REVENUE IMPLICATIONS OF GST AND ESTIMATION OF REVENUE NEUTRAL RATE: A STUDY OF KARNATAKA

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Preface

This study sponsored by the Karnataka Government was carried out by Dr. Pinaki Chakraborty and Jeejabai Manay.

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I. INTRODUCTION

After the introduction of Value Added Tax (VAT) in the fiscal year 2005, introduction of Goods and Services tax (GST) as proposed would be an important milestone in the reforms in indirect taxes in India.[1] Since introduction of VAT is a significant reform in indirect taxes over the pre-existing central excise duty and service tax[2] at the national level and the sales tax system at the state level, the GST will indeed be a further improvement in bringing goods and services together under the VAT net.

The present VAT regime at the state level taxes only goods and not services. Exclusion of services, from the VAT base is a major weakness of the present VAT design. Exclusion of services from the base, even if the states are empowered to tax selected services on a standalone basis, would not eliminate the problem of cascading from the tax system (Rao: 2004). Exclusion of services from the base also discriminates goods against services and has given rise to serious problems in separating out the service component in sale of goods taking place in several instances, e.g., in the case of execution of works contracts, services of food in restaurants and so on (Bagchi: 1997).

In order to have an integrated GST, Union Finance Minister made an announcement in the central budget that GST would be introduced from April 1, 2010. Both central and state governments have been working together to prepare a road map for the same. Although the design of GST is still not clear, available indications suggest that it will be a dual GST with both centre and states taxing within an overlapping tax jurisdiction. The objective of this study is to arrive at a revenue neutral rate for the state of Karnataka during the proposed GST regime. In other words, this study is an attempt to

[1] Introduction of Value Added Tax at the central and the state level has been considered as a major step towards indirect tax reforms in India.
[2] Centre is levying service tax on 104 selected services.

examine the tax base for services at the state level, taking Karnataka as a case study. While undertaking this exercise the study will also critically evaluate the available alternative estimates provided by the Thirteen Finance Commission appointed GST task force.

Estimation of tax base for services is not easy because of various reasons. Apart from the issue of exempted services; we also need to have a clear understanding of how much of the total service components being taxed under the present VAT regime as part of the services go into the goods and a part of the goods go into services are already being taxed under the present VAT regime. For example, cost of services consumed in the manufacturing activity is already being taxed both under CENVT and VAT. Similarly, cost of services consumed in the trade is included in the sale price of goods sold to consumers and is taxed under VAT. So the study needs to adjust the base of services for these kind of inter-sectoral flow of goods and services already being taxed from the tax base. This study has used the all India input-output Table for the year 2006-07 to find out the flow of goods into services sector and the flow services to the goods sector and excluded them from the tax base.

Apart from the introduction, this report has six sections. Section II, critically evaluates the alternative estimates provided by the Thirteenth Finance Commission's task force and others on GST base and revenue neutral rates. Section III discusses the existing consumption tax system in Karnataka and the revenue mobilization from consumption taxes. Section IV analyses the proposed design of GST. In Section V, the data base and the methodology for the estimation of revenue neutral rate is discussed. This section also reports the estimated revenue neutral rate. Section VI summarises the findings and draws conclusions.

II. GST Taskforce Methodology of Thirteenth Finance Commission: A Critique

Comments on GST Taskforce Report

The methodology and the estimates of the RNR for GST by the GST Taskforce of the Thirteenth Finance Commission is a major exercise towards quantification of GST rates. We have reviewed the methodology and the estimated RNR. The study uses profit and loss account of producers available with the Income Tax Department to estimate the GST base. For the purpose of estimation of GST base, the study uses following methods: (a) subtractive-indirect method, (b) consumption method, (c) revenue method, and (d) Shome Index method. Using these methods, the study uses range of variations in the GST base and resultant RNRs. Our comment is not on the several methodologies of RNR estimates but on the estimation of base which determines the RNR. To begin with, if four different methods provide four different estimates, it is not appropriate to take an average of these estimates and present the same as the final estimate. Further, what is estimated as Shome Index method, is more of wishful thinking rather than an estimate. Shome Index as described argues that the design and administration of the tax should aim for the ½ mark of the statutory rate. Inferring a base through this in principle in our view is inappropriate. In other words, Shome Index works with a base and the rates to suggest what the likely revenue collection can be. Therefore, our comments do not cover these estimates. For the rest of the exercise, our comments are listed below:

