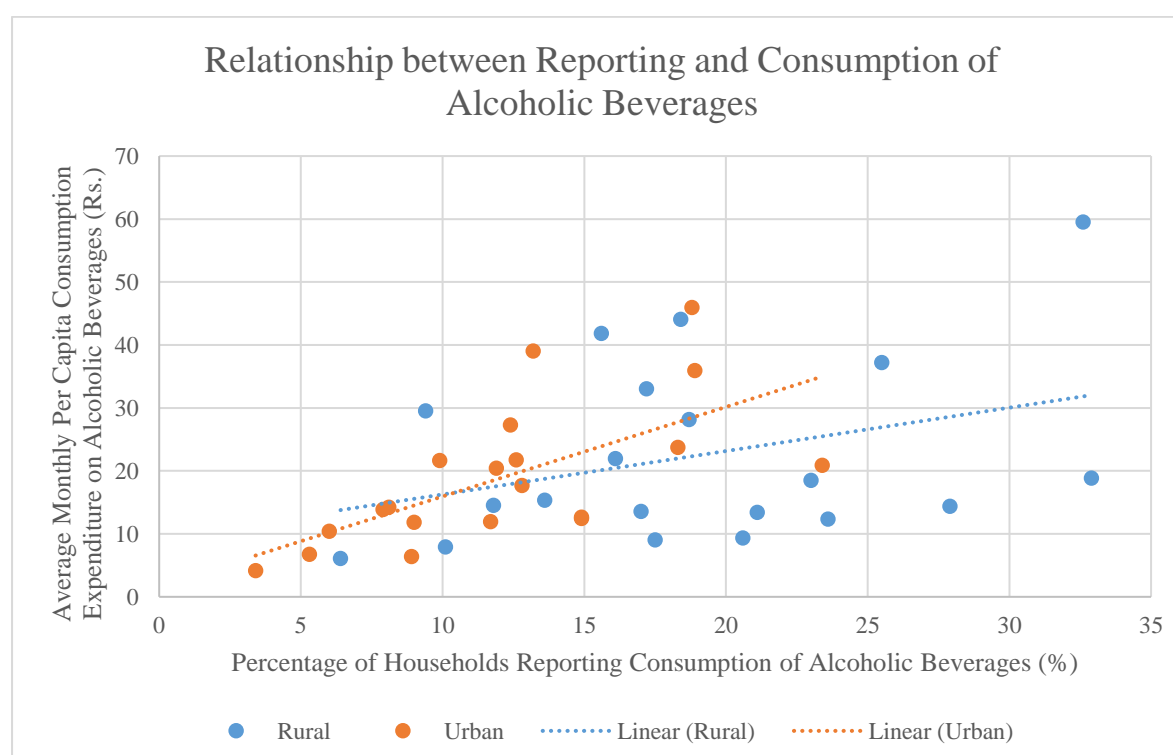
Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&U)

Figure 8 shows that not only across states but also across regions within a state, percentage of households' response to the question on consumption of alcoholic beverage varies. Except Haryana and Uttarakhand, a larger percentage of rural households responds to the question on consumption of alcoholic beverages than their urban counterpart.

Figure 8: Percentage of Households Reporting Consumption of Alcoholic Beverages

Percentage of Households Reporting Consumption of Alcoholic Beverages

Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&2U)

According to the NSSO's 68th round household consumption expenditure survey, for some states average monthly per capita consumption expenditure on alcoholic beverages is higher in rural areas (viz., Andhra Pradesh, Bihar, Goa, Jharkhand, Kerala, Karnataka, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, and Tripura) than urban areas (Figure 9). On the other hand, for some states average MPCE on alcoholic beverages in urban areas is higher than rural areas (viz., Assam, Chhattisgarh, Himachal Pradesh, Haryana, Odisha, Uttarakhand, Uttar Pradesh and West Bengal). Apart from response to the question of consumption of alcoholic beverages by households, there are several factors influence the consumption habits of people and therefore tax collection.

Figure 9: Average Monthly Per Capita Consumption Expenditure on Alcoholic Beverages (Rs.)

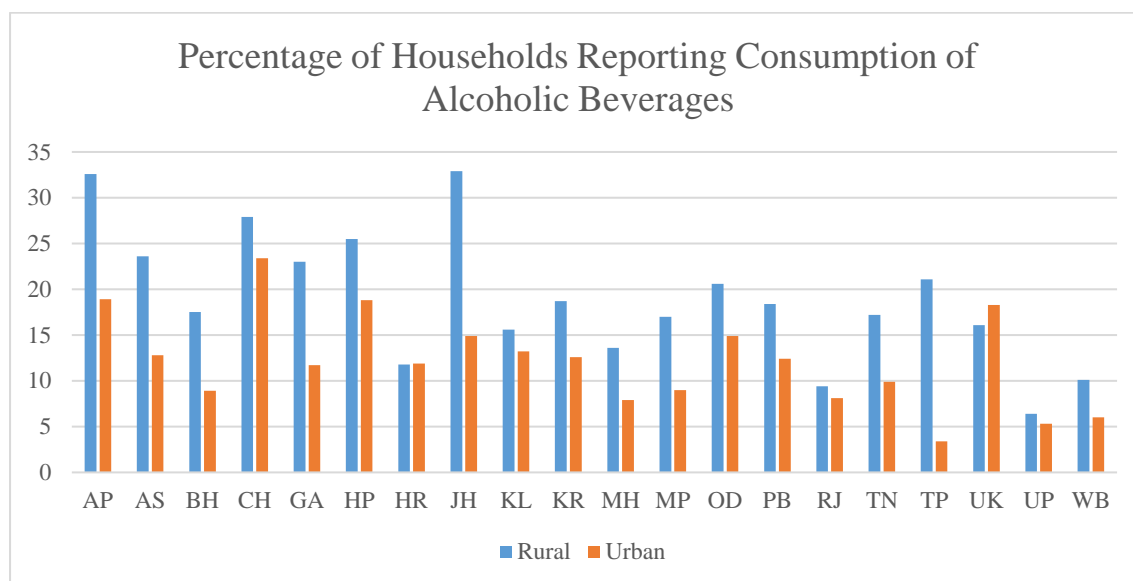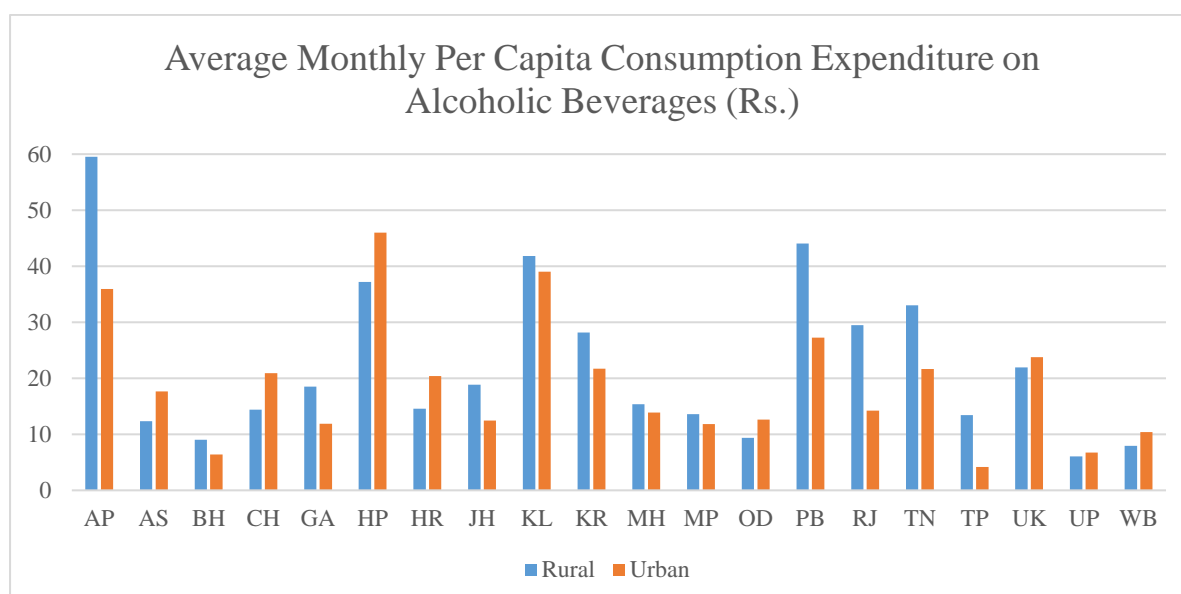Average Monthly Per Capita Consumption Expenditure on Alcoholic Beverages (Rs.)

Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&2U)

Across all regions, a larger percentage of rural households have responded positively to the question of consumption of alcoholic beverages as compared to urban households of the same region (Table 6). Average MPCE of rural households of any region is higher than their urban counterpart.

Table 6: Region-wise Distribution of Households' Response Rate and Average MPCE on Alcoholic Beverages

Row Labels	Average % of HHs Responded Positively - Rural	Average MPCE – Rural (Rs.)	Average % of HHs Responded Positively - Urban	Average MPCE – Urban (Rs.)
Eastern States (AS, BH, JH, OD, TP, WB)	21.0	11.8	10.2	10.6
Middle & Western States (CH, MP, MH, GA)	20.4	15.5	13.0	14.6
Northern States (HP, HR, PB, RJ, UK, UP)	14.6	25.6	12.5	23.1
Southern States (AP, KL, KR, TN)	21.0	40.6	13.7	29.6

Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&U)

Getting any reliable estimate of consumption expenditures on alcoholic beverages is a problem. Our analysis shows that under-reporting of production and consumption of alcoholic beverages from the macro-statistics (based on NAS and ASI databases) as well as the NSSO's household consumption expenditure survey cannot be ruled out. It is expected that the NSSO's HCE survey may provide us a broad pattern of consumption (or habits) of alcoholic beverages across states, given the constraint that households' response to the question varies across states.

Based on NSSO's 68th round HCE survey, we present state-wise (rural and urban combined) annual average per capita consumption expenditure on alcoholic beverages in Figure 10. It shows that consumption varies across states and per capita annual expenditure on alcoholic beverages is the highest in Andhra Pradesh, followed by Kerala, Himachal Pradesh and Punjab.

