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Abstract

Keeping in mind the revenue needs of the governments, we assess the revenue implications of restructuring GST rates. The study builds six alternative scenarios based on various assumptions about the tax rate-wise distribution of taxable value and tax liabilities. Unlike previous studies on RNRs, the present study relies on aggregate tax information as captured through GSTR-1. In line with data available from the GSTN database, the study considers only domestic component of GST collection (i.e., CGST, SGST and IGST- domestic component).

Our study estimates merger of 12 and 18 per cent tax slabs into 15 per cent and estimates tax rates required to achieve revenue neutrality. The results show that merging 12 per cent and 18 per cent tax rates into any tax rate lower than 18 per cent may result in revenue loss. Based on various estimates, the study proposes that to compensate the revenue loss, the GST council may consider three rate structure of GST by adopting 8 per cent, 15 per cent and 30 per cent and it may help achieve revenue neutrality. In all scenarios, we assume that status quo in special rates will be maintained.

Keywords: Goods and Services Tax, Tax Base, Revenue Neutral Rates (RNRs), GST Rate Structure, Tax Buoyancy.

JEL Codes: H20, E62, H26

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1. Introduction

In the 45th meeting of GST Council held on 17 September 2021, the Council constituted a Group of Ministers (GoM) Committee to examine matters related to rate rationalization of GST. The objective of the group is to simplify the rate structure of GST to reduce classification related disputes and enhance GST revenues. The specific objectives of the GoM on Rate Rationalization are the following: – review the exempted supply of goods and services under GST with an objective to expand the tax base as well as elimination of breaking of ITC chain, review the current tax rates of GST and recommend changes to generate required revenue, review the current rate structure of GST and recommend rationalization measures (including merger of tax slabs for simplification) and review the instances of inverted duty structure and recommend suitable rates to eliminate the same.

GST rate structure has undergone many changes since the introduction of GST in India. Revenue mobilization from the GST is falling short of targets and it is attributable to reduction of tax rates as well as lack of tax compliance. This is hurting tax revenue of the Union government as well as States. The Fifteenth Finance Commission (FC-XV) recommends that “It is important to restore the revenue neutrality of the GST rate, which was compromised by the multiple rate structure and several downward adjustments of rates. The rate structure can be rationalised by merging the rates of 12 per cent and 18 per cent. The system can be operated with a three-rate structure of a merit rate, standard rate and demerit rate. Efficiency and revenue gains require that exemptions be minimized (GST—Appropriate recommendations by the Union and the States for action by the GST Council).” (para xiii, page 148, Fifteenth Finance Commission 2020). Given the FC-XV recommendations, it is desirable to explore alternative schemes of GST rate structure for policy discussion. In this context, the present study explores alternative structure of GST so that the desired revenue could be generated at the given level of tax compliance and tax buoyancy. Unlike previous studies on estimation of GST base and Revenue Neutral Rates (RNRs), the present study relies on tax administration data of GST. We have accessed tax rate-wise taxable value (or turnover) and tax liability as reported in GSTR-1 for all India as well as Delhi for the present study. For the period July 2017 to November 2018, we have access to all India information, as shared by the Fifteenth Finance Commission.¹ For Delhi, we have access to information for the period July 2017 to March 2020.² The details of specific information accessed and methodology adopted to estimate all India numbers from Delhi are explained in Section 3.1 and Appendix I.

In the next section, we briefly discuss earlier estimates of GST base and RNRs. In section three, we present detailed methodology of the study and basic data. In section four, we assess revenue implications of restructuring GST rates under six alternative scenarios. The salient

¹ The data accessed as part of the study done by Mukherjee and Rao (2019) for the Fifteenth Finance Commission and the special permission granted vide email dated 10 September 2021.

² The data accessed as part of the study done by Mukherjee (2021) for the Department of Trade and Taxes, Government of NCT of Delhi and the special permission granted vide email dated 21 October 2021.

features of the scenarios and estimated revenue neutral rates (RNRs) are presented in Table 1. Based on our analysis, we draw conclusions in section five.

Table 1: Salient Features of Scenarios and Estimated Revenue Neutral Rates

Scenario	Scenario I (Baseline)	Scenario II	Scenario III	Scenario IV	Scenario V	Scenario VI
Description of the Scenario			12 and 18% tax rates are merged into 15%	Looking for a suitable tax rate in the highest tax bracket to compensate for tax liability loss Corresponding to Scenario III (RNR: 37.55%)	Looking for a suitable tax rate in the 5% tax rate to compensate for tax liability loss corresponding to Scenario III (RNR: 8.81%)	Highest tax rate is raised to 30% from 28 per cent and look for suitable tax rate to compensate the tax liability loss corresponding to Scenario III (RNR: 8.05%)
Assumption on Tax Rate-wise Distribution of Taxable Value Corresponding to	2019-20	Q1 of 2017-18	2019-20	2019-20	2019-20	2019-20
Assumption on Tax Rate-wise Tax Liability (as % of Taxable Value) Corresponding to	2019-20	Q1 of 2017-18	2019-20	2019-20	2019-20	2019-20
Estimated Aggregate Tax Liability for 2020-21 (Rs. Crore)	3,235,637	3,995,054	3,043,007	3,235,637	3,235,637	3235637
Average Tax Liability (% of Taxable Value)	10.77	13.29	10.12	10.77	10.77	10.76538389
Gain(+)/Loss (-) in Tax Liability (Rs. Crore)		759,416	-192,630	0	0	0
Estimated Gain(+)/Loss in Annual GST Revenue (Rs. Crore)		124,904	-31,683	0	0	0
Rate Structure	Spl. Rates, 5%, 12%, 18% & 28%	Spl. Rates, 5%, 12%, 18% & 28%	Spl. Rates, 5%, 15% & 28%	Spl. Rates, 5%, 15% & 38%	Spl. Rates, 9%, 15% & 28%	Spl. Rates, 8%, 15% & 30%

Source: Estimated by author

2. Tax Base of GST and Revenue Neutrality

In absence tax administration data (information captured through tax returns) of taxes subsumed into GST, earlier assessments of the GST base were based on macro indicators or revenue under consideration. Among the studies available in the public domain, only one considers income tax administration data to assess the GST base (Thirteenth Finance Commission 2009). The earlier estimations of GST revenue neutral rates (RNRs) vary across methodologies (Table 2). In our knowledge, the present study is the first attempt to assess the GST base based on GST administration data.

Like every tax reform, it was also envisaged that GST will be revenue neutral - that means expected revenue from GST will match the revenue from taxes that is subsumed into GST. Media reports have indicated that the effective tax rate under GST gone down from the original revenue neutral rate of 15.5 per cent to 11.6 per cent on account of multiple rate cuts since introduction of GST in July 2017. It is expected that recommendations of the GoM on rate rationalization will correct this gap through rate changes in several product categories.³

In December 2015, the committee headed by the Chief Economic Adviser (CEA), Ministry of Finance, Government of India brought out the *Report on the Revenue Neutral Rate and Structure of Rates for the Goods and Services Tax (GST)* (hereafter CEA Report) (Government of India 2015). The report reviews the estimates GST base and corresponding RNRs based on three alternative methodologies/ approaches adopted by three alternative studies. In addition, the CEA Report also estimates the GST base and RNRs based on an adjusted Indirect Tax Turnover Approach. For easy reference, we present four alternative estimates of the GST base and corresponding RNRs in Table 1. To make the study conducted for the Thirteenth Finance Commission (2009) comparable with the study conducted by the NIPFP (Rao 2019), the CEA Report re-estimates the GST base and RNRs for 2013-14 based on Income Tax Administration Data of 2013-14.⁴ Except the IMF estimate which was for the year 2011-12, all other estimates were for the year 2013-14. Leaving aside the estimates of Macro Approach adopted by the IMF, Table 1 shows that estimates of GST base vary across methodologies and so the RNRs. Since achieving revenue neutrality is dependent on the assessment of the tax base and maintaining tax compliance at least at the level prevalent at the baseline scenario, variations in the estimate of GST base make estimation of RNRs difficult.

³ <https://www.businessinsider.in/policy/news/three-tier-gst-rate-structure-could-be-announced-as-soon-as-next-financial-year-says-report/articleshow/86723453.cms> (last accessed on 21 October 2021).

⁴ The study conducted by the Thirteenth Finance Commission (2009) was based on reference year of 2007-08.