The gross value of output of the sample entities as reported in the report is Rs 91, 12, 385 crores in 2007-08. The report compares this figure to a figure for value of output from the National Accounts Statistics. In this context, it needs to be mentioned that National Accounts Statistics does not provide any figure for the total value of output in the country. Value of output is provided for few sectors listed below in Table 1. As evident from the Table, the factor of adjustment (the ratio between value added and the value of output) varies widely across sectors. Further, the values of output associated with any level of GDP would vary significantly depending on the structure of industry- a vertically integrated industry would have lower levels of output given the levels of GDP and vice-versa. Thus, the discussion on the appropriateness of the CSO number vis-à-vis gross value of output of sample entities from the income tax department does not appear valid. Also arriving at the gross GST base based on gross value of output may give over/ under estimation of base due to the reasons discussed above.

Table 1: Sectoral Value of Output and Sectoral GDP

(Rs. Crore)

	Value of output	GDP	Factor of adjustment
	(1)	(2)	(1)/(2)
Agriculture and allied	894420	718278	1.25
Mining and quarrying	155075	118276	1.31
Manufacturing registered	2459813	520689	4.72
Manufacturing unregistered	944794	221169	4.27
Construction	1070400	365735	2.93
Communication	40610	27808	1.46
Total	5565112	1971955	2.82
Nonagricultural sector	4670692	1253677	3.73

Source: National Accounts Statistics (2009), CSO.

In our view, instead of arriving at the GST base from the data on profit and loss account of producers available with the Income Tax Department, the direct way would be to estimate the incremental base available for the taxation of services. With that one should be able to add the realistic base of goods as goods are already being taxed. This gross base needs to be further adjusted for the input tax credit, cascading and final sales of output still available for input tax credit to arrive at the net base available for taxation.

The GST Taskforce report talks about the input tax credit for capital goods. The estimate of the value of capital goods purchase estimated in the report appears to be a gross underestimation. The value of capital goods purchase is estimated at Rs. 457505 crore and that work out to be only 25 percent of the gross capital formation in the year 2007-08. Lower capital good purchase would mean higher net base for taxation and correspondingly lower revenue neutral rate. For a realistic estimate of net base, one needs to have a re-look at the quantum of capital goods purchase and corresponding input tax credit. The study also reports Rs. 17,13,887 crore worth intermediate input purchase from the unregistered dealers. Since both income tax authorities as well as indirect tax authorities would be uncomfortable with documentation for expenses from the informal sector – a sector which cannot provide appropriate bills, it is not clear, how the study could assume such large proportions for purchases from informal sector. While there are no substantive studies to document the extent of transactions between the formal and the informal sector, however they may be defined, there is recognition of the possibility of very limited interactions between these sectors, especially in the context of operation of VAT regimes. Conservative assumptions on this account would therefore be more appropriate. Further, it should be recognized that a GST regime, if it leads to formalization of the economy, would actually result in a reduction in any such potential tax revenues.

The size of the unregistered manufacturing sector in terms of value of output as per the CSO data for the year 2007-08 is only Rs. 944794 crore and the GDP of the sector is Rs. 221169 crore. The major limitation of the study is that value of purchases from the unregistered dealer is taken at Rs. 16, 82145 crore. This means not only the entire unorganized manufacturing sector sells to the formal sector but also unorganized services will have a sale worth around Rs. 700000 crore to the formal sector. This appears to be completely unrealistic assumption and before arriving at such number one needs to quantify the linkage between the formal and informal sector with regard to the purchase of goods and services.