Figure 10: Average Annual Per Capita Consumption Expenditure on Alcoholic Beverages* (Rs.)
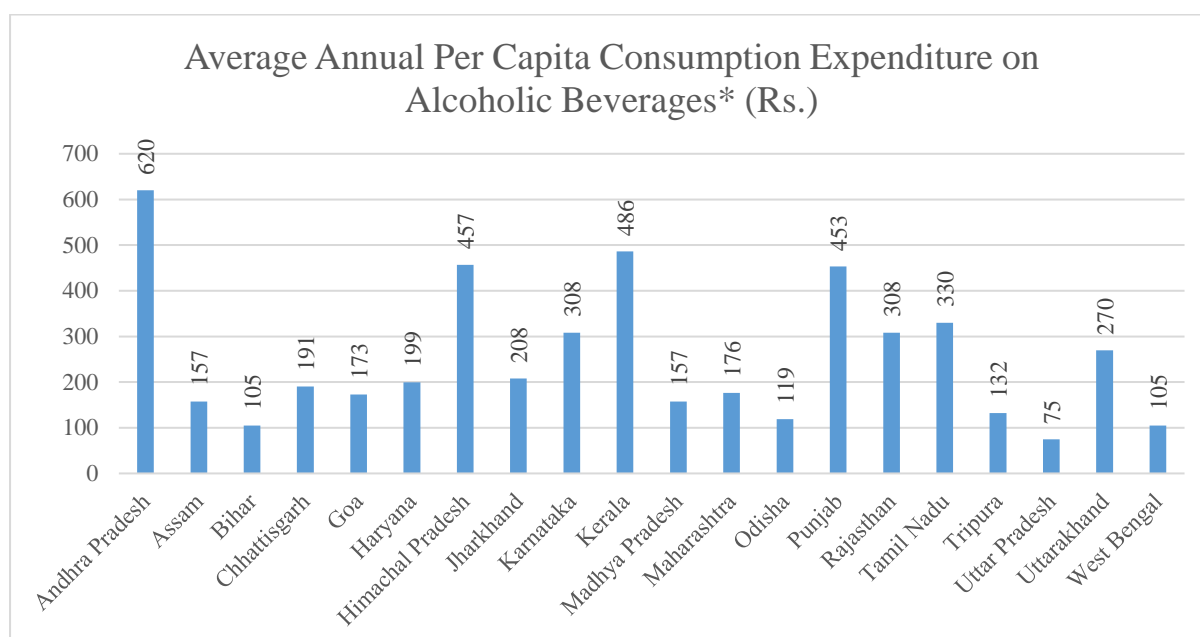
Note: *-we used share of rural and urban population in total population (based on Population Census of 2011) as weights to combine rural and urban per capita annual consumption expenditure to get combined consumption expenditure on alcoholic beverages.
Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&U)

4.1 Reasons for Under-estimation of Consumption Expenditures on Alcoholic Beverages

Household consumption expenditure surveys may not capture the actual consumption expenditure on alcoholic beverages. Since consumption of intoxicants (e.g., alcoholic beverages, tobacco and tobacco products) often goes against the social and cultural norms of our society and considered as taboo in some parts of India. Therefore, respondents are often reluctant to response to the question as well as reveal their actual consumption habits (in terms of value and quantity) to field investigators. Secondly, often respondents are head of the household, and therefore he/ she may not be aware of the consumption habits of all members of the households or may be reluctant to reveal it an outsider, especially if youngsters are involved in the consumption. Often consumption of alcoholic beverages outside the household premises by other than respondents cannot be captured in the household consumption expenditure survey. For example, consumption of alcoholic beverages at on-shops and/ or hotel/ restaurants/ bars/ pubs/ clubs etc. There is also an issue of separation of total consumption (or expenditures) in hotels/ restaurants/ clubs into food and non-food expenses (e.g., alcoholic beverages). Therefore, even if the households survey capture expenses at hotel/ restaurants etc. it cannot capture actual expenditure on alcoholic beverages.

Household consumption expenditure survey also cannot capture the consumption of non-household consumers. For example, tourists (both domestic and foreign), expenses incurred at hotels by business delegates. Often expenses incurred during hotel stay, is booked under consolidated head of business expenses (activities) in the accounts of business entities incurring

the cost. Therefore, actual expenditure on alcoholic beverages cannot be separated from the accounts of businesses.

Therefore in absence of any official statistics of sales at state level, it is difficult to estimate consumption base of alcoholic beverages. Non allowance of tax credit against expenses on foods and beverages, even if it is incurred for business purposes, could be another reason for not capturing the information related to the consumption of alcoholic beverages.

We present state-wise per capita consumption expenditure on alcoholic beverages for the period 2014-15 to 2022-23 based on the CMIE's Consumer Pyramids Household Survey. It is to be highlighted that any consumption expenditure figures obtained from any of the household consumption expenditure surveys provide us value of consumption at market prices. Moreover, those values are at current prices. To estimate consumption expenditure on alcoholic beverages at constant prices, we adjust the annual consumption expenditures of the CMIE's CPHS survey by using state-specific CPI of alcoholic beverages (Base 2011-12=100) (see Appendix for methodology).

Table 7 shows that consumption habits of people varies across states and also across years. It is not clear why there is a sudden increase or fall in the per capita annual expenditure for a state. We have highlighted sudden increase or fall in the consumption by grey shading in Table 7. Except Telangana, average per capita annual expenditure has fallen in the year 2020-21 as compared to earlier years for all states. This may be due to the Covid-19 pandemic and associated economic restrictions across states.

Table 7: Average Annual Per Capita Consumption Expenditure on Alcoholic Beverages (Rs.) (at Current Prices)

State	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Andhra Pradesh	365	1,162	1,324	1,219	1,126	1,339	1,258	1,492	1,306
Assam	151	142	237	158	112	28	36	166	198
Chhattisgarh	500	542	594	682	1,037	1,036	845	1,128	1,227
Goa	1,413	2,127	2,307	1,246	1,142	503	39	331	445
Haryana	195	428	944	1,098	1,033	977	783	622	812
Jharkhand	555	601	293	440	758	842	511	403	624
Karnataka	429	472	370	267	166	321	298	100	374
Kerala	1,020	1,161	1,358	1,231	691	593	425	297	379
Madhya Pradesh	55	99	128	350	421	436	288	206	197
Maharashtra	177	165	209	317	522	476	221	562	346
Odisha	193	318	541	531	947	1,353	506	575	1,156
Punjab	364	428	637	1,228	1,533	1,283	776	906	1,245
Rajasthan	49	73	108	124	35	48	33	46	140
Tamil Nadu	594	833	774	733	779	1,536	750	895	841
Telangana	745	1,089	951	1,173	1,293	1,584	1,719	1,694	1,623
Tripura	N.A.	N.A.	N.A.	142	81	3	1	0	148
Uttar Pradesh	216	242	126	139	102	101	46	46	49
West Bengal	30	33	15	28	31	16	5	3	4

Source: Computed from the CMIE's CPHS Database

Except for a few states average annual per capita consumption expenditure on alcoholic beverages has fallen during 2019-20 to 2022-23 as compared to that of 2014-15 to 2018-19. In constant prices (2011-12 prices) for all states consumption expenditure has fallen during 2020-21 as compared to 2019-20. Out of 18 states that we present in Table 8, 11 states experienced fall in consumption in 2019-20 as compared to 2018-19 and 9 states in 2018-19 as compared to 2017-18. Consumption has again grown up after the Covid-19 pandemic, and for many states consumption again reached to the pre-Covid-19 pandemic level.

Table 8: Average Annual Per Capita Consumption Expenditure on Alcoholic Beverages (Rs.) (at 2011-12 Prices)*

State	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Average 2014-15 to 2018-19 (A)	Average of 2019-20 to 2022-23 (B)	B-A
Andhra Pradesh	308	907	975	830	745	865	623	728	670	753	722	-32
Assam	115	99	156	99	65	16	18	78	88	107	50	-57
Chhattisgarh	365	367	381	416	622	606	399	525	562	430	523	**93**
Goa	1,024	1461	1378	718	640	267	21	166	217	1,044	168	-876
Haryana	146	296	612	673	590	510	372	284	355	463	380	-83
Jharkhand	422	421	194	272	433	450	276	227	339	349	323	-26
Karnataka	316	318	236	159	94	175	148	48	172	225	136	-89
Kerala	769	803	892	742	363	291	199	137	172	714	200	-514
Madhya Pradesh	41	68	83	213	235	229	135	93	91	128	137	**9**
Maharashtra	141	116	133	186	297	268	117	289	171	175	211	**36**
Odisha	149	217	335	314	531	726	244	268	529	309	442	**133**
Punjab	265	288	420	728	828	621	357	404	620	506	501	-5
Rajasthan	38	52	70	76	20	27	16	22	67	51	33	-18
Tamil Nadu	450	561	491	437	439	841	365	424	371	475	500	**25**
Telangana	588	801	653	765	794	969	875	795	734	720	843	**123**
Tripura				83	45	2	0.25	0.04	63	64	16	-48
Uttar Pradesh	167	172	84	89	61	57	25	24	25	114	33	-82
West Bengal	22	23	9	16	17	9	2	1	2	18	4	-14

Note: *-cells highlighted to show fall in the consumption as compared to the immediate previous year's consumption.
Source: Computed from the CME's CPHS Database & https://cpi.mospi.gov.in/Default1.aspx

5. Taxation of Alcoholic Beverages

Design and structure of tax on alcoholic beverages differs across states. Depending on basic ingredient, there are three types of alcoholic beverages in India, viz., country spirit or country fermented liquor (produced from rectified spirit), beer (also known as malt liquor/ liquor, produced from starches of cereals like barley/ maize/ wheat etc.) and Indian Made Foreign Liquor (IMFL) (ingredient is Extra Neutral Alcohol). In general country spirit/ country fermented liquor attract lower tax rates as compared to beer and IMFL.

In addition to state excise duty (as presented in Table 9), alcoholic beverages attract additional excise duty (e.g., in Karnataka), various license fees (e.g., licenses for manufacturing, bottling, warehousing, retail vending of alcoholic beverages). At the manufacturing stage license fee is collected from breweries/ distilleries. License fee for bottling, warehousing and distribution of alcoholic beverages are collected from respective license holders. There are brand and label registration fee, transport fee and special fee for Transport Pass, license fee for bars/ pubs/ restaurants/ clubs, temporary license fee (e.g., marriage halls). In addition there are application fee for licenses, fines and fees etc. State excise duties are also collected form 'Commercial and Denatured Spirits & Medicated Wines', 'Medicinal & Toilet preparations containing alcohol, opium etc.' and 'Opium, Hemp and other Drugs'. For our analysis, we have taken State excise collections across states net of collections from sub-heads 106 to 108 (Table 9).

Table 9: Structure of State Excise Duties on Alcoholic beverages across States

0039	State Excise
101	Country Spirits
102	Country fermented Liquors
103	Malt Liquor
104	Liquor
105	Foreign Liquors and Spirits
106	Commercial and Denatured Spirits & Medicated Wines
107	Medicinal & Toilet preparations containing alcohol, opium etc.
108	Opium, Hemp and other Drugs
112	Licences
150	Fines and confiscations
501	Services and Service Fees*
800	Other Receipts
	Total

Note: *-applicable to Karnataka, Maharashtra, Rajasthan, and Tamil Nadu among 18 states we considered for our analysis.

5.1 Relationship between Consumption and Tax Collection from Alcoholic Beverages

Based on NSSO's 68th round HCE survey, we estimate annual total expenditure on alcoholic beverages of a state by using 2011 Census of India figures of population by residence (rural and urban) and average MPCE of rural and urban areas of the states. We find a non-linear relationship between consumption and State excise collection (net) (Figure 11). If we leave out the outlier (having annual consumption above Rs. 5,00,000), we will find a linear and positive relationship. It shows that as consumption increases State excise collection increases.