Table 2: Estimates of GST Base and Revenue Neutral Rates

Approach	Author	Year	GST Base (in INR 0.1 Million Crore)	RNR (%) (Single Rate)	RNR Multiple Rates (%)	Basis of Estimation of GST Base	Assumption to Estimate RNR
Macro Approach	IMF	2011-12	59.9	11.6	11-14	55 to 67% of GDP	10 to 20% of Revenue Loss due to Tax Compliance Gap
Indirect Tax Turnover Approach	NIPFP	2013-14	39.4 (Goods: 30.8, Services: 8.5)	17.69	2, 12 & 22.8	37.57% of GVA [Goods: Actual State Tax Collection & Statutory tax rates (1%, 6% & 14%) Services: Turnover data of 3.25 lakh firms (MCA Database)]	Removed input services and exempted sectors
Direct Tax Turnover Approach	13th Finance Commission	2013-14	58.2	11.98	Not Specified	Income Tax Data of 2.85 million registered entities (including companies, partnership firms, and proprietary enterprises)	Deduction of exempt sectors, purchases by or from exempt sectors/ exempted goods/ unregistered dealers, exemption threshold.
Adjusted Indirect Tax Turnover Approach	Chief Economic Advisor Committee, MoF, GoI	2013-14	44.2-46.2	15.0 - 15.5	2-6, 12, 40, 16.9-18.9	Gain in Tax base due to compliance improvement (INR 0.2 million crore)	

Source: Compiled from Government of India (2015)

If revenue protection is the objective, maintaining tax revenue at least at the level (as percentage of GDP) prevalent at the time of introduction of tax reform will be the second best

approach in absence of reliable estimate of the tax base. Since the tax base of consumption taxes like GST/ VAT depends on domestic consumption expenditures on goods and services, it is expected that consumption expenditure will grow at least at the level of overall economic growth. In other words, given the level of tax compliance, annual growth in tax revenue at least to be equal to the growth in GDP (i.e., tax buoyancy =1). However, income inequality may dampen the overall consumption growth and for a developing country like India and achieving income equality may increase tax base as well as tax revenue. If growth rate in tax revenue falls below the growth rate of GDP (tax buoyancy <1), the revenue protection objective cannot be met. On the other hand, if growth rate in tax revenue exceeds the growth rate of GDP (tax buoyancy >1), the objective of revenue protection will be met easily. Since the demand for public expenditures is growing, it is desirable for a developing country to take all measures to achieve growth in tax collection higher than the growth in GDP, i.e., tax buoyancy would be greater than one. However, Table 3 shows that actual GST collection (as % of GVA) is lower than the expected (or desired) GST revenue (as % of GVA). The desired GST revenue in Table 3 is estimated based on 14 per cent annual (Year-On-Year) growth rate of states' revenue that is subsumed into GST in the base year of 2015-16 and assuming growth rate of the Union government's GST revenue is same as growth rate of GVA, (i.e., tax buoyancy=1). In 2018-19, the difference between expected and actual GST revenue was 0.45 per cent of GVA and it has gone up to 0.89 per cent of GVA in 2019-20 and 1.8 per cent in 2020-21. This shows that every year the gap between expected and actual GST collection (as measured by the % of GVA) is doubling since 2018-19. Restructuring GST rate structure may be an option apart from reviving the economic growth, improving tax compliance, to increase GST revenue mobilization.

Table 3: Revenue Protection in GST

Year	Revenue Subsumed into GST (INR 0.1 million Crore)		Total GST Revenue (A+B) (Expected)		GVA at basic prices (INR 0.1 million Crore)#	Annual Growth Rate of GVA (%)	Actual GST Collection	
	Union Government (A)*	States/ UTs (B)**	INR 0.1 Million Crore	% of GVA			Rs. 0.1 million Crore	% of GVA
2013-14	3.28	3.69	6.97	6.73	103.63	12.61		
2015-16		3.97			125.74	9.30		
2016-17	5.41	4.53	9.94	7.12	139.65	11.06		
2017-18	6.01	5.16	11.17	7.21	155.06	11.03		
2018-19	6.65	5.89	12.54	7.31	171.61	10.68	11.77	6.86
2019-20	7.16	6.71	13.87	7.51	184.61	7.58	12.22	6.62
2020-21	6.94	7.65	14.59	8.15	179.15	-2.96	11.37	6.35

Notes: *-For the Union government, revenue subsumed into GST excludes Customs Duties collection from Petroleum products which are under the GST. Component-wise details of Revenue Subsumed into GST for the Union Government are presented in Appendix Table A.1. For the period beyond 2016-17, growth in the Union government revenue is estimated assuming tax buoyancy = 1 or growth in tax revenue =growth in GVA.

** - For states, beyond 2015-16 revenue under GST is estimated based on nominal annual growth rate of 14 per cent on the base year revenue of 2015-16. All states base year (2015-16) revenue is available at https://tutorial.gst.gov.in/offlineutilities/gst_statistics/Yearwise-Pre-GST-revenue.pdf (last accessed on 21 October 2021)

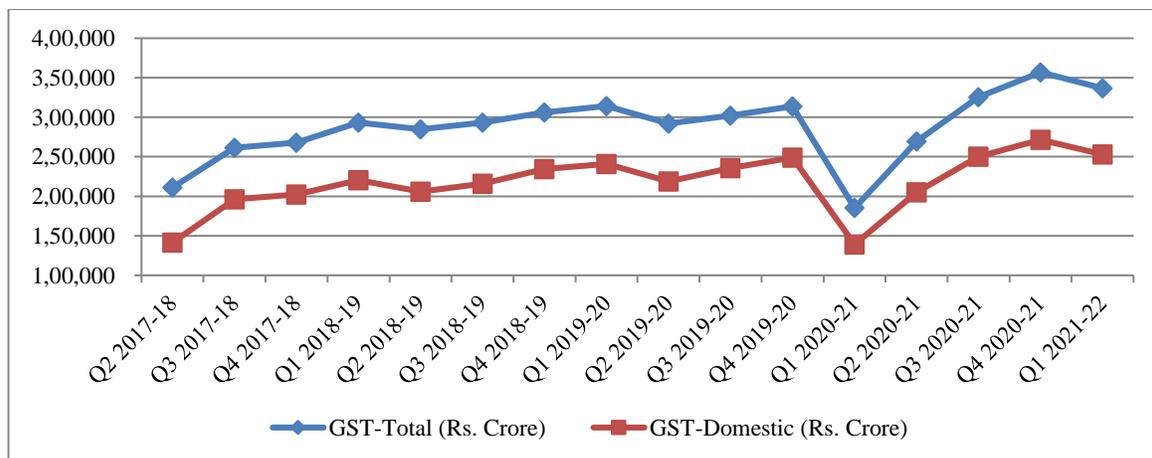
- Gross Value Added (GVA) at basic prices (at current prices, 2011-12 series)

Source: Computed by the author based information from various sources.

2.1 Tax Buoyancy in GST

GST collection in India has gone through major setback in the first two quarters of 2020-21 (Figure 1). Leaving aside the first two quarters of 2020-21, GST collection shows a positive upward trend. Figure 1 shows that GST collection from imports (Integrated GST and GST Compensation Cess) play an important role in the overall GST collection. During the first two quarters of 2020-21, imports were bare minimum which may have reduced GST collection. With gradual withdrawal of restrictions from international freight and passenger movements, GST collection improves in 2020-21. The domestic component of GST consists of CGST, SGST, IGST (domestic component) and GST Compensation Cess (domestic component). The import component of GST includes IGST and GST compensation Cess collections from imports.

Figure 1: Quarterly GST Collection in India (Rs. Crore)



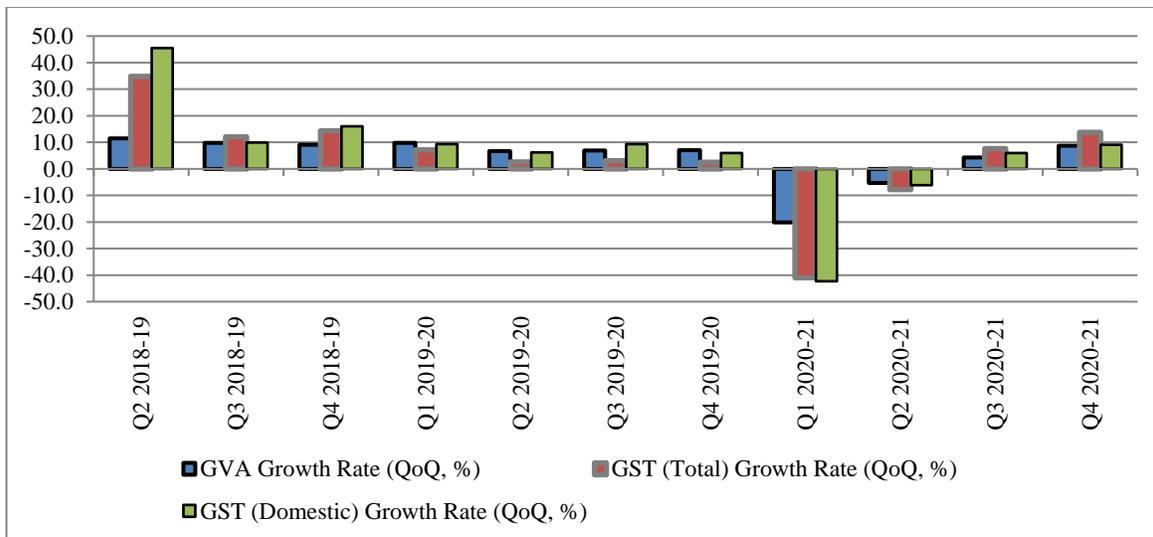
Source: Computed based on Monthly Press Releases of the Department of Revenue, Ministry of Finance, Government of India.