One is also not certain whether the profit and loss account data available with the Income Tax Department also has the sectors which are exempt or will be exempted from indirect taxation. There may be business accounts paying income tax but fall in the exempted category when it comes to indirect taxation and vice-versa. Unless this is adjusted, the estimation of base will not be correct.

The data further needs to be adjusted for the construction sector, financial services and real estate and dwellings. In the case of construction sector it should only be the value added in the construction, in the case of financial services it should be adjusted for the interest on advances which would not be part of the GST and in the case of ownership and dwellings a large part of it is notional income and would not be available for taxation. The Taskforce Report does not present any views on whether these sectors would be brought under the tax net. Real estate sector has always been dogged by issues of valuation. Further, clearly, all real estate sales cannot be subject to GST, since there would be stamp duty paid on these transactions already. If sales in old property too is sought to be brought under GST, the valuation issues will remain. Without addressing these concerns, it is not clear whether a slippery base such as real estate should be brought into the tax net for estimating the base and the resultant rates.

Finally, the estimated RNR will also have to be adjusted for the various design issues discussed in the discussion paper, particularly taxes that will remain outside the GST. It appears that Goods and Passenger Tax and Electricity Duty will not form part of the GST. The estimate required to be adjusted for such changes in the design of taxes.

Comments on Vivek Johri's Estimates

This estimate seeks to quantify the size of the base for GST in India. The approach used is based on the input-output flows matrices for the year 2006-07, the latest available tables. These tables provide the estimate of the input use of various commodities and services as well as the composition of final demand, i.e., demand in the form of private final consumption expenditure, government final consumption expenditure, investment, exports and imports. The estimate here pulls together the figures for private final consumption expenditure and government final consumption expenditure on taxable commodities and services and makes corrections for input taxes in the case of exempt goods and services. There are two problems with the proposed corrections which are discussed below:

1. The Input-output table provides an estimate of private final consumption expenditure and government final consumption expenditure by commodities. These figures represent values of output sold and not value added. For instance, if there is purchase of bread in private final consumption expenditure, this includes

the value of inputs going into the production of bread as well as value added by the manufacturer of bread. One of the proposed corrections in the note – inclusion of value of exempt inputs used in the taxable supplies – however, assumes erroneously, that these figures represent value added. This correction therefore is not required. Once this correction is eliminated, the revised numbers for the tax base for GST in India is 16.88 crore, on which the corrections for threshold exemption needs to be applied. The note here assumes the correction to be 10 percent of the base. The corrected base would therefore be 15.2 crore.

2. The second correction captures the extent of taxable inputs used in exempt supplies. Since for exempt supplies, there is no scope for claiming input tax credit, these taxes would actually accrue to the government. However, it is important to note that the correction with respect to the use of taxable inputs in exempt supplies has to apply to the total value of domestic supply of the exempt supply not just the consumption component. When an exempt supply is used for investment, the taxes on its inputs would be an additional cost for the purchaser or additional revenue for the government, since input tax credit mechanism does not work here. It is not clear from the discussion on what exactly the correction has been applied. From our reading of the numbers, the correction would be about 4.97 lakh crore and not 3.37 lakh crore. If this correction is to be applied, the revised base would be 18.48 lakh crore and 16.63 lakh crore net of threshold exemptions. Given this aggregate base, however, the estimate does not attempt to disaggregate this base across different states. To this extent usefulness of this estimate is limited.

Comments on R. Sekar's Estimates

Mr. Sekar's exercise aims at identifying the total incremental tax base from the inclusion of services in the tax base and uses alternative indicators for assigning this aggregate base across different states. For identifying the total base, the tax collected through the service tax legislation by the central government is taken. An attempt is made to identify some of the additional services that can be included and an estimate of the likely base too is worked out in the exercise. For some of the important services already being taxed by the central government, service specific parameters have been used to assign the revenues to the respective states. For the other services, a set of alternative variables have been used.