Figure 11: Relationship between Consumption of Alcoholic Beverages and State Excise Collection: 2011-12
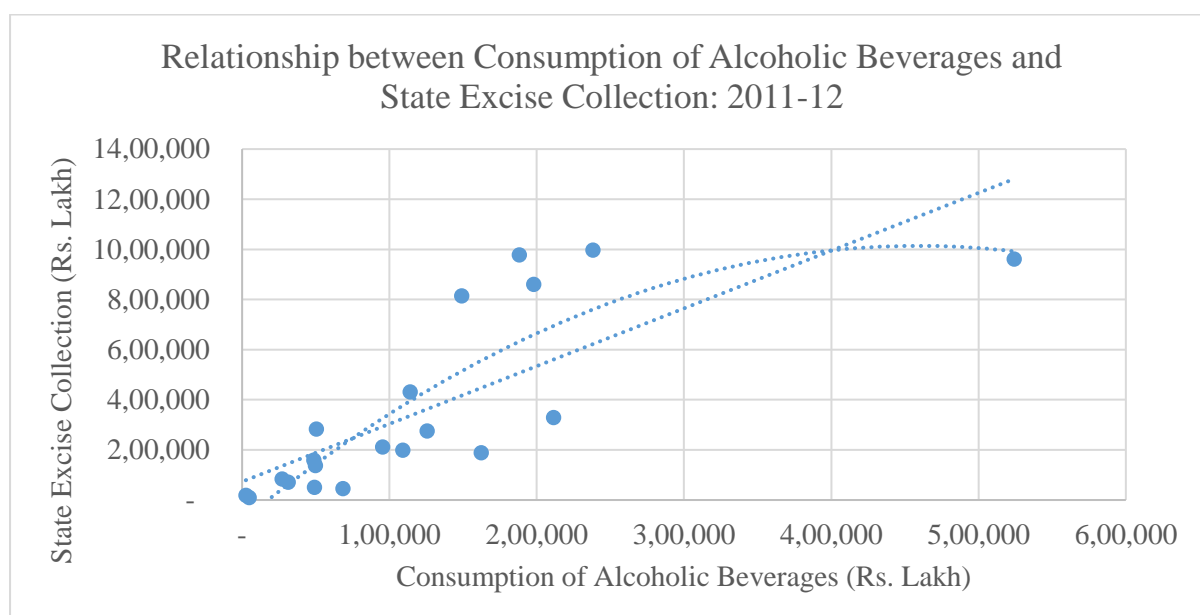
Source: Computed from Monthly per capita value of consumption (*NSS Report No. 558: Household Consumption of Various Goods and Services in India, 2011-12*, Table 2R&U)

We present state-wise State excise collection as percentage of consumption expenditure (at current prices) based on the CMIE's CPHS database (Table 10). It shows that state excise collection (as % of consumption expenditure) is very high for some states. Sudden rise or fall in the State excise collection vis-à-vis consumption expenditure is difficult to explain based on the secondary data. As explain in details earlier, data limitation is the major challenge to take assessment of tax capacity and efficiency across States. For Goa, State excise collection vis-à-vis consumption is very high, it could be due to consumptions by tourists which the household consumption expenditure survey cannot capture the information. For Karnataka, State excise collection (as % of consumption) is higher than other states, as Karnataka collect additional excise duty in lieu of Sales tax/VAT on alcoholic beverages. For Tripura, Uttar Pradesh and West Bengal the CPHS database shows lower consumption for recent years vis-à-vis earlier years.

We present region-wise State excise collection as percentage of aggregate consumption expenditure on alcoholic beverages in Table 11. It shows that despite fall in the consumption for the year 2020-21, states excise collection did not fall. This again establishes the fact that a large part of State excise is collected from licenses and other revenue sources (e.g., registration fee) which are not dependent on actual sales of alcoholic beverages.

Table 10: State Excise Collection (Net) (as Percentage of Annual Consumption Expenditure on Alcoholic Beverages)

State	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Andhra Pradesh	236	85	89	109	128	121	209	217	245
Assam	146	194	138	235	403	1,858	1,834	380	428
Chhattisgarh	201	204	190	198	143	161	193	159	186
Goa	121	99	91	233	309	795	10,434	1,703	1,641
Haryana	719	403	218	195	244	272	365	518	484
Jharkhand	48	59	104	58	44	75	115	149	105
Karnataka	511	528	770	1,212	2,188	1,272	1,383	4,432	1,320
Kerala	4	4	3	56	114	124	175	214	237
Madhya Pradesh	1,300	907	603	235	294	313	405	620	802
Maharashtra	551	656	498	359	256	291	622	282	569
Odisha	266	205	135	147	93	72	177	209	122
Punjab	516	518	320	183	136	153	321	275	272
Rajasthan	1,869	1,541	1,117	931	3,797	3,033	4,516	3,783	1,349
Tamil Nadu	122	89	102	102	119	69	152	137	185
Telangana	106	105	194	291	291	247	258	322	343
Tripura	N.A.	N.A.	N.A.	345	707	19,662	1,46,285	10,03,086	688
Uttar Pradesh	353	329	641	679	1,215	1,434	3,496	4,277	4,369
West Bengal	1,228	1,268	3,770	3,443	3,593	7,240	22,124	45,021	38,033

Source: Computed from CAG's State Finance Accounts (various years) and the CMIE's CPHS Database.

Table 11: Region-wise State Excise Collection (Net) (as Percentage of Annual Consumption Expenditure on Alcoholic Beverages)

Region	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Southern States (AP, KR, KL, TN, TL)	176	134	159	210	265	203	308	348	372
Middle & Western States (CH, GA, MP, MH)	480	497	391	280	238	266	414	302	463
Eastern States (AS, JH, OD, TP, WB)	234	240	264	332	234	215	467	526	348
Northern States (HR, PB, RJ, UP)	492	445	477	400	520	622	1,086	1,262	1,037

Source: Computed from CAG's State Finance Accounts (various years) and the CMIE's CPHS Database.

Table 12 shows that State excise collection (as % of nominal GSVA) is the lowest in Kerala vis-à-vis other states. It is to be highlighted that a large part of the tax on alcoholic beverages is collected from Sales tax/VAT in Kerala. Therefore, in the absence of revenues from all taxes on alcoholic beverages, assessing the revenue performance of states would be misleading.

Table 12: State Excise Collection (Net) as % of Nominal GSVA*

State	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Andhra Pradesh	**2.74**	**2.40**	**1.46**	0.89	0.79	0.74	0.75	0.78	0.80	1.31	1.41
Assam	0.36	0.38	0.36	0.36	0.38	0.40	0.42	0.50	0.52	0.63	0.52
Chhattisgarh	1.07	1.49	1.30	1.37	**1.55**	**1.42**	**1.55**	1.48	1.51	1.39	1.32
Goa	0.45	0.60	0.72	0.60	0.64	0.56	0.66	0.74	0.72	0.75	0.86
Haryana	1.02	1.00	0.97	0.83	0.89	0.94	0.90	0.97	0.97	1.06	1.04
Jharkhand	0.33	0.36	0.36	0.37	0.49	0.45	0.35	0.39	0.71	0.66	0.54
Karnataka	1.76	1.75	1.73	1.65	1.62	1.51	1.49	1.49	1.47	1.56	1.46
Kerala	**0.11**	**0.05**	**0.05**	**0.03**	**0.03**	**0.02**	**0.35**	**0.36**	**0.31**	**0.34**	**0.25**
Madhya Pradesh	1.25	1.20	1.01	1.15	1.32	0.96	0.94	1.22	1.24	1.05	0.97
Maharashtra	0.74	0.71	0.68	0.71	0.72	0.64	0.65	0.69	0.66	0.65	0.62
Odisha	0.63	0.60	0.63	0.69	0.83	0.78	0.82	0.88	0.95	0.84	0.93
Punjab	1.06	1.17	1.21	1.29	1.35	1.13	1.19	1.09	0.99	1.26	1.12
Rajasthan	0.76	0.82	0.93	0.93	1.02	0.97	0.92	1.01	1.01	1.03	1.04
Tamil Nadu	1.44	1.54	0.57	0.58	0.54	0.53	0.44	0.46	0.45	0.47	0.43
Telangana				0.60	0.71	0.93	1.38	1.37	1.38	1.65	1.69
Tripura	0.50	0.54	0.46	0.48	0.41	0.43	0.44	0.45	0.45	0.56	0.53
Uttar Pradesh	1.19	1.25	1.31	**1.41**	1.33	1.19	1.30	**1.65**	**1.75**	**1.98**	**2.00**
West Bengal	0.42	0.46	0.47	0.52	0.53	0.63	1.02	1.03	1.02	0.98	1.04
Max	*2.74*	*2.40*	*1.73*	*1.65*	*1.62*	*1.51*	*1.55*	*1.65*	*1.75*	*1.98*	*2.00*
Min	*0.11*	*0.05*	*0.05*	*0.03*	*0.03*	*0.02*	*0.35*	*0.36*	*0.31*	*0.34*	*0.25*
Average	*0.93*	*0.96*	*0.84*	*0.80*	*0.84*	*0.79*	*0.87*	*0.92*	*0.94*	*1.01*	*0.99*

Note: *- For Goa, Kerala and Maharashtra, GSVA figures are not available for 2022-23 from the MoS&PI Website (https://mospi.gov.in/GSVA-NSVA).

Source: Computed from CAG's State Finance Accounts (various years) and the https://mospi.gov.in/GSVA-NSVA.

Per capita State excise collection varies across states and it has improved for majority of states since 2017-18 (Table 13). Except for Tamil Nadu, average per capita average annual State excise collection during 2017-18 to 2021-22 has improved as compared to the average from 2011-12 to 2016-17 (Figure 12).

Table 13: State Excise Collection Per Capita per Year (Rs.)*

State	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Andhra Pradesh	1,947	1,837	1,249	867	869	915	1,069	1,211	1,339	2,228	2,813	2,788
Assam	156	178	189	203	244	285	324	410	478	584	550	701
Chhattisgarh	617	945	953	1,062	1,206	1,225	1,419	1,543	1,696	1,575	1,712	2,246
Goa**	1,204	1,409	1,546	1,738	2,096	2,084	2,675	3,112	3,183	3,311	**4,147**	N.A.
Haryana	1,096	1,232	1,354	1,245	1,453	1,680	1,772	2,140	2,204	2,358	2,679	3,219
Jharkhand	137	171	182	212	257	266	229	291	532	476	466	524
Karnataka	1,585	1,775	2,034	2,164	2,377	2,526	2,755	3,041	3,265	3,502	3,932	4,432
Kerala**	106	60	57	40	44	39	649	727	647	665	577	N.A.
Madhya Pradesh	518	587	555	678	857	733	795	1,166	1,305	1,131	1,212	1,501
Maharashtra**	747	803	861	962	1,042	1,018	1,113	1,259	1,256	1,217	1,377	N.A.
Odisha	326	351	413	468	580	630	723	874	994	889	1,205	1,398
Punjab	965	1,162	1,303	1,458	1,619	1,467	1,684	1,651	1,567	1,955	1,927	2,584
Rajasthan	458	552	683	756	899	942	953	1,125	1,227	1,246	1,475	1,646
Tamil Nadu	1,376	1,661	685	774	784	834	772	908	949	1,025	1,076	1,357
Telangana	-	-	-	759	1,019	1,482	2,486	2,867	3,210	3,821	**4,622**	4,860
Tripura	256	305	305	364	373	419	475	539	577	709	781	891
Uttar Pradesh	402	475	558	636	654	655	781	1,062	1,196	1,296	1,543	1,753
West Bengal	229	281	320	376	417	539	957	1,098	1,154	1,089	1,376	1,645

Notes: *-State-wise and year-wise Population figures are compiled from https://mospi.gov.in/GSVA-NSVA
**- Population Data is not available for 2022-23 from https://mospi.gov.in/GSVA-NSVA.