Except in Q3 of 2018-19, Quarter-On-Quarter (QoQ) growth rate in the domestic component of GST collection was higher than the growth rate in overall (total) GST collection during Q2 of 2018-19 to Q4 of 2019-20, i.e., prior to the COVID-19 pandemic (Figure 2). During Q1 of 2020-21, fall in growth rate of domestic component of GST collection was higher than fall in growth rate of total GST collection. During last two quarters (Q3 of 2020-21 and Q1 of 2021-22), growth rate of domestic component of GST is lagging behind growth rate in overall GST

collection. This implies that growth rate of GST collection from the import component is higher than that of the domestic component in recent quarters. Except a few quarters, growth rate in GVA is lower than growth in GST collection (Figure 2). Volatility (as measured by the coefficient of variation or CV) in the growth rate of GST collection (CV of total GST Collection is 4.1 and CV of domestic GST collection is 3.3) is much higher than volatility in the growth rate of GVA (CV is 2.1). Given the tax base, volatility in GST collection may be due to changing tax compliance and/or changes in the processes and procedures of filing tax returns (Mehta and Mukherjee 2021).

Growth rate in total GST collection was lower than growth rate GVA during 2019-20. During Q1 and Q2 of 2020-21, fall in growth rate of GVA was lower than fall in growth rate of total GST collection. During Q3 and Q4 of 2020-21 growth rates in GVA have fallen below the growth rate in total GST collection. Similarly, prior to Q1 of 2019-20, growth rate in GVA was lower than growth rate in total GST collection. Therefore given the evidences, growth rate in domestic component of GST collection is falling behind the growth rate of import component of GST for recent quarters. Both the growth rates in GVA and GST collection are showing volatility and the volatility is relatively higher in the growth rate of GST collection than growth rate in GVA. Therefore, achieving stabilization in the structure, processes and procedures of GST system may help to achieve stability in the GST collection.

Figure 2: Quarter-on-Quarter Growth Rate in GST Collection and Gross Value Added (GVA at basic prices)

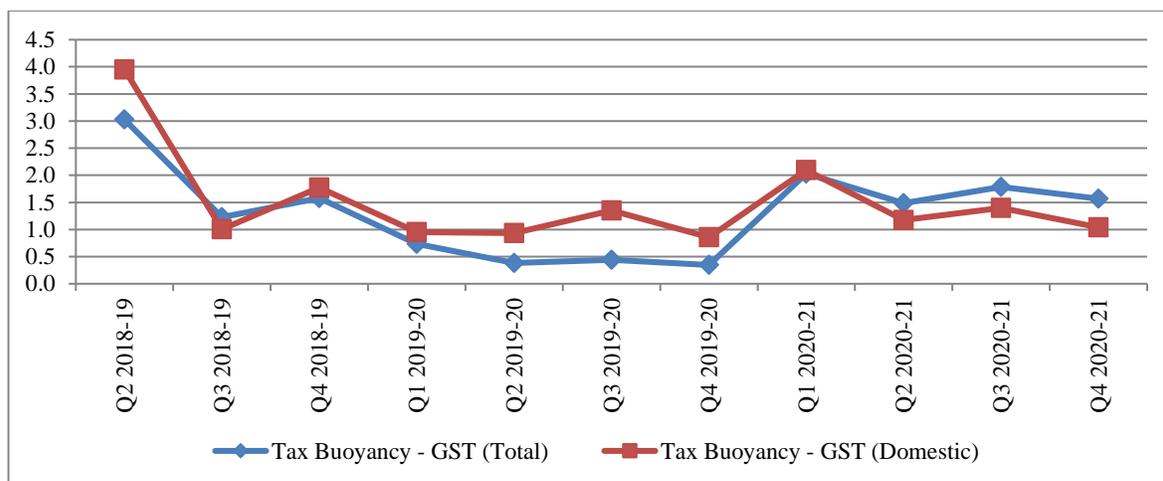


Source: Computed based on Monthly Press Releases of the Department of Revenue, Ministry of Finance, Government of India.

Like growth rate in GST collection, tax buoyancy of GST is also showing volatility (Figure 3). Even after four years of introduction, GST is evolving in many ways, e.g., structure, policies,

processes and procedures, and therefore stabilization of the GST system is important to achieve stable tax buoyancy. The COVID-19 pandemic has further delayed the process of stabilization. Therefore, any projection of GST collection based on past experience of tax buoyancy may be misleading at this stage.

Figure 3: Tax Buoyancy of GST in India



Source: Computed based on Monthly Press Releases of the Department of Revenue, Ministry of Finance, Government of India.

2.2 GST Revenue Neutral Rates

Like the GST base, estimates of RNRs also vary across studies presented in Table 2. Many scholars argue in favor of single rate GST. However, the main criticism of single rate GST is that it may make GST more regressive than multiple rates GST. A single rate GST may reduce tax administration burden (cost) as well as tax compliance cost. Moreover, single rate GST may help to minimize the classification disputes and revenue leakages by misclassification of goods in case of composite supplies, as well as difficulties associated with inverted duty structure (where inputs and capital goods are taxed at higher rates and the outputs are taxed at lower rates). A multiple rate GST is politically more acceptable than a single rate GST as it has potential to moderate the regressivity of GST.⁵ Taxing ‘sin’ goods (demerit/ luxury goods) at a higher rate often create fiscal space in favor of lowering standard rate(s). Taxing semi-processed or unprocessed foods and basic necessities at lower than standard rate often finds support from various quarters. On the other hand taxing high value low volume goods like precious stones, gems and jewelry at higher rate may encourage unaccounted (undisclosed) transactions and therefore revenue leakages. Therefore, often these items attract special rates. Though, there is no consensus on what will be the optimal number of tax rates, it is desirable that it should be as minimum as possible. Moreover, estimation of RNRs cannot be

⁵ Indirect taxes are often considered as regressive.

a onetime event, especially when the rate structure is undergoing changes so as the tax compliance, processes and procedures. Therefore, it is desirable that estimation of RNRs may be taken up by the GST council every regular interval, given the revenue needs of the governments.

3. Methodology and Basic Data

3.1 GST Rate-wise Distribution of Taxable Value and Tax Liability

In the GST regime, majority of taxpayers file GSTR-1 on monthly basis furnishing invoice-wise details of outward supplies and tax liability thereof.⁶ Therefore, for taxpayers registered under regular scheme tax rate-wise details of outward supplies (taxable value) and tax liability thereof are available from GSTR-1. Taxpayers pay the tax after adjusting available input tax credit (ITC) against inward supplies by filing GSTR-3B.⁷ Being a consolidated statement, there is no provision to capture tax rate-wise taxable value (or taxable supplies/turnover), tax liability or tax payment and availability of ITC in the GSTR-3B return. Therefore, in the analysis of restructuring of GST rate structure, we work on tax liability as reported in GSTR-1 and not on actual tax payment. ITC utilization differs across different goods and services depending on intensity of various taxable inputs use in the production of output. The coverage of tax liability in GSTR-1 is partial, as it does not capture IGST as well as GST compensation cess collections from imports. Therefore, in the present GST information system it is difficult to compile tax rate-wise all taxable value and tax liabilities based on Goods and Services Tax Network (GSTN) database. Though ITC utilization against imports is available and it is captured through GSTR-3B, corresponding taxable value of imports is not available across GST returns. When available ITC against imports are adjusted against tax liabilities, taxable value of imports is not available in the GSTR-3B. Therefore, it reduces tax liability and effective tax rate. For all India, we have access to information on tax rate-wise taxable value and tax liabilities upto November 2018 as shared by the Fifteenth Finance Commission. At all India level, there is no information available on taxable value (or turnover), tax liability, ITC utilization beyond November 2018 in the public domain. To overcome this data limitation, we depend on tax rate-wise taxable value and tax liabilities of Delhi for which we have access to data upto March 2020. The detailed methodology of adjustment of all India information using information available for Delhi is presented in Appendix I. In this study, we assume that beyond Q2 of 2018-19 change in tax rate-wise taxable value and tax liability of all India would be the same as that of Delhi. The revenue estimates presented in this paper are notional and availability of aggregate tax administration data of all India level could help us to refine the estimates. However,

⁶ Taxpayers under composition scheme file GSTR-4 on quarterly basis. Since 1 January 2021 under Quarterly Return Monthly Payment (QRPM) Scheme taxpayers having annual turnover upto Rs. 5 Crore are exempted from filing monthly GSTR-1 and GSTR-3B returns.