Figure 12: Average State Excise Collection Per Capita per Year (Rs.)
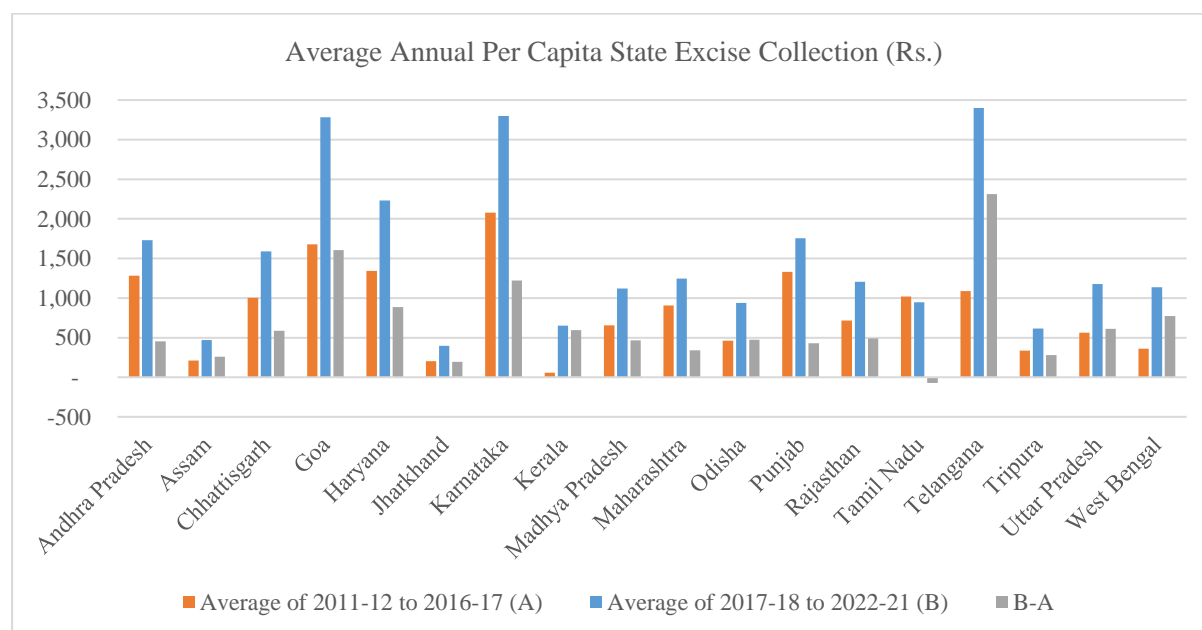
Source: as in Table 13

5.2 State Sales Tax/VAT Collections from Alcoholic Beverages

Unlike State excise collections, revenue from State sales tax /VAT collections from alcoholic beverages cannot be ascertained from State Finance Accounts or State Budget Documents. Therefore, we approach 18 states to share data on the sales tax / VAT portion of revenue from alcoholic beverages for the period 2011-12 to 2022-23. Except for Assam, Chhattisgarh, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tripura, West Bengal, and Jharkhand, we have not received the data from other states yet. We have not used the data received from Madhya Pradesh in our analysis, as the unit of the data cannot be confirmed yet. Instead of year-wise data, we received consolidated figures of state sales tax collection for the period 2011-12 to 2022-23 from Jharkhand. For Maharashtra, we received data for the period 2018-19 to 2022-23 only. West Bengal collected Sales taxes on alcoholic beverages intermittently during 2011-12 to 2022-23. Since, Karnataka collects additional excise duty on beer, IMFL, wine, and fenny in lieu of sales tax, we have compiled data from State Budget Documents to identify sales tax equivalent tax from additional excise duty for the period 2011-12 to 2022-23. For Tamil Nadu, we have compiled data on sales tax collection from alcoholic beverages from published government reports[11] for the period 2017-18 to 2019-20.
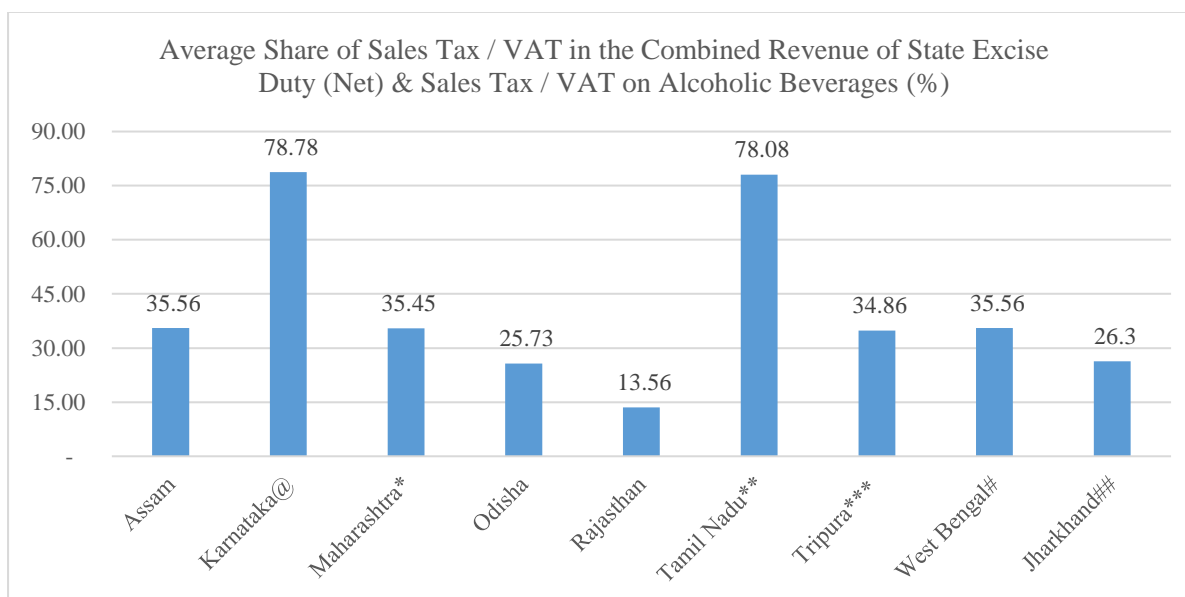
We present the state sales tax collection from alcoholic beverages for selected states as a percentage of combined state sales tax/VAT and state excise collection from alcoholic beverages in Figure 13. It shows that for Karnataka and Tamil Nadu, more than 78 percent of aggregate tax collection comes from either sales tax or additional excise duty in lieu of sales tax from alcoholic beverages. For Assam, Maharashtra, Tripura, and West Bengal average share of sales tax in combined tax collection is 35 to 36 percent. For Odisha and Jharkhand, it is 26 percent and for Rajasthan it is 14 per cent. For Chhattisgarh, average share of Sales tax/VAT on combined revenue from alcoholic beverages is 1.66 for the period 2013-14 to 2019-20. Therefore, it shows that for the majority of states sales tax constitutes more than three-fourths of total tax collection from alcoholic beverages. However, there is no uniform percentage of share of sales tax/VAT portions in overall tax collection from alcoholic beverages across states. Therefore, in the absence of a part of the revenue stream from taxes on alcoholic beverages, the estimation of tax capacity and efficiency may not be free from shortcomings, so we have avoided it.

The average annual share of the sales tax portion of revenue in nominal GSVA is higher than the State excise part of the revenue from alcoholic beverages in Tamil Nadu (Figure 14). For Assam, Odisha, and Tripura the share of sales tax portion revenue in nominal GSVA varies from 25 to 28 basis points, for Maharashtra, it is 36 basis points, and for Rajasthan and West Bengal, it varies from 14 to 15 basis points (Figure 14).

A large part of per capita revenue from alcoholic beverages comes from State excise duty for the majority of states presented in Figure 15, except Tamil Nadu. The average per capita revenue from state sales tax /VAT is Rs. 861 for Maharashtra whereas the same from state excise duty is Rs. 1,113.

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[11] Commercial Taxes Department - Administrative Report - 2017-18 to 2019-20, Statistics and Research Cell, Department of Commercial Taxes, Government of Tamil Nadu, Chennai.
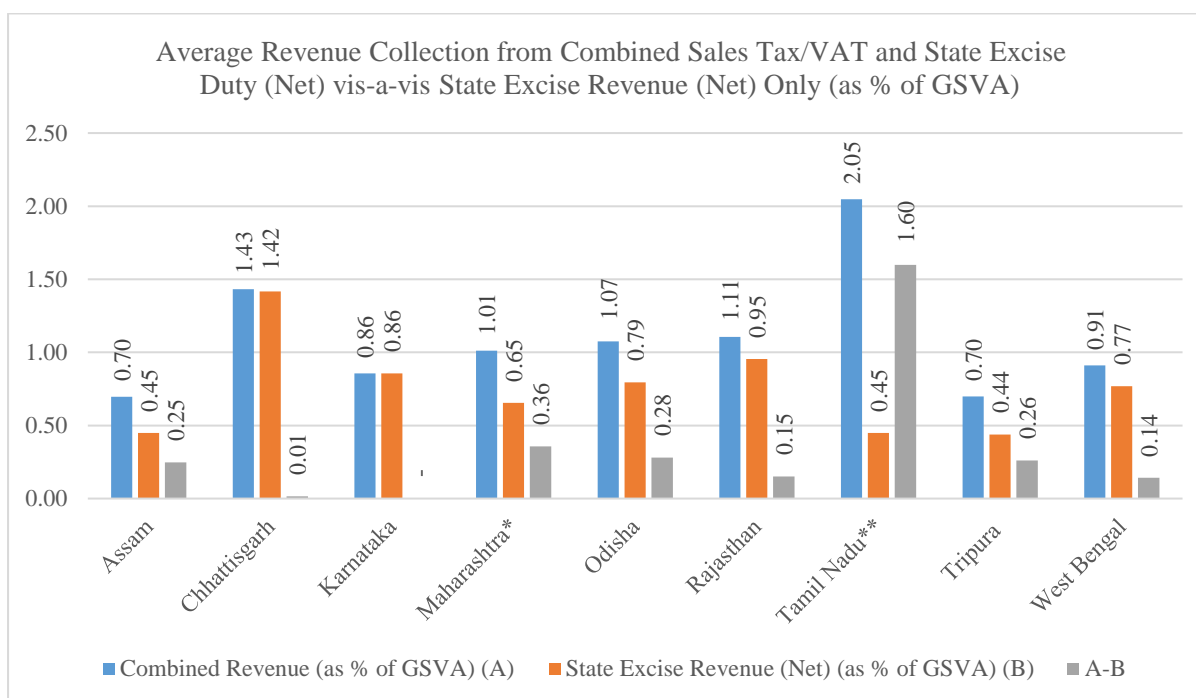
Figure 13: Average Share of Sales Tax / VAT in the Combined Revenue of State Excise Duty (Net) & Sales Tax / VAT on Alcoholic Beverages (%)

Average Share of Sales Tax / VAT in the Combined Revenue of State Excise Duty (Net) & Sales Tax / VAT on Alcoholic Beverages (%)

State	Value
Assam	35.56
Karnataka@	78.78
Maharashtra*	35.45
Odisha	25.73
Rajasthan	13.56
Tamil Nadu**	78.08
Tripura***	34.86
West Bengal#	35.56
Jharkhand##	26.3

Notes: *-Average of 2018-19 to 2021-22. **-Average of 2017-18 to 2019-20. ***-Average of 2011-12 to 2021-22. #-Average of 2011-12 to 2015-16. ##- Average of 2011-12 to 2022-23.
Source: CAG's State Finance Accounts (various years) and Personal Communication.
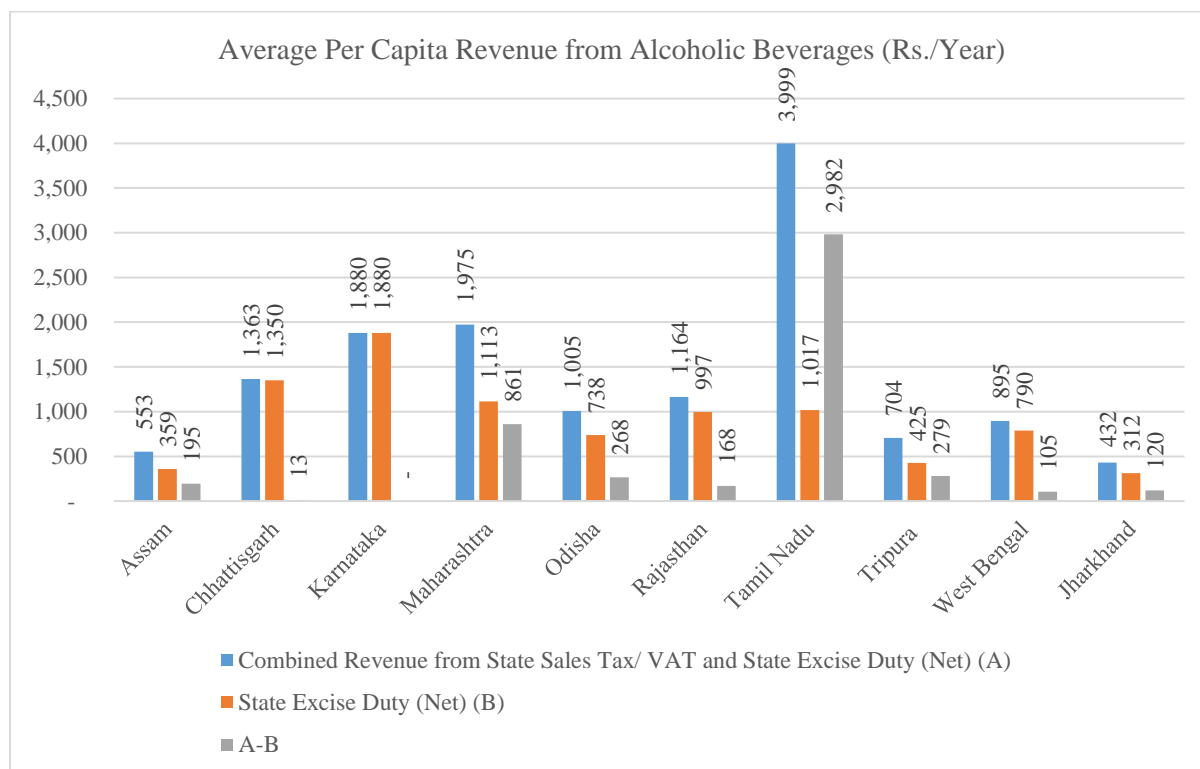
Figure 14: Average Revenue Collection from Combined Sales Tax/VAT and State Excise Duty (Net) vis-a-vis State Excise Revenue (Net) Only (as % of GSVA)

Average Revenue Collection from Combined Sales Tax/VAT and State Excise Duty (Net) vis-a-vis State Excise Revenue (Net) Only (as % of GSVA)

State	Combined Revenue (as % of GSVA) (A)	State Excise Revenue (Net) (as % of GSVA) (B)	A-B
Assam	0.70	0.45	0.25
Chhattisgarh	1.43	1.42	0.01
Karnataka	0.86	0.86	-
Maharashtra*	1.01	0.65	0.36
Odisha	1.07	0.79	0.28
Rajasthan	1.11	0.95	0.15
Tamil Nadu**	2.05	0.45	1.60
Tripura	0.70	0.44	0.26
West Bengal	0.91	0.77	0.14

■ Combined Revenue (as % of GSVA) (A)　■ State Excise Revenue (Net) (as % of GSVA) (B)　■ A-B

Notes: *-Average of 2018-19 to 2021-22. **-Average of 2017-18 to 2019-20.
Source: CAG's State Finance Accounts (various years) and Personal Communication for Tax data and MoS&PI Website for GSVA data.

Figure 15: Average Per Capita Revenue from Alcoholic Beverages (Rs./Year)

Average Per Capita Revenue from Alcoholic Beverages (Rs./Year)

Legend:
- Combined Revenue from State Sales Tax/ VAT and State Excise Duty (Net) (A)
- State Excise Duty (Net) (B)
- A-B

Source: CAG's State Finance Accounts (various years) and Personal Communication for Tax data and MoS&PI Website for GSVA data.

Information on consumption of various alcoholic beverages is sparse and there is a downward bias. Available official statistics on household consumption expenditure on alcoholic beverages are dated (related to July 2011 to June 2012) as available from the National Sample Survey Office (NSSO)'s 68th round of the Household Consumption Expenditure Survey. Recently, the NSSO has released a factsheet of the Household Consumption Expenditure Survey: 2022-23 (August 2022-July 2023), however detailed results (item-specific information of household consumption expenditure) are yet to be released.[12]

The Centre for Monitoring Indian Economy (CMIE)'s Consumer Pyramids Household Survey (CPHS) database is the only available database to date which provides monthly consumption expenditure (in value) on 123 items for a panel of 0.176 million households (spread across all major Indian states and a few north-eastern states) for the period January 2014 to December 2023. The CMIE's CPHS database captures consumption expenditures on alcoholic beverages in value terms. Moreover, prices of alcoholic beverages across states are also not available. Data on sales of different alcoholic beverages are in general maintained by the State Excise Department of the respective state governments.

In the next section, we explore the factors influencing State excise collection across states, based on regression analysis.

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[12] The data on consumption expenditure on alcoholic beverages is clubbed within the broad head of "Pan, tobacco and intoxicants".

6. Factors influencing State Excise Collection across States

6.1 Methodology

To understand the factors influencing State excise collection, we begin with the following unobserved effect model:

$$y_{it} = \beta_0 + \beta_1 x_{it1} + .. + \beta_k x_{itk} + \alpha_i + \mu_{it} \tag{1}$$

Where, y_{it} is the State excise collection for the ith State at time t, β_1 to β_k represents a vector of coefficients for the explanatory variables $x_{itj}s$ (where, j=1,…, k) and μ_{it} is the error term. The variable α_i captures all unobserved, time-constant factors that affect y_{it}. Generally, α_i is called an **unobserved effect**. The fixed effect α_i is specific to each unit of analysis (i.e., State) and remains constant over time, capturing unobservable state-specific characteristics. The fixed effects (FE) approach helps to control for time-invariant individual/state-specific factors, and it is usually useful where there is omitted variable bias due to unobservable characteristics. Under a strict exogeneity assumption on the explanatory variables, the fixed effects estimator is unbiased, roughly, the idiosyncratic error μ_{it} should be uncorrelated with each explanatory variable across all periods. The fixed effect estimator allows for arbitrary correlation between α_i and the explanatory variables in any period.

In using the fixed effects model, the goal is to eliminate α_i because it is thought to be correlated with one or more of the $x_{itj}s$. If we suppose α_i is uncorrelated with each explanatory variable for all periods, sing a transformation to eliminate α_i results in inefficient estimators. So, equation 1 becomes a **random effects model** (RE) when we assume that the unobserved effect α_i is uncorrelated with each explanatory variable:

$$\text{Cov } (x_{itj}, \alpha_i) = 0, \text{ t=1, 2 ……,T ; j= 1,2 …, k} \tag{2}$$

Random effects are included in the model as random parameters, and their variance captures the extent of heterogeneity across individuals. The random effects approach is more flexible as it allows for time-varying and time-invariant individual-specific factors.

6.2 Model Specifications

Before particularly specifying the state excise collection model, we have carried out the Hausman-specification test (Wooldridge 2013)[13] to check if the unobserved fixed effects are best treated as a fixed or random effect so that we could use the best method. As, per the Hausman specification test, the fixed effect model turns out to be a more efficient model against the random effect model for our case, as a p-value of the Chi2 statistic is less than 1% of the critical value. Hence, we have estimated a fixed effect model to control for unobserved time-invariant characteristics of states. Also, since we have taken 17 states in our analysis from 2014-15 to 2022-23, the presence of spatial heterogeneity (across states) in collecting state excise revenue cannot be ignored. Hence, to control for heterogeneity across states we are reporting robust standard errors.

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[13] Woodridge J.M (2013), *Introductory Econometrics: A Modern Approach*, 5th Edition, South-Western, Cengage Learning.

Thus, we specify the State-excise collection model as follows:

$lnstate\_excise = \beta_0 + \beta_1 \, lnliquor\_cons + \beta_2 \, lnliquor\_cons^2 + \beta_3 \, share\_ITsector + \beta_4 \, lnurban + \beta_5 \, lnpcgsva + \beta_6 \, mfg\_agri + \beta_7 \, model \ 3 + \beta_8 \, model \ 1 + \beta_9 \, lndomestic\_tourist + \beta_{10} \, lnforeign\_tourist + \alpha_i + \mu_{it}$ \hfill (3)

We present the list of variables in Table 14 and descriptive statistics in Table 15. We have considered 17 Indian states[14] and the period of our analysis is 2014-15 to 2022-23.

6.3 Results and Discussions

State excise collection is an important source of States' own tax revenue. Our focus in this analysis is only on the state excise collection from alcoholic beverages and not on the alcohol used for medical and other purposes. Hence, from the state-excise collection, we have excluded the state's revenue generated from 'Commercial and Denatured Spirits and Medicated Wines', 'Medical and Toilet preparations containing alcohol, opium, etc.', and 'Opium, Hemp and other Drugs'.

As per the results (Table 16), we find that aggregate consumption expenditure on alcoholic beverages of a state is a key factor determining the state's excise collection. This is in line with our hypothesis. We find a positive and significant impact of consumption expenditure on alcoholic beverages on state excise collection. There is a non-linear relationship between consumption expenditure and State excise collection - as consumption expenditure increases, state excise collection increases, and after reaching a point it declines. Given the data constraints, as we discussed earlier, we find that the non-linearity aspect in the relationship is mainly attributed to Tamil Nadu, as there was a sudden rise in consumption expenditure in 2019-20. Commensurate with the rise in consumption expenditure, there was no increase in the State excise collection in 2019-20 (Appendix Figure A.1). To confirm the relationship between consumption expenditure and state excise collection, we present a scatter plot in Appendix Figure A.2.

It is likely that higher per capita income (as measured by per capita gross state value addition at current prices), may induce people to spend more on discretionary consumptions such as alcoholic beverages. Moreover, higher per capita income may lead people to consume high-value alcoholic beverages which attract higher taxes. Therefore, it is likely that higher per capita income may lead to higher state excise collection. We confirm this hypothesis from our results, as we find a positive and significant relationship between *lnpcgsva* and *lnstate_excise* collection, given all other factors at their levels.