⁷ GSTR-3B is a summary return which captures the tax liabilities against outward supplies, availability of ITC against inward supplies, and utilization of ITC credit to pay taxes and tax payment (in cash).

methodology developed in this paper may help any future research on restructuring of GST rates.

We compile the information of tax rate-wise taxable value and tax liabilities corresponding to following tables (outward supplies) of GSTR-1 for all India as well as Delhi:

Table 4A: Supplies other than those (i) attracting reverse charge and (ii) supplies made through e-commerce operator

Table 5A: Outward supplies (other than supplies made through e-commerce operator)

Table 7A: Intra-State supplies

Table 7B: Inter-State Supplies where invoice value is upto Rs 2.5 Lakh

Table 6A: Exports

The above listed tables capture outward supplies (taxable value/ turnover) of taxpayers registered under the GST regular scheme. It is to be noted that turnover of taxpayers under composition/ compounding schemes (paying GST on the basis of turnover) is not captured in the present study.

In the present structure of GST, there are seven different GST rates apart from 'zero' (or nil rate).⁸ Two special rates – diamonds and precious (semi-precious) stones attract GST rate of 0.25 per cent and gems and jewelry attract 3 per cent GST rate. 0.1 per cent GST rate is applicable for supply of goods to merchant exporters. There are three standard GST rates – 5 per cent, 12 per cent and 18 per cent and one de-merit rate of 28 per cent. The distribution of taxable value across tax rates is presented for all India as well as for Delhi in Table 4. It shows that distribution is changing over time and a part of the change in distribution is attributable to changing tax rate structure over the years since the introduction of GST. The other part may be attributed to changing structure of consumption pattern and tax compliance. Table 4 shows that on average 41 per cent taxable value is under 18 per cent tax rate. For Delhi it is 50 per cent. For all India, on average only 12 percent taxable value is under 12 per cent tax rate. Over the years, list of goods attracting 28 per cent tax rate have been pruned down. This has resulted in fall in the share of taxable value under 28 per cent tax rate from 16 per cent in Q1 of 2017-18 to 6.5 per cent in Q4 of 2019-20 (Table 3).

⁸ Mostly fresh fruits, vegetable, fish, unprocessed animal and livestock products are attracting 'Nil' rate under Schedule I.

Table 4: Tax Rate-wise Distribution of Taxable Value of All India vis-à-vis Delhi

Period	All India (AI) / Delhi(DL)	Tax Rate (%)								
		0	0.1	0.2 5	3	5	12	18	28	All
Q2:2017-18	AI	9.5	0.0	0.1	6.1	19.2	11.8	37.4	15.9	100
	DL	4.3	--	0.1	8.6	15.7	16.6	44.3	10.5	100
Q3:2017-18	AI	9.0	0.2	0.3	6.9	20.4	11.9	39.5	11.9	100
	DL	3.9	--	0.1	9.4	17.6	14.9	47.2	6.9	100
Q4:2017-18	AI	8.8	0.2	0.8	5.2	20.4	12.6	42.3	9.6	100
	DL	4.2	--	0.2	7.8	17.6	14.0	51.5	4.7	100
Q1:2018-19	AI	8.8	0.2	0.9	5.6	19.8	12.1	42.3	10.2	100
	DL	4.4	--	0.2	5.5	18.5	13.7	52.8	4.8	100
Q2:2018-19	AI	9.7	0.2	1.0	6.0	18.8	12.4	43.1	8.9	100
	DL	5.2	--	0.2	6.0	17.4	14.2	53.2	3.8	100
Q3:2018-19	AI*	9.2	0.2	0.6	5.4	22.4	12.8	40.9	8.4	100
	AI**	7.2	0.2	1.3	5.4	19.4	12.8	44.2	9.4	100
	DL	3.8	--	0.3	5.4	17.8	14.6	54.1	3.9	100
Q4:2018-19	AI**	7.3	0.2	1.5	5.5	19.6	12.5	45.2	8.3	100
	DL	3.8	--	0.3	5.5	17.9	14.1	54.9	3.5	100
Q1:2019-20	AI**	7.8	0.2	0.7	10.1	18.3	13.0	41.6	8.2	100
	DL	4.1	--	0.2	10.1	16.8	14.7	50.7	3.5	100
Q2:2019-20	AI**	21.2	0.2	0.5	6.1	17.0	12.2	35.8	7.0	100
	DL	12.1	--	0.1	6.5	16.7	14.8	46.7	3.2	100
Q3:2019-20	AI**	27.0	0.2	0.8	2.7	18.6	10.9	31.2	8.5	100
	DL	16.3	--	0.2	3.1	19.3	14.1	43.1	4.0	100
Q4:2019-20	AI**	11.9	0.2	1.3	5.5	18.7	12.7	43.1	6.5	100
	DL	6.4	--	0.3	5.5	17.3	14.6	53.1	2.8	100
2017-18	AI	9.1	0.2	0.4	6.0	20.1	12.1	39.9	12.2	100
	DL	4.1	--	0.1	8.6	17.1	15.0	48.1	7.0	100
2018-19	AI**	8.2	0.2	1.2	5.6	19.4	12.4	43.8	9.2	100
	DL	4.3	--	0.3	5.6	17.9	14.2	53.8	3.9	100
2019-20	AI**	16.8	0.2	0.9	6.1	18.2	12.2	38.1	7.6	100
	DL	7.5	--	0.2	7.0	17.2	14.6	50.2	3.2	100

Note: *- Upto November 2018, ** - Estimated

Source: Computed by Author based on data shared by the Fifteenth Finance Commission and the Department of Trade and Taxes, Government of NCT of Delhi.

We find that there is difference between statutory tax rates and the tax liability rate (as measured by tax liability as percentage of taxable value for each tax rate). As compared to 2018-19, tax liability rates have fallen down for 3 per cent and above tax rates. For 28 per

cent tax rate, the difference has gone up in 2019-20 from 2018-19 by 1.6 percentage point for all India (Table 5).

Table 5: Tax Rate-wise Tax Liability of All India vis-à-vis Delhi (as % of Taxable Value)#