Consumption patterns of intoxicants in urban and rural areas are different. According to the NSSO's 68th round survey, consumption of toddy, country liquor, and other intoxicants constitutes 55.4% of total consumption expenditure on alcoholic beverages in rural areas as compared to 31% in urban areas. Similarly, consumption of beer and IMFL constitutes 69% of total consumption expenditure on alcoholic beverages in urban areas as compared to 44.2% in

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[14] Andhra Pradesh, Assam, Chhattisgarh, Goa, Haryana, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Tripura, Uttar Pradesh and West Bengal. Among major States, there is ban on alcoholic beverages in Gujarat and Bihar. Exclude, Karnataka and Himachal Pradesh from our analysis, as unlike other states there is no Sales tax on alcoholic beverages, therefore inclusion the states may give us bias results. We exclude Uttarakhand from our analysis, as we found consumption habits and tourist footfalls is different from other States.

rural areas. As compared to beer and IMFL, toddy and country liquor attract lower tax rates. Moreover, access to liquor shops in rural areas is limited as compared to urban areas. Concentrations of bars, pubs, clubs, restaurants, and hotels are much higher in urban areas compared to rural areas of states. In addition, since the formal supply of alcoholic beverages in rural areas is limited, especially in hilly and forested regions, people either brew indigenous alcoholic beverages or look for alternative supplies. In addition, in various parts of India, there are many traditional alcoholic beverages (e.g., rice beer, fenny, arak, apple beer/ wine) and the majority of them attract lower taxes. Often formal regulatory systems oversight these traditional alcoholic beverages.

So there, is the possibility that state excise collection could be higher in urban areas of a state. In order to control for that, we have included *lnurban* in our regression analysis which represents the log of share of the urban population in a state in total population. We find that in states where the share of urban population (in total population) is higher, there is a higher state-excise collection.

Individuals working in IT (Information Technology), financial services, real estates, or other services sectors (also known as white-collar employees) often command higher salaries and wages and hence have more disposable income available for discretionary consumption habits like spending on luxury goods and services such as premium alcoholic beverages. In other words, professionals in IT, financial, or real estate services might have preferences for higher-quality alcoholic beverages which come with a higher price tag and higher tax rates. Also, urban centres where many professionals (white collar employees) work often have a higher concentration of bars/ pubs/ restaurants/ clubs/ hotels which facilitate access to foods and beverages to them. Due to the paucity of data at the state level and limitations of the information about the number of employees working in the white-collar professions, we have taken a proxy variable *share_ITsector* which is the share of gross value addition by the selected services sector (viz., Communication & services related to broadcasting, Financial services, and Real estate, ownership of dwelling & professional services) in state's gross value addition. Our results show that states, where the share of gross value addition by the selected services sector is higher, have higher state excise collection. We also, report that states with a higher share of gross value addition in the manufacturing sector vis-à-vis agriculture sector have a higher state-excise collection. So, the structural composition of the economic activity in a state plays a very crucial role in augmenting revenues from state-excise collection.

Tourists (foreign and domestic) also play a in shaping the demand and consumption expenditure of alcoholic beverages in a state which is not captured in any household consumption expenditure survey. Domestic and foreign tourists visit places for various reasons (e.g., religious/ spiritual purposes, to enjoy natural beauty, or business purposes) and may indulge in the consumption of foods and beverages. Therefore, states which attract more tourists are likely to generate more revenue from consumption taxes in general and state excise in particular. We find that states where footfalls of foreign tourists are higher than other states have a higher state-excise collection. Footfalls of domestic tourists do not have any significant impact on the state-excise collection of a State.

In some states, wholesale distribution of alcoholic beverages is managed by government-owned beverage corporations. For example, in Andhra Pradesh, the Andhra Pradesh Beverages Corporation Limited (APBCL) (established in October 1983) is responsible for the wholesale

distribution of alcoholic beverages. Similarly, in Tamil Nadu, the Tamil Nadu State Marketing Corporation Limited (TASMAC) has been granted the exclusive privilege of wholesale trade of Indian Made Foreign Spirits and Foreign Liquor since 1983. The Kerala State Beverages Corporation Limited (BEVCO) (established in 1984) in Kerala, the Telangana State Beverages Corporation Limited (TSBCL) in Telangana since 2014, and the Odisha State Beverages Corporation (OSBC) in Odisha since 2001 - is responsible for the wholesale trade of alcoholic beverages in respective state's jurisdiction. There are states like West Bengal where the wholesale distribution of alcoholic beverages was earlier in the hands of the private sector i.e. till 2016, but Since January 2017 the West Bengal State Beverages Corporation Ltd. (as a wholly owned and controlled Public sector company) has been managing wholesale distribution of alcoholic beverages. There are states where still wholesale distribution is in the hands of the private sector, e.g., Maharashtra, Punjab, Goa, Haryana. In retail trade also there are states where it is fully managed by beverage corporations (e.g., Tamil Nadu, Andhra Pradesh, Chhattisgarh and Kerala). Some states have retail distribution in the hands of licensed private entities (e.g., Punjab, Goa, Odisha, Rajasthan, Maharashtra). Private retailers are obliged to take licenses from the state to sell alcoholic beverages and are also subject to regulations governing pricing or any other compliance requirements. Given that each state regulates the alcoholic beverages sector differently, the distribution channels of alcoholic beverages vary across different states. The access to the market for alcoholic beverages models ranges from state government enjoying monopolist rights through wholly owned agencies/corporations for wholesale and retail trade to the model allowing private players within the regulations of the state to undertake distribution. To capture the influence of model selection (private vs. public) in the state-excise collection we have classified States according to the "Route To Market" model they follow. There are three alternative models of the distribution of alcoholic beverages, viz., model 1 (Wholesale-Public, Retail- Public), model 2 (Wholesale-Public, Retail- Private), and model 3 (Wholesale-Private, Retail- Private). Model 2 forms the base category reference for models 1 and 3 in our fixed effect regression analysis (Table 16). As per our analysis, we find that negative and significant impact of model 1 and model 3 vis-à-vis model 2, indicating that states where wholesale and retail distribution of alcohol is fully owned either by public or private tend to have less state-excise collection than states where wholesale distribution is fully owned/managed by public sector and retail supplies in the hands of the private sector (through licensing).

Table 14: Description of the Variables

Variable	Description	Data Sources
lnstate_excise	Natural logarithm of State Excise Collection* in Rs. Lakh	State Finance Account-CAG website (Comptroller and Audit General of India)
lnliquor_cons	Natural logarithm of annual consumption expenditure in liquor (alcohol) by states	The CMIE's Consumer Pyramid Household Survey (CPHS)
lnliquor_cons²	Square of *lnliquor_cons*	CPHS
share_ITsector	Percentage share of gross value added by communication and services related to broadcasting, financial services, and real estate, ownership of dwelling, and professional services in total gross state value addition (in Rs. Lakh, at basic prices, current price 2011-12 series).	MoSPI (Ministry of Statistics and Programme Implementation)
lnurban	Natural logarithm of percentage share of urban population in total population of the states	Report of the Technical Group on Population Projections (2020)
lnpcgsva	Natural logarithm of per capita gross state value addition (at basic price, current price 2011-12 series)	MoSPI
mfg_agri	Percentage share of gross value added by manufacturing sector only to gross state value added by agriculture, fishing, and forestry sector in gross state value addition (at basic price, current price 2011-12 series)	MoSPI
model 1	It is a dummy variable taking value 1 if both wholesale and retail distribution of alcoholic beverages is in the hands of the public sector	Industry Association
model 2	It is a dummy variable taking value 1 if the wholesale distribution is with the public sector and retail distribution is in the hands of licensed private entities	Industry Association
model 3	It is a dummy variable taking value 1 if both the wholesale and retail distributions of alcoholic beverages are in the hands of licensed private entities.	Industry Association
lndomestic_tourist	Natural logarithm of the number of domestic tourists in a state	Indian Tourism Statistics (various years) (Ministry of Tourism)
lnforeign_tourist	Natural logarithm of the number of foreign tourists in a state	Indian Tourism Statistics (various years) (Ministry of Tourism)

Note: *-State Excise Collection (net of collections from 'Commercial and Denatured Spirits and Medicated Wines', 'Medical and Toilet Preparations containing alcohol, opium, etc.', and 'Opium, Hemp and other Drugs').
Source: Computed

Table 15: Descriptive Statistics

Stats	Number of Observation	Mean	Min	Max	Standard Deviation
lnstate_excise	153	12.84	9.49	15.23	1.33
lnliquor_cons*	150	6.96	-3.45	9.26	1.89
lnliquor_cons^2	150	52.04	0.03	85.75	19.19
share_ITsector	153	18.10	9.48	36.83	6.70
lnurban	153	3.52	2.68	4.31	0.41
lnpcgsva	153	11.78	10.71	13.08	0.51
mfg_agri	153	1.02	0.08	6.40	1.23
model 3	153	0.23	0.00	1.00	0.42
model 1	153	0.44	0.00	1.00	0.50
lndomestic_tourist	153	16.86	11.76	20.10	1.78
lnforeign_tourist	153	11.91	1.61	15.74	2.55

Note: *-For Tripura, consumption data is available from 2017-18.
Source: Computed by authors

Table 16: Estimated Results of Panel Fixed Effects Regression Analysis

lnstate_excise	Coefficient		Robust std. err.
lnliquor_cons	0.068	**	0.020
lnliquor_cons^2	-0.011	**	0.003
share_ITsector	0.048	*	0.019
lnurban	9.871	***	1.486
lnpcgsva	0.820	**	0.194
mfg_agri	0.232	**	0.062
model 3	-0.251	**	0.107
model 1	-0.158	**	0.068
lndomestictourist	0.008		0.054
lnforeigntourist	0.029	*	0.016
constant	-32.964	***	5.529
sigma u	5.173		
sigma e	0.237		
rho	0.998		
Basic Statistics			
Number of observations	150		
Number of groups	17		
R-Square			
Within	0.8044		
Between	0.0226		
Overall	0.0132		
F(10,16)	189.59	***	
Prob > F	0		
corr(u_i, Xb)	-0.9702		

Source: Computed by authors
Note: ***, **, and * imply estimated t statistic is significant at 0.01, 0.05, and 0.10 levels respectively.

7. Conclusions

In the design of taxation and regulatory policies for alcoholic beverages, it is important to keep in mind that excessive taxation and/or regulations of the sector will encourage supplies from illicit sources. Similarly, there is also a need to balance between tax revenue (state excise duty and/or sales tax) and revenue from auctions of licenses (including license/ registration fees from manufacturing, bottling, warehousing, and distribution) of alcoholic beverages. Tax revenue largely depends on the actual consumption of alcoholic beverages in a state and therefore vulnerable to shocks for any fall in consumption. In contrast, high dependence on other revenues (other than taxes) erects 'barriers to entry' and restricts competition in the market.

We observe that during 2020-21 consumption falls across all states as compared to 2019-20, it could be due to the COVID-19 pandemic and associated economic restrictions, however, State excise collections improved for the majority of states in 2020-21 as compared to 2019-20. This shows that a large part of the revenue from state excise duty is generated as a fixed fee and not related to the actual consumption of alcoholic beverages.

Our analysis shows that states where beverage corporations (a parastatal) control only wholesale distribution is generating more revenue from State excise duties than states where both whole and retail trades are with either the public or private sector. The majority of states are involved in controlling ex-distillery prices (EDP). Some states are also involved in controlling final consumer price (e.g., Maximum Retail Price, Minimum Selling Price, Minimum Retail Price). Availability of different varieties of alcoholic beverages at the retail stage (to cater to consumers' choices/ preferences) also depends on the margin that supplies leave to retailers and/or incentives (cash and non-cash) given to retailers (or employees handling sales counters) by beverage companies. As a result of this, there are instances of pushing brands in any model of RTM that a state follows. This practice may have an impact on revenue generated by a state from alcoholic beverages if cheap brands are pushed.

Except for Himachal Pradesh and Karnataka, all states have State excise duty as well as sales tax on alcoholic beverages. In general sales tax is collected at the wholesale stage (before releasing liquors to retailers from warehouses). Given the paucity of data on the sales tax portion of the tax on alcoholic beverages from State Finance Accounts as well as State Budget Documents, we cannot take up an exercise to assess the tax capacity and efficiency of states depending on different models of RTM, price control and taxation policy. Therefore, it will be important if the Comptroller General of India (CAG) considers taking up the initiative to furnish revenue figures by separating the broad budget "0040- Taxes on sales, trade, etc." into revenue generated from alcoholic beverages and petroleum products (those not attracting GST at this time).

Official statistics of consumption (as available from National Accounts Statistics 2023) are derived from the production of alcoholic beverages (as available from the Annual Survey of Industries). We find that except for a few years, consumption is lower than production. We have not adjusted the figures for imports and exports of alcoholic beverages, as converting trade statistics into value terms is beyond the scope of the present study, as it attracts both the Union taxes (Customs duty and associated taxes) as well as state taxes when it lands up into a state border.

We find that state excise collection as a percentage of production (at current prices) has gone up from 164% in 2011-12 to 243% in 2021-22. Similarly, state excise collection as a percentage of consumption (at current prices) has gone up from 160% in 2011-12 to 252% in 2021-22. It is to be highlighted that despite the fall in production and consumption of alcoholic beverages in 2020-21, state excise collection has gone up as compared to 2019-20. This again confirms that a large part of State excise collection is not dependent on consumption but on other revenue which are fixed fees.

State excise collection as a percentage of production (at 2011-12 prices) has gone up from 164% in 2011-12 to 481% in 2021-22. Similarly, State excise collection as a percentage of consumption (at 2011-12 prices) has gone up from 160% in 2011-12 to 447% in 2021-22. We have not found any trends in the production and consumption of alcoholic beverages when taken at 2011-12 prices from 2011-12 to 2021-22, except a fall in both the series in 2020-21. However, we find increasing trends in State excise collection as a percentage of production as well as consumption (at 2011-12 prices) from 2011-12 to 2021-22.

In the absence of actual consumption and/ or sales data along with revenue generated from various licenses/ fees, it is difficult to assess the tax base of a state for alcoholic beverages.

We present both the official estimate of household consumption expenditure for 2011-12 (based on the NSSO's 68th Round of Household Consumption Expenditure Survey: July 2011-June 2012) as well as estimates based on the CMIE's Consumer Pyramids Household Survey (CPHS) for the period 2014-15 to 2022-23.

Based on the NSSO's 68th round Household Consumption Expenditure (HCE) Survey (July 2011-June 2012), we estimate all India total consumption expenditure on alcoholic beverages by taking the weighted average MPCE where weights are respective share of the population in rural and urban areas in total population of 2011 (based on 2011 Census of India figures). We find that State excise collection as a percentage of consumption expenditure is 288 percent. This shows that the estimated consumption expenditure on alcoholic beverages for 2011-12 based on NSSO's Household Consumption Expenditure Survey is much lower (only 56%) than the consumption expenditure figure presented in the National Accounts Statistics for 2011-12 (i.e., Rs. 46,81,100 lakh, at current prices).

Under-reporting of consumption expenditures on alcoholic beverages in the household expenditure survey cannot be ruled out. First of all, sample households may be reluctant to respond to the question about consumption of alcoholic beverages. Secondly, they may not reveal their actual expenditure. To support this argument we find a positive relationship between percentages of households that responded to the question of consumption of alcoholic beverages of any variant and their average monthly per capita expenditure on alcoholic beverages. Not only across states but also across regions within a state, the percentage of households' response to the question on consumption of alcoholic beverages varies. Except for Haryana and Uttarakhand, a larger percentage of rural households respond to the question on consumption of alcoholic beverages than their urban counterpart.

Getting any reliable estimate of consumption expenditures on alcoholic beverages is a problem. Our analysis shows that under-reporting of production and consumption of alcoholic beverages from the macro-statistics (based on NAS and ASI databases) as well as the NSSO's household consumption expenditure survey cannot be ruled out. It is expected that the NSSO's HCE

survey may provide us with a broad pattern of consumption (or habits) of alcoholic beverages across states, given the constraint that households' response to the question varies across states.

Household consumption expenditure surveys may not capture the actual consumption expenditure on alcoholic beverages. Since consumption of intoxicants (e.g., alcoholic beverages, tob,acco and tobacco products) often goes against the social and cultural norms of our society and is considered taboo in some parts of India. Therefore, respondents are often reluctant to respond to the question as well as reveal their actual consumption habits (in terms of value and quantity) to field investigators. Secondly, often respondents are heads of the household, and therefore he/ she may not be aware of the consumption habits of all members of the household or may be reluctant to reveal it to an outsider, especially if youngsters are involved in the consumption. Often consumption of alcoholic beverages outside the household premises by other than respondents cannot be captured in the household consumption expenditure survey. For example, consumption of alcoholic beverages at on-shops and/ or hotels/ restaurants/ bars/ pubs/ clubs, etc. There is also an issue of separation of total consumption (or expenditures) in hotels/ restaurants/ clubs into food and non-food expenses (e.g., alcoholic beverages). Therefore, even if the household survey captures expenses at hotels/ restaurants etc. it cannot capture actual expenditure on alcoholic beverages.

Household consumption expenditure surveys also cannot capture the consumption of non-household consumers. For example, tourists (both domestic and foreign), and expenses incurred at hotels by business delegates. Often expenses incurred during a hotel stay, are booked under consolidated head of business expenses (activities) in the accounts of business entities incurring the cost. Therefore, actual expenditure on alcoholic beverages cannot be separated from the accounts of businesses.

Therefore in the absence of any official statistics on sales at the state level, it is difficult to estimate the consumption base of alcoholic beverages. Non-allowance of a tax credit against expenses on foods and beverages, even if it is incurred for business purposes, could be another reason for not capturing the information related to the consumption of alcoholic beverages.

Except for a few states average annual per capita consumption expenditure on alcoholic beverages has fallen during 2019-20 to 2022-23 as compared to that of 2014-15 to 2018-19. In constant prices (2011-12 prices) for all states consumption expenditure has fallen during 2020-21 as compared to 2019-20. Out of 18 states, 11 states experienced a fall in consumption in 2019-20 as compared to 2018-19 and 9 states in 2018-19 as compared to 2017-18. Consumption has again grown after the COVID-19 pandemic, and for many states consumption again reached the pre-Covid-19 pandemic level.

For our analysis, we have taken State excise collections across states net of collections from 'Commercial and Denatured Spirits & Medicated Wines', 'Medicinal & Toilet preparations containing alcohol, opium etc.' and 'Opium, Hemp and other Drugs'. We find a non-linear relationship between consumption and State excise collection (net).

We explore the factors influencing State excise collection across states based on regression analysis for 18 states (excluding Bihar, Gujarat, Karnataka among minor states, and including Assam and Tripura among minor States) for the period 2011-12 to 2022-23.

We find that aggregate consumption expenditure on alcoholic beverages in a state is a key factor determining the state's excise collection. This is in line with our hypothesis. We find a

positive and significant impact of consumption expenditure on alcoholic beverages on state excise collection. There is a non-linear relationship between consumption expenditure and State excise collection - as consumption expenditure increases, state excise collection increases, and after reaching a point it declines. Given the data constraints, as we discussed earlier, we find that the non-linearity aspect in the relationship is mainly attributed to Tamil Nadu, as there was a sudden rise in consumption expenditure in 2019-20. However, commensurate with the rise in the consumption expenditure, there was no increase in the State excise collection in 2019-20.

It is likely that higher per capita income (as measured by per capita gross state value addition at current prices), may induce people to spend more on discretionary consumptions such as alcoholic beverages. Moreover, higher per capita income may lead people to consume high-value alcoholic beverages which attract higher taxes. Therefore, it is likely that higher per capita income may lead to higher state excise collection. We confirm this hypothesis from our results, as we find a positive and significant relationship between the two.

We find that in states where the share of urban population (in total population) is higher, there is higher state-excise collection.

Our results show that states, where the share of gross value addition by the selected services sector (viz., Communication & services related to broadcasting, Financial Services, and Real estate, ownership of dwelling & professional services) is higher, have higher state excise collection. We also, report that states with a higher share of gross value addition in the manufacturing sector vis-à-vis agriculture sector have a higher state-excise collection. So, the structural composition of the economic activity in a state plays a very crucial role in augmenting revenues from state-excise collection.

We find that states where footfalls of foreign tourists are higher than other states have a higher state-excise collection. Footfalls of domestic tourists do not have any significant impact on the state-excise collection of a State.

States, where wholesale and retail distribution of alcohol is fully owned either by the public or private, tend to have less state-excise collection than states where wholesale distribution is fully owned/managed by the public sector and retail supplies are in the hands of the private sector (through licensing).
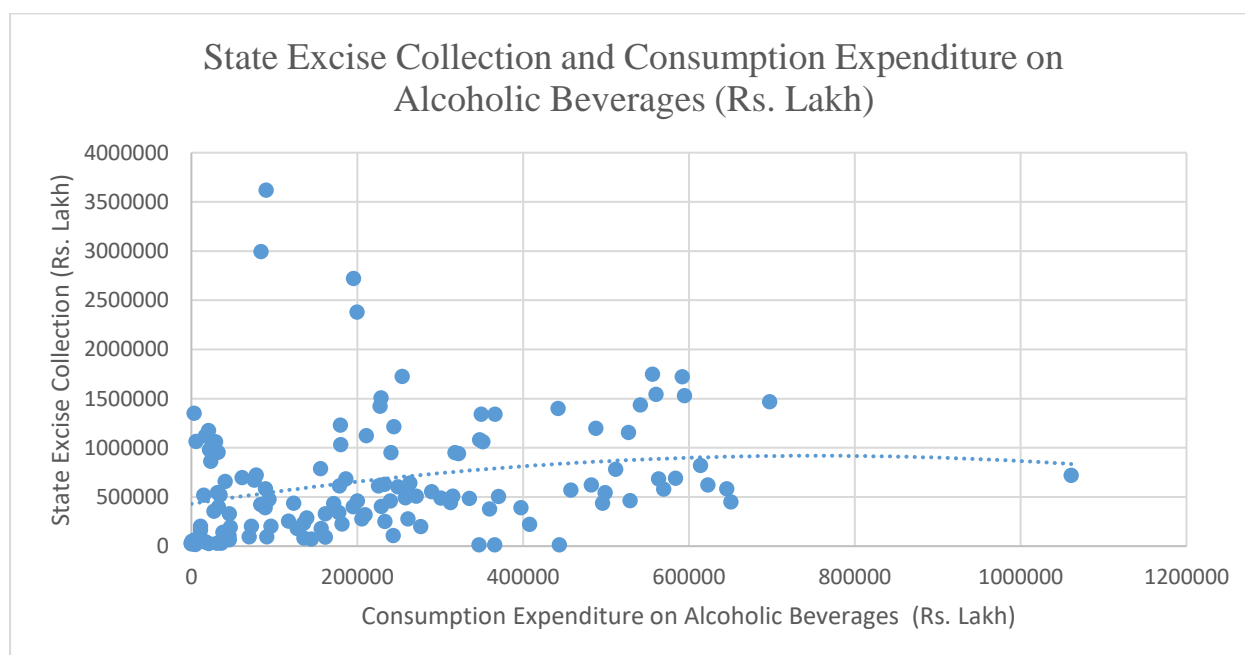
Appendix