Period	All India (AI) / Delhi(DL)	Tax Rate (%)								
		0.00	0.1	0.25	3	5	12	18	28	All
Q2:2017-18	AI	0.05	3.36	0.24	2.92	4.92	11.82	17.08	27.57	13.29
	DL	0.08	--	0.25	2.82	4.85	11.88	17.76	27.68	13.74
Q3:2017-18	AI	0.06	0.10	0.24	2.93	4.94	11.86	17.17	27.59	12.68
	DL	0.09	--	0.25	2.94	4.94	11.87	17.75	27.71	13.22
Q4:2017-18	AI	0.06	0.10	0.22	2.96	4.93	11.91	17.41	27.61	12.68
	DL	0.11	--	0.25	2.98	4.92	11.87	17.79	27.63	13.22
Q1:2018-19	AI	1.43	0.10	0.20	2.97	5.07	11.87	17.29	27.62	12.87
	DL	0.08	--	0.25	2.95	4.94	11.89	17.77	27.79	13.44
Q2:2018-19	AI	0.09	0.10	0.20	2.98	4.94	11.89	17.30	27.59	12.49
	DL	0.13	--	0.25	2.96	4.95	11.89	17.77	27.74	13.23
Q3:2018-19	AI*	0.08	0.10	0.24	2.97	4.94	11.88	17.27	27.52	12.18
	AI**	0.15	0.10	0.20	2.94	4.94	11.93	17.30	27.65	12.75
	DL	0.21	--	0.25	2.92	4.96	11.93	17.77	27.80	13.50
Q4:2018-19	AI**	0.16	0.10	0.20	2.96	4.94	11.91	17.29	27.69	12.71
	DL	0.22	--	0.25	2.95	4.95	11.91	17.76	27.84	13.45
Q1:2019-20	AI**	0.05	0.10	0.20	2.97	4.93	11.85	17.29	27.75	12.13
	DL	0.07	--	0.25	2.95	4.95	11.85	17.76	27.90	12.84
Q2:2019-20	AI**	0.01	0.00	0.20	2.76	4.74	11.51	16.09	24.38	10.55
	DL	0.01	--	0.25	2.74	4.76	11.51	16.53	24.52	11.17
Q3:2019-20	AI**	0.02	0.00	0.19	2.71	4.74	11.14	15.97	24.89	10.06
	DL	0.03	--	0.23	2.69	4.75	11.15	16.40	25.03	10.65
Q4:2019-20	AI**	0.03	0.10	0.20	2.96	4.86	11.65	17.07	27.11	12.06
	DL	0.04	--	0.25	2.94	4.87	11.65	17.53	27.25	12.77
2017-18	AI	0.06	0.10	0.23	2.94	4.93	11.87	17.24	27.59	12.85
	DL	0.09	--	0.25	2.92	4.91	11.87	17.77	27.67	13.36
2018-19	AI**	0.47	0.10	0.20	2.96	4.97	11.90	17.30	27.64	12.71
	DL	0.16	--	0.25	2.94	4.95	11.91	17.77	27.80	13.41
2019-20	AI**	0.03	0.05	0.20	2.85	4.82	11.54	16.62	26.09	11.23
	DL	0.04	--	0.25	2.91	4.87	11.65	17.38	26.82	12.33

Notes: #-Tax Liability corresponding to Domestic GST Liability (CGST+SGST +IGST (domestic))

*-Upto November 2018. **-Estimated

Source: Computed by Author based on data shared by the Fifteenth Finance Commission and the Department of Trade and Taxes, Government of NCT of Delhi

Table 6 shows that during Q2 of 2017-18 to Q2 of 2018-19, on average 55 percent of tax liability falls under 18 per cent tax rate for all India. In Delhi, during the same period the share of 18 per cent tax rate was 66 per cent. With the falling share of 28 per cent tax rate in tax liability, the share of 18 per cent tax rate has gone up over the years (Figure 4). The share of 12 per cent tax rate in total tax liability has increased from 12.6 per cent in 2018-19 to 13.8 per cent in 2019-20. Marginal increment in the share of 5 per cent tax rate is also observed. This shows that tax rate-wise structure of tax liability has changed over the years with the change in the GST rate structure over time.

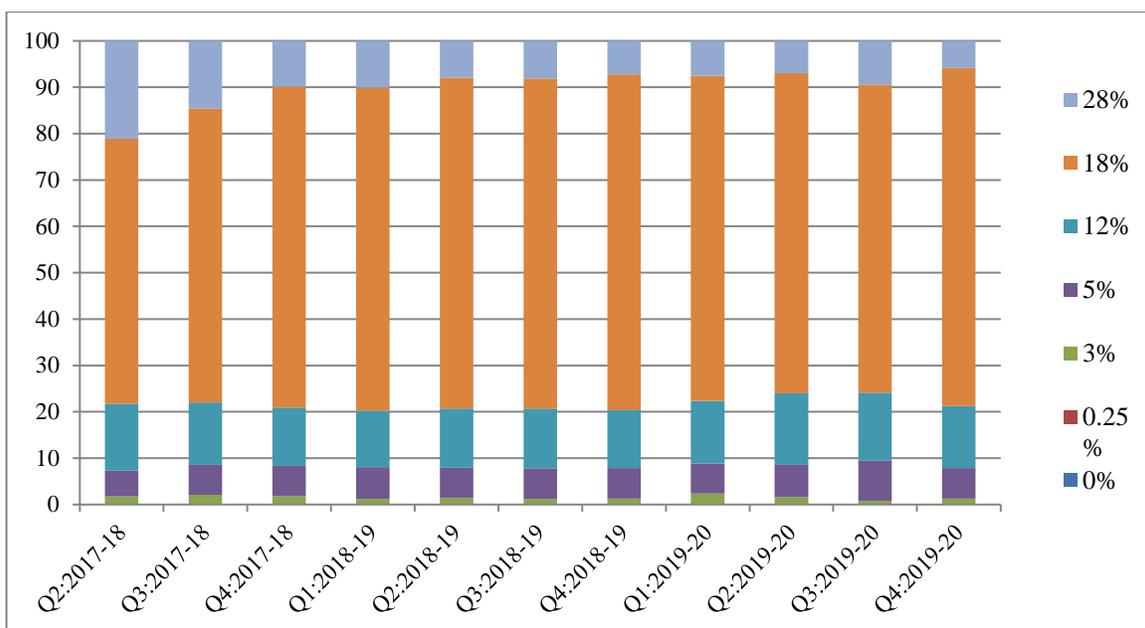
Table 6: Tax Rate-wise Share in Tax Liability of All India vis-à-vis Delhi (%)#

Period	All India (AI) / Delhi(DL)	Tax Rate (%)								
		0	0.1	0.25	3	5	12	18	28	All
Q2:2017-18	AI	0.04	0.00	0.00	1.34	7.10	10.47	48.06	32.99	100
	DL	0.02	--	0.00	1.77	5.53	14.39	57.22	21.07	100
Q3:2017-18	AI	0.04	0.00	0.00	1.58	7.97	11.11	53.43	25.85	100
	DL	0.03	--	0.00	2.09	6.58	13.34	63.42	14.55	100
Q4:2017-18	AI	0.04	0.00	0.01	1.21	7.92	11.87	58.06	20.87	100
	DL	0.03	--	0.00	1.76	6.55	12.57	69.24	9.84	100
Q1:2018-19	AI	0.98	0.00	0.01	1.30	7.79	11.17	56.91	21.83	100
	DL	0.02	--	0.00	1.21	6.81	12.16	69.76	10.03	100
Q2:2018-19	AI	0.07	0.00	0.02	1.43	7.42	11.76	59.72	19.59	100
	DL	0.05	--	0.00	1.35	6.51	12.77	71.42	7.89	100
Q3:2018-19	AI*	0.06	0.00	0.01	1.31	9.09	12.50	58.03	19.00	100
	DL	0.06	--	0.01	1.17	6.53	12.93	71.17	8.13	100
Q4:2018-19	DL	0.06	--	0.01	1.19	6.58	12.49	72.47	7.21	100
Q1:2019-20	DL	0.02	--	0.00	2.32	6.45	13.58	70.11	7.51	100
Q2:2019-20	DL	0.01	--	0.00	1.60	7.11	15.26	69.07	6.95	100
Q3:2019-20	DL	0.05	--	0.00	0.78	8.60	14.73	66.41	9.43	100
Q4:2019-20	DL	0.02	--	0.01	1.26	6.59	13.34	72.91	5.87	100
2017-18	AI	0.04	0.00	0.01	1.37	7.70	11.20	53.58	26.10	100
	DL	0.03	--	0.00	1.87	6.27	13.33	63.96	14.53	100
2018-19	DL	0.05	--	0.01	1.23	6.60	12.60	71.34	8.18	100
2019-20	DL	0.02	--	0.00	1.66	6.80	13.81	70.73	6.97	100

Notes: #-Tax Liability corresponding to Domestic GST Liability (CGST+SGST +IGST (domestic))

*-Upto November 2018

Source: Computed by Author based on data shared by the Fifteenth Finance Commission and the Department of Trade and Taxes, Government of NCT of Delhi

Figure 4: Tax Rate-wise Share in Tax Liability of Delhi (%)


Source: Computed by Author based on data shared by the Department of Trade and Taxes, Government of NCT of Delhi

3.2 Estimation of Taxable Value for 2020-21

Though we do not have access to tax rate-wise taxable value and tax liability at all India level beyond November 2018, we have aggregate taxable value and tax liabilities (as reported in GSTR-1) for all India for 2017-18 to 2018-19, as shared by the Fifteenth Finance Commission (Table 7). These figures are corresponding to GSTR-1 tables as listed in section 3.1. This shows that average tax liability (as % of taxable value) has gone down in 2018-19 as compared to 2017-18. We have compiled tax collection figures based on monthly press releases of the Department of Revenue.⁹ Table 7 shows that the ratio of Taxable Value (TV) and Tax Collection (TC) has gone down in 2018-19 as compared to 2017-18. Similarly, the ratio of Tax Liability (TL) and Tax Collection (TC) also falls in 2018-19. Based on the experience of tax collection on account of CGST, SGST and IGST (domestic component) and the average ratios of 2017-18 and 2018-19, we have estimated the Taxable Value and Tax Liability of 2020-21. The underlying formulae are as follows:

$$\text{Taxable Value (TV) of 2020-21} = \text{Average TV/TC of 2017-18 \& 2018-19} \times \text{Tax Collection (TC) of 2020-21}$$

⁹ Given the information available in the public domain, GST collections from composition tax payers cannot be separated from overall GST collection.

Tax Liability (TL) of 2020-21 = Average TL/TC of 2017-18 & 2018-19 x Tax Collection (TC) of 2020-21

The estimated Taxable Value and Tax Liability of 2020-21 are Rs. 38,187,045 crore and Rs. 4,783,170 crore respectively. This is also to be noted that Tax Liability as percentage of Taxable Value shows an increase in 2020-21 (Table 7).

Table 7: Taxable Value, Tax Liability and Tax Collection in GST - All India

Year	Taxable Value (TV) (Rs. Crore)	Tax Liability (TL) (IGST+CGST+SGST) (Rs. Crore)	Tax (CGST+SGST+IGST-domestic) Collection (TC) (Rs. Crore)	TV/TC	TL/TC
2017-18	28,668,423	3,606,981 (12.58)	483,772	59.260	7.456
2018-19	29,863,672	3,714,374 (12.44)	789,504	37.826	4.705
Average of 2017-18 & 2018-19				48.543	6.080
2020-21	38,187,045*	4,783,170 (12.53)	786,664 **		

Note: *-Estimated, **-Sum of CGST, SGST and IGST (domestic component) collection in 2020-21

Figures in the parenthesis show the Percentage of Taxable Value

Source: Data shared by the Fifteenth Finance Commission and Compilation of Monthly Press Releases of the Department of Revenue, Ministry of Finance, Government of India.

As an alternative to estimates of taxable value presented above, we estimate taxable value based on macro indicators. Unlike other macro-indicators, taxable value and tax liabilities of GST are not available (or published) in the public domain. Therefore, to estimate the taxable value for 2020-21, we first try to establish a relationship between Gross Output (GO) and Gross Value Added (GVA) as available in the National Accounts Statistics 2021 (Table 8).¹⁰

We find that there is a linear relationship between GO and GVA and degree of association is strong ($R^2=0.9937$) (Figure 5).¹¹ We have avoided any time series specific tests in this exercise, as we have only 9 data points. We use this relationship to estimate the Gross Output of 2020-21 from Provisional Estimate of Gross Value Added at basic prices (at current prices, 2011-12 series) of 2020-21. Given provisional estimate of GVA of Rs. 17,915,167 crore in 2020-21,¹² the estimated GO is Rs. 34,978,573 crore for 2020-21.

¹⁰ <http://mospi.nic.in/publication/national-accounts-statistics-2021> (last accessed on 1 July 2021).

¹¹ We avoid any time series testing of the relationship as we have only 9 data points.

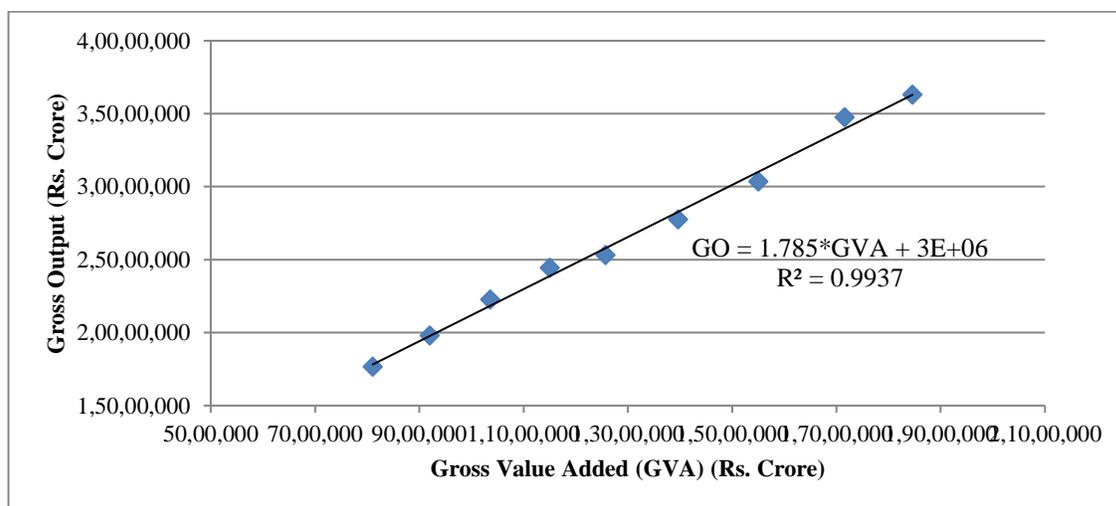
¹² http://www.mospi.nic.in/sites/default/files/press_release/Press%20Note_31-05-2021.pdf (last accessed on 1 July 2021).

Table 8: Gross Output and Gross Value Added of India (at current prices, 2011-12 series) (Rs. Crore)

	Gross Output (GO)	Gross Value Added (GVA)
2011-12	17,662,041	8,106,946
2012-13	19,800,101	9,202,692
2013-14	22,267,737	10,363,154
2014-15	24,449,014	11,504,278
2015-16	25,312,242	12,574,500
2016-17	27,764,865	13,965,200
2017-18	30,366,427	15,505,665
2018-19	34,754,818	17,161,213
2019-20	36,302,208	18,461,343

Source: National Accounts Statistics 2021 (Table 7.1)

Figure 5: Relationship between Gross Output and Gross Value Added of India



Source: Computed by Author

In the next step, we estimate Taxable Value (TV) for 2020-21, based on observed ratio of TV and GO for 2018-19 (Table 9). We find that the ratio of TV and GO is 0.94 in 2017-18 and 0.86 in 2018-19. Since, taxable value of 2017-18 is corresponding to the period July 2017 to March 2018 whereas the GO is corresponding to full financial year of 2017-18, to achieve comparability we take TV/GO of 2018-19 to estimate the Taxable Value of 2020-21 by the following formula:

$$\text{Taxable Value (TV) of 2020-21} = \text{TV/GO of 2018-19} \times \text{Gross Output of 2020-21 (estimated)}$$

The estimated Taxable Value of 2020-21 is Rs. 30,055,937 crore (Table 9). This is Rs. 8,131,108 crore or 21.29 per cent lower than the estimated TV of 2020-21 based on Tax Collection and Tax Liability approach presented above (Table 7). In our analysis, we consider Rs. 30,055,937 crore as taxable value for 2020-21 as a case in point. Availability of actual figures for 2020-21 could help us to refine the estimates presented in this paper.

Table 9: Relationship between Gross Output and Taxable Value (at current prices)

Year	Gross Output (GO)	Taxable Value (Rs. Crore) (TV)	TV/GO
2017-18	30,366,427	28,668,423	0.94
2018-19	34,754,818	29,863,672	0.86
2020-21 (Estimated)	34,978,573	30,055,937	

Source: Compiled from *National Accounts Statistics 2021* and data shared by the Fifteenth Finance Commission.

4. Options for GST Rate Restructuring

Based on our estimates of tax rate-wise taxable value and tax liability of all India as presented above, we construct alternative scenarios of GST rate structure and estimate expected GST (domestic components only) collection. The estimated tax revenue is notional in all aspects and may not correspond to actual GST collection. The reasons for divergence between the actual GST (domestic components) and our estimates mainly on account of differences between actual and estimated taxable value, tax liability, utilization of input tax credit (ITC), tax compliance, tax efficiency, composition of taxable value and tax liability by tax rates etc. We have not taken into account revenue impacts of increasing GST registration threshold, increasing turnover limit to opt for composition scheme etc. in our analysis. However, the methodology developed in this paper could be useful for any future analysis of restructuring of GST rate structure.

4.1 Scenario I (Baseline)

In this scenario, we assume that the tax rate-wise distribution of taxable value of 2019-20 remains unchanged in 2020-21 (Table 4). We also assume that Tax Liability as percentage of taxable value of 2019-20 remains unchanged in 2020-21 (Table 5). We estimate the aggregate Tax Liability on account of CGST, SGST and IGST (domestic component) in this scenario for the year 2020-21. We do not include GST Compensation Cess liability in any of our scenario as the proceeds of GST cess are realized into the GST compensation fund to provide GST compensation to states. The estimated tax liability in this case is Rs. 3,235,637 crore or 10.77 per cent of taxable value (Table 10). This implies that estimated average tax liability rate is 10.77 per cent in 2020-21.