Figure A.1: Consumption Expenditure on Alcoholic Beverages and State Excise Collection in Tamil Nadu
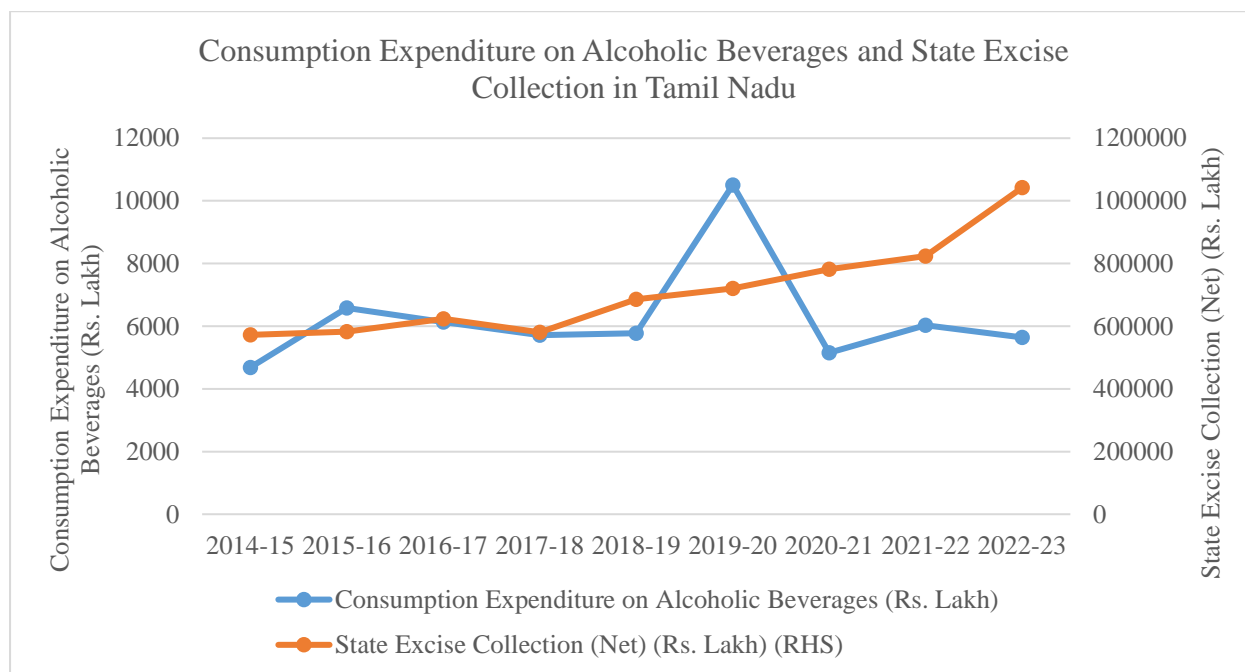
Source: Computed by authors

Figure A.2: Relationship between State Excise Collection and Consumption Expenditure on Alcoholic Beverages (Rs. Lakh)

Source: Computed by authors

Methodology for Estimation Consumer Price Index (CPI) of Alcoholic Beverages

CPI - All India

For all India, CPI (Base 2012=100) is available for the items 'country liquor', 'foreign/refined liquor or wine', 'toddy', 'beer', and 'other intoxicants' for the period January 2014 to December 2023 from https://cpi.mospi.gov.in/Default1.aspx. All India item-wise combined (rural and urban) weights are presented in Table A.1. We combine item-wise CPIs into one (viz., CPI-Alcoholic beverages) by using modified item-wise weights, as presented in the last column of Table A.1 By using month-wise CPI – Alcoholic beverages, we prepared Financial Year-wise CPI-Alcoholic beverages by taking average of April (previous year) to March (present year) data of CPI-Alcoholic beverages.

For the period January 2011 to December 2013, we retrieved item-wise CPI (Base 2010=100) for alcoholic beverages from https://cpi.mospi.gov.in/Default1.aspx. We first divide the items-wise CPI (Base 2010) by the average of items-wise CPI value for the period January to December 2012 to get item-wise CPI at Base 2012=100.[15] Next, we apply modified item weights (as presented in Table A.2) to get CPI-Alcoholic beverages (Figure A.3).

Table A.1: Item-wise Weights of Alcoholic Beverages in All India Combined Weight (Base: 2012)

Item Code	Item Description	All India Item Combined Weight (Base: 2012) (B)	Modified Item Weight (C=B*1/A)
2.1.01.1.1.01.0	country liquor (liter)	0.354	0.372
2.1.01.1.1.02.0	foreign/refined liquor or wine (liter)	0.403	0.424
2.1.01.1.1.03.0	toddy (litre)	0.058	0.061
2.1.01.1.1.04.0	beer (litre)	0.059	0.062
2.1.01.1.1.05.0	other intoxicants	0.076	0.080
	Total (A)	**0.951**	**1.000**
	1/A	1.052	

Source: Computed from https://cpi.mospi.gov.in/Default1.aspx

Figure A.3: Consumer Price Index (CPI) - Alcoholic Beverages (Base 2012=100)
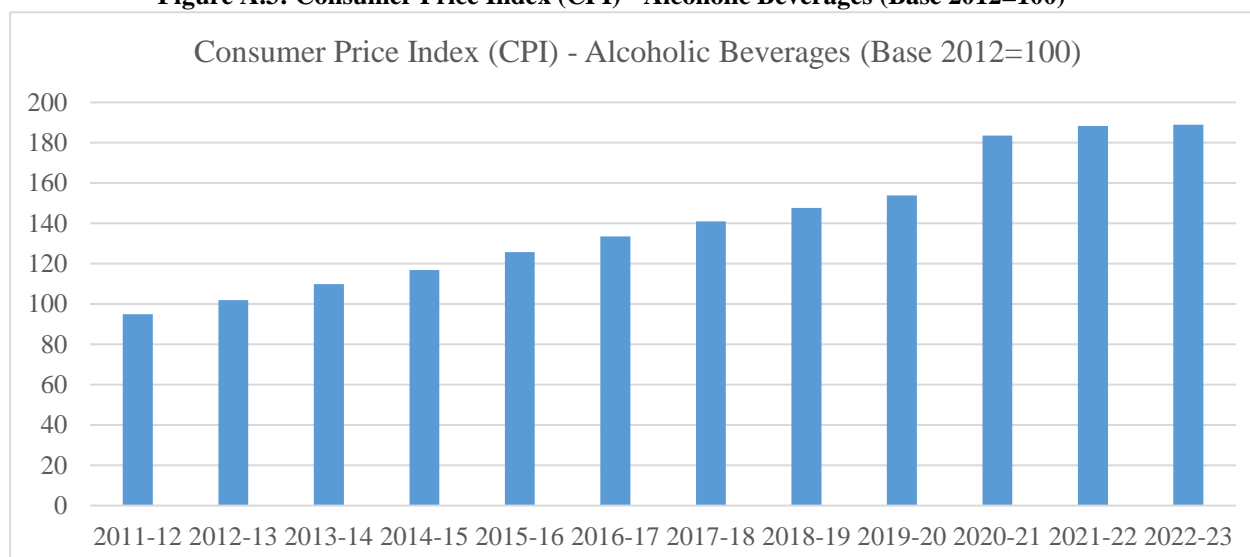
Source: Computed

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[15] See Section *15.3 Impact of change in weighing diagram* (page no. 36) of the **Consumer Price Index Changes in the Revised Series (Base Year 2012 = 100)**, Ministry of Statistics and Programme Implementation, Central Statistics Office, National Accounts Division, Prices and Cost of Living Unit, 2015.

CPI – States

Item-wise CPI is not available for States for alcoholic beverages. We have retrieved State-wise (combined) CPI of "Pan; tobacco; and intoxicants" (base 2012=100) from https://cpi.mospi.gov.in/Default1.aspx for the period January 2011 to January 2024. We first make the CPI series according to the Financial Year (April to March) by using an average of month-wise CPI for states. Secondly, we apply the all-India modified weight (sub-total of alcoholic beverages, as shown in Table A.2) to the overall CPI of "Pan; tobacco; and intoxicants" to get CPI-Alcoholic beverages. We use the same weight for all States.

Table A.2: Item-wise Weights of the Group Pan; tobacco; and intoxicants in All India Combined Weight (Base: 2012)

Item Code	Item Description	All India Item Combined Weight (Base: 2012) (B)	Modified Item Weight (C=B*1/A)
2.1.01.1.1.01.0	country liquor (liter)	0.35366	0.14862
2.1.01.1.1.02.0	foreign/refined liquor or wine (liter)	0.40344	0.16954
2.1.01.1.1.03.0	toddy (litre)	0.05788	0.02432
2.1.01.1.1.04.0	beer (litre)	0.05932	0.02493
2.1.01.1.1.05.0	other intoxicants	0.07639	0.03210
	Sub-total (Alcoholic Beverages)	**0.95069**	**0.39952**
2.1.01.2.1.01.0	pan: leaf (no.)	0.06396	0.02688
2.1.01.2.1.02.0	pan: finished (no.)	0.15533	0.06528
2.1.01.2.1.03.X	ingredients for pan (gm)	0.13113	0.05511
	Sub-total (Pan)	**0.35042**	**0.14726**
2.1.01.3.1.01.0	bidi (no.)	0.42638	0.17918
2.1.01.3.1.02.X	cigarettes (no.)	0.22928	0.09635
2.1.01.3.1.03.0	leaf tobacco (gm)	0.0999	0.04198
2.1.01.3.1.04.0	snuff (gm)	0.00056	0.00024
2.1.01.3.1.05.0	hookah tobacco (gm)	0.00581	0.00244
2.1.01.3.1.06.0	cheroot (no.)	0.00424	0.00178
2.1.01.3.1.07.0	zarda, kimam, surti (gm)	0.04869	0.02046
2.1.01.3.1.08.0	other tobacco products	0.26361	0.11078
	Sub-total (Tobacco)	**1.07847**	**0.45322**
	TOTAL (A)	**2.37958**	**1.00000**
	1/A	0.42024	

Source: Computed from https://cpi.mospi.gov.in/Default1.aspx