Table 10: Estimated Tax Liability in Scenario I (Baseline)

Tax Rate (%)	Taxable Value (Rs. Crore)	GST (CGST+SGST+IGST-domestic) Liability (Rs. Crore)
	2020-21	2020-21
0	5,052,403	1,503
0.1	69,129	35
0.25	255,475	506
3	1,836,418	52,351
5	5,461,164	263,183
12	3,669,830	423,580
18	11,439,290	1,901,747
28	2,272,229	592,731
All	30,055,937	3,235,637

Source: Computed by Author

3.2 Scenario II

In this scenario, we distribute aggregate taxable value of 2020-21 according to tax rate-wise distribution of taxable value as was prevailing during Q1 of 2017-18. Here, we assume that GST rate structure of 2020-21 is as it was prevailing during Q1 of 2017-18 (i.e., at the time introduction of GST). In this scenario we also assume that tax rate-wise tax liability as percentage of taxable value remains unchanged in 2020-21 as it was prevailing during Q1 of 2017-18. In this analysis we assume that any improvement in tax compliance, consumption habits and resultant economic growth is captured in the taxable value of 2020-21. Our estimated tax liability is Rs. 3,995,054 crore and it is Rs. 759,416 crore (or 13.3%) higher than tax liability estimated under the baseline scenario (Table 10 and 11). This means that if the GST rate structure prevailing at the time of GST introduction is restored again in 2020-21, it may generate additional annual tax liability of Rs. 759,416 crore. By applying average TL/TC ratio of 6.08 as observed during 2017-19, this may generate additional annual GST revenue of Rs. 124,904 crore (Rs. 759,416 crore/6.08) in 2020-21. However, this is to be noted that the estimated revenue gain due to reinstating original GST rate structure is notional and actual revenue gain may differ depending on ITC utilization pattern across tax rates (as well as tax payers), change in the tax compliance behavior and impacts on consumption pattern and associated changes in the output or taxable value etc.

Table 11: Estimated Tax Liability in Scenario II

Tax Rate (%)	Taxable Value (% Share)	Tax (CGST+SGST+IGST-domestic) Liability (% of TV)	Taxable Value (Rs. Crore)	GST (CGST+SGST+IGST-domestic) Liability (Rs. Crore)
	Q1:2017-18	Q1:2017-18	2020-21	2020-21
0	9.5	0.05	2,852,887	1,448
0.1	0.0	3.36	245	8
0.25	0.1	0.24	44,680	107
3	6.1	2.92	1,833,565	53,510
5	19.2	4.92	5,767,707	283,734
12	11.8	11.82	3,537,052	418,136
18	37.4	17.08	11,239,723	1,920,176
28	15.9	27.57	4,780,079	1,317,936
All	100.0	13.29	30,055,937	3,995,054

Source: Computed by Author

3.3 Scenario III

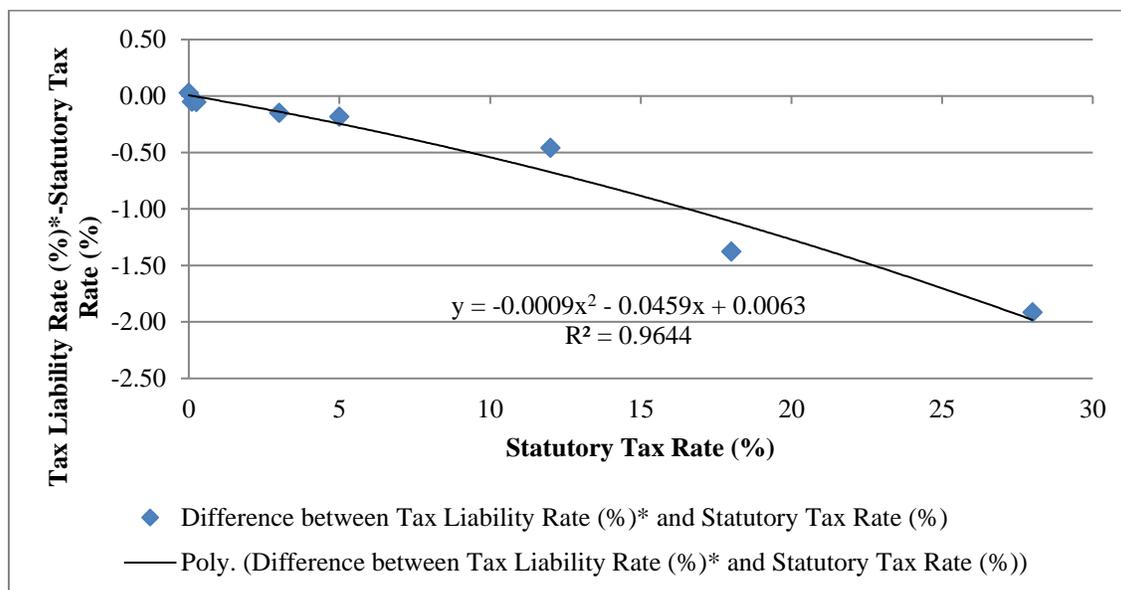
This scenario is an extension of baseline scenario with seven tax rates (instead of eight tax rates prevalent at present). In the present scenario, we have merged taxable values corresponding to 12 per cent and 18 per cent tax rates into one and assumed that that the consolidated taxable value will attract a tax rate of 15 per cent.

We have observed that tax liability (as % of taxable value) is lower than statutory tax rate for all tax rates (Table 5). The difference between tax liability rate (Tax Liability as % of Taxable Value) and statutory tax rate corresponding to 2019-20 is plotted against statutory tax rates in Figure 6. Figure 6 shows that there is a polynomial relationship between two. So, we estimate the difference for 15 percent tax rate and it is -0.88 per cent. Therefore, tax liability rate for 15 percent tax rate is 14.12 percent (i.e., 15% - 0.88%). We estimate the tax liability corresponding to 2020-21 and it is Rs. 3,043,007 crore (Table 12). In this case tax liability is lower than baseline scenario by Rs. 192,630 crore (or 6%). If we convert it into GST revenue by multiplying by the inverse of average TL/TC over 2017-19, it would be Rs. 31,683 crore [Rs. 192,63 crore x (1/6.08)]. Therefore, merging of 12 per cent and 18 per cent tax rates into 15 per cent (or any other tax rate lower than 18 per cent) may result in revenue loss for the governments. Since on average 41 per cent of taxable value falls under 18 per cent tax rate, any attempt to merge two tax rates into one tax rate which is lower than 18 per cent may result in revenue loss. However, this is a static exercise. Change in tax rates on goods and services may have impacts on demands (consumer behavior effect) as well as on tax compliance. Therefore, the ultimate revenue impact of the change in tax structure may be positive or negative depending on relative strengths of alternative forces of consumer behavior effect and tax compliance effect.

Table 12: Estimated Tax Liability in Scenario III

Tax Rate (%)	Taxable Value (Rs. Crore)	GST (CGST+SGST+ IGST-domestic) Liability (Rs. Crore)
	2020-21	2020-21
0	5,052,403	1,503
0.1	69,129	35
0.25	255,475	506
3	1,836,418	52,351
5	5,461,164	263,183
15	15,109,120	2,132,698
28	2,272,229	592,731
All	30,055,937	3,043,007

Source: Computed by the author

Figure 6: Relationship between Statutory GST Tax Rate and the Difference between Tax Liability (as % of TV) and Statutory Tax Rate


Note: *-Tax Liability Rate = Tax Liability/ Taxable Value*100

Source: Computed by Author

3.4 Scenario IV

This is an extension of the scenario III. In this scenario, we look for a suitable tax rate in the highest tax rate to compensate for tax liability loss (i.e., Rs. 192,630 Crore with reference to the baseline scenario) due to merging of 12 per cent and 18 per cent tax rates into 15 per cent. In addition to the existing tax liability under 28 per cent tax rate of Rs. 592,731 Crore

(Table 12), we add additional tax liability of Rs. 192,630 crore under 28 per cent tax rate and look for a suitable tax rate which could generate the aggregate tax liability of Rs. 785,361 crore, at given taxable value under 28 per cent tax rate (i.e., Rs. 2,272,229 crore) (Table 13). It is to be noted that in this exercise we assume that the distribution of taxable value across tax rates and aggregate taxable value will prevail as it is in the baseline scenario. We find that the highest tax rate needs to be raised to 37.55 per cent (approximately 38%) to compensate for revenue loss on account of merging 12 per cent and 18 per cent tax rates into 15 per cent. At 37.55 per cent statutory tax rate, tax liability rate will be 34.56 per cent.

Table 13: Estimated Tax Liability in Scenario IV

Tax Rate (%)	Taxable Value (Rs. Crore)	GST (CGST+SGST+ IGST-domestic) Liability (Rs. Crore)
	2020-21	2020-21
0	5,052,403	1,503
0.1	69,129	35
0.25	255,475	506
3	1,836,418	52,351
5	5,461,164	263,183
15	15,109,120	2,132,698
37.55	2,272,229	785,361
All	30,055,937	3,235,637

Source: Computed by the author

3.5 Scenario V

This is an extension of the scenario III. In this scenario, we look for a suitable tax rate in the 5 per cent tax rate to compensate for tax liability loss (i.e., Rs. 192,630 Crore with reference to the baseline scenario) due to merging of 12 per cent and 18 per cent tax rates into 15 per cent. In addition to existing tax liability under 5 per cent tax rate of Rs. 263,183 crore, we add additional tax liability of Rs. 192,630 crore and look for a suitable tax rate which could generate the aggregate tax liability of Rs. 455,813 crore, at given taxable value under 5 per cent tax rate (i.e., Rs. 5,461,164 crore) (Table 14). It is to be noted that in this exercise we assume that the distribution of taxable value across tax rates and aggregate taxable value will prevail as it is in the baseline scenario. We find that the 5 per cent tax rate needs to be raised to 8.81 per cent (approximately 9%) to compensate for revenue loss on account of merging 12 per cent and 18 per cent tax rates into 15 per cent. At 8.81 per cent statutory tax rate, tax liability rate will be 8.35 per cent.

Table 14: Estimated Tax Liability in Scenario V

Tax Rate (%)	Taxable Value (Rs. Crore)	GST (CGST+SGST+ IGST-domestic) Liability (Rs. Crore)
	2020-21	2020-21
0	5,052,403	1,503
0.1	69,129	35
0.25	255,475	506
3	1,836,418	52,351
8.81	5,461,164	455,813
15	15,109,120	2,132,698
28	2,272,229	592,731
All	30,055,937	3,235,637

3.6 Scenario VI

This is an extension of the scenario III. In this scenario, we first raise the highest tax rate to 30 per cent from 28 per cent. The increase in the highest tax rate gives us an additional tax liability of Rs. 39,387 crore under the highest tax rate, at given taxable value. At 30 per cent statutory tax rate, tax liability rate becomes 27.82 per cent. In the next step, we look for a suitable tax rate in the 5 per cent tax rate to compensate for net tax liability fall (i.e., Rs. 153,243 crore = Rs. 192,630 Crore – Rs. 39,387 crore) due to merging of 12 per cent and 18 per cent tax rates into 15 per cent and increasing the highest tax rate to 30 per cent. In addition to existing tax liability under 5 per cent tax rate of Rs. 263,183 crore, we add additional tax liability of Rs. 153,243 crore and look for a suitable tax rate which could generate the aggregate tax liability of Rs. 416,426 crore, at given taxable value under 5 per cent tax rate (i.e., Rs. 5,461,164 crore) (Table 15). We find that the 5 per cent tax rate needs to be raised to 8.05 per cent (approximately 8%) along with increasing the highest tax rate to 30 per cent to compensate the revenue loss on account of merging 12 per cent and 18 per cent tax rates into 15 per cent. At 8.05 per cent statutory tax rate, tax liability rate becomes 7.63 per cent.

Table 15: Estimated Tax Liability in Scenario VI

Tax Rate (%)	Taxable Value (Rs. Crore)	GST (CGST+SGST+ IGST-domestic) Liability (Rs. Crore)
	2020-21	2020-21
0	5,052,403	1,503
0.1	69,129	35
0.25	255,475	506
3	1,836,418	52,351
8.05	5,461,164	416,426
15	15,109,120	2,132,698
30	2,272,229	632,118
All	30,055,937	3,235,637

Source: Computed by Author

5. Conclusions

Restructuring of GST rates may be an idea whose time has come to help improve revenue mobilization. In the present paper, we attempt to understand revenue implications of GST rates restructuring based on available GST administration data with us. Given data limitations, these results are indicative.

Estimates in this paper show that Merging 12 per cent and 18 per cent tax rates into any tax rate lower than 18 per cent may result in revenue loss. Since 18 per cent tax rate holds two-fifth share in total taxable value (or taxable turnover) vis-à-vis 12.3 per cent by 12 per cent tax rate, if the merged tax base attract 15 per cent tax, there will be revenue loss. To compensate the revenue loss, if the GST council considers increasing the highest tax rate (i.e., 28% at present), the highest tax rate needs to be increased to 37.55 per cent (or approximately 38 per cent). Alternatively if the council considers increasing 5 per cent tax rate, it needs to be increased to 8.81 per cent (or approximately 9 per cent). Alternatively, the council may consider three rate structure of GST by adopting 8 per cent, 15 per cent and 30 per cent and it may help to achieve revenue neutrality. In all scenarios, we assume that special rates will continue as prevalent at present. Sequencing the transition to new GST rate structure will be important to minimize the costs associated with tax compliance, tax administration and economic distortions. Consultations of stakeholders would be another important aspect before introducing new GST rate structure.

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Appendix I

Methodology for Adjustment of All India Taxable Value and Tax Liability using information of Delhi

We estimate share of taxable value of each tax rate in total taxable value of all India for Q3 of 2018-19 onwards by using the change in share of taxable value of each corresponding tax rate in total taxable value of Delhi. Here, our assumption is that change in the share of taxable value of all India in total taxable value follows similar pattern as that of Delhi. We use Q2 of 2018-19 as a base for all India and estimates quarterly figures of share in taxable value in total taxable value and tax liability (as % of taxable value) for Q3 of 2018-19 onwards. Since for Delhi, there is no entry of taxable value and tax liability against 0.1 per cent tax rate, we assume that the share 0.1 per cent tax rate in taxable value and tax liability (as % of taxable value) remains same as that of in Q2 of 2018-19. Since, 0.1 per cent tax rate holds small share in taxable value and tax liability (as % of taxable value) of 0.1 per cent tax rate is small the assumption is not something unjustified. The underlying methodology of adjustment is presented as follows:

$$ATV_{i(t+1)} = ATV_{it}(1 + r_{it})$$

$$r_{it} = \left(\frac{DTV_{it}}{DTV_{i(t-1)}} - 1 \right)$$

$$\sum_i ATV_{i(t+1)} = z$$

Where,

ATV_{it} is the share of taxable value of i th tax rate in total taxable value of all India at t th quarter

DTV_{it} is the share of taxable value of i th tax rate in total taxable value of Delhi at t th quarter

r_{it} is the change in share of taxable value of i th tax rate of Delhi at t th quarter

To obtain sum of adjusted share of taxable value of all India across tax rates to 100 per cent, we make suitable adjustments in estimated share of taxable value of each tax rate by multiplying a fixed proportion $(100/z)$.

We take weighted sum of quarterly adjusted share of taxable value of each tax rate to get annual share taxable value in total taxable value. Shares of each quarter in annual GST collection (domestic components only) are used as weights.

We have made similar adjustments in tax liability rate (tax liability as % of taxable value) for all India in each tax rate using tax liability rate of Delhi for Q3 of 2018-19 onwards.

Appendix Tables
**Table A.1: Component-wise Revenue Subsumed into GST of the Union Government
(Rs. Crore)**

SL. No.	Tax Components	2016-17	2017-18 (April - June)
I	Total Central Excise Duty (on goods-subsumed under GST) [Cash (PLA) Part Only] (Exclusive of Cess/ Surcharge)	97,872	16,271
II	Central Excise - Cess/ Surcharge (on goods subsumed under GST)	45,445	16,407
III (I+II)	Total Central Excise Duty (on goods-subsumed under GST) [Cash (PLA) Part Only] (Inclusive of Cess/ Surcharge)	143,317	32,678
IV	Customs Duty Paid (Non-POL) (CVD & SAD Part Only)	143,437	57,242
V	Services Tax (Exclusive of Cess but inclusive of other receipts) [Cash (PLA) Part Only]	234,240	74,151
VI	Services Tax - Cess	20,259	7,077
VII (V+VI)	Services Tax (inclusive of Cess and other receipts) [Cash (PLA) Part Only]	254,499	81,228
X (III+IV+VII)	The Union Government Revenue subsumed under GST	541,253	171,148

Source: Compiled by the author based on information shared by the Fifteenth Finance Commission.

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