The service tax base as estimated from the collections from central government service tax collections have three limitations,

1. The service tax base as reflected by the central tax collections is incomplete – a number of services are not taxed. Using this as a base provides an underestimate of the actual base. It should however be mentioned that correcting for this base by looking at individual services that can be added on to the base – as attempted by this exercise is misleading since, a number of these services like transportation of goods would be almost all claimed back as input tax credit. Further, this approach would continue to depend on a comprehensive listing of all potential services in order to capture or even approximate the total base.
2. The coverage of economic activities in central excise and service tax is different from that under state VATs. One of the major differences is that goods transport and wholesale and retail trades are already in the base. On the other hand, the net payments of service tax to the centre would exclude tax credit for services that are not currently taxed by the states. So the incremental base for the states would be different from the present base of service tax for the centre. From figures provided in the document, it appears that the total tax applicable on service provision would be Rs 51133 crore + Rs 9699 crore, i.e., Rs 60832 crore. From this figure, two kinds of adjustments need to be made:
    - Tax credit to be claimed by the service providers
    - Tax credit to be claimed by the users of these services.

   This would apply to individual services as well, whenever an attempt is made to allocate the revenue service wise across states. Some correction has been attempted by the central excise and service taxpayers, but may not be appropriate. Given the structure of these two taxes, the flow of credit is often impeded for want of appropriate invoices.

3. There are alternative measures used for the assigning the total incremental base between the states. There are references to annual income share and annual expenditure share in estimating the base for service by state – it is not clear which variables these exercises are referring to. Further, in constructing a composite variable – 60 percent weight to NSS data and 40 percent to services GSDP – some fine tuning can be attempted. Since a number of the services are being allocated on the basis of other parameters – where most of these services span more than one state, the share of NSS data can be suitably increased to reflect this fact. For the service specific cases, some fine tuning is possible:
    - For telecommunication services, the revenue from each of the states can be derived and should be used rather than the number of connections – this can be derived by applying the average revenue per connection to the number of connections for GSM, CDMA and other connections
    - It is not inappropriate to assume that business and auxiliary services are in proportion to the total GSDP of a state – not sure how consumption of electricity provides a better indicator, especially if it is overall consumption of electricity. For instance, in some agricultural states, considerable amount of electricity can be used by these sectors not necessarily amounting to taxable activities
    - Any tax collected on the transportation of goods in principle would not accrue to any one since there will be subsequent ITC for these taxes. These taxes therefore should not represent additional tax base, especially for the states.

Consumption of HSD a reasonable proxy but can be misleading since with variable rates of state taxes, there is discussion of a lot of cross border trading in diesel.

III. EXISTING CONSUMPTION TAX SYSTEM IN KARNATAKA

Having discussed the Taskforce Report in the last section, in this section we discuss the consumption tax system in Karnataka. Consumption tax system in Karnataka administered by the Commercial Tax Department consists of seven taxes: Karnataka Value Added Tax; Sales Tax, Karnataka Tax on Entry of Goods (KTEG); Tax on Luxuries (Luxury Tax); Entertainments Tax (ET); and the Betting Tax (BT). A few other consumption tax viz. Tax on Electricity and Duty on Liquor are administered by the Karnataka Power Transmission Corporation Limited (KPTCL) and by the State Excise Department respectively. In addition, Karnataka receives revenues from the Central Sales Tax (CST), levied by the Central Government and collected by the state on interstate sales. All goods produced and consumed in Karnataka are taxed under the Karnataka VAT Act 2003. However the VAT base excludes:

i. Interstate sales or exports to other states (which are subject to central sales tax);
ii. consignments and branch transfers;
iii. exports to other countries;
iv. specified goods, which are exempt under Schedule 1 to the KVAT Act 2003.

Some of the goods brought into the local areas of Karnataka, or "imports" into the state from other states are subject to the Karnataka Entry Tax on Goods (KTEG).

Almost all the services are excluded from the tax base as the states are not empowered to tax services. However, three services available for taxation in the state are entertainment, electricity, and transport of goods and passengers by inland roads and waterways. While entertainment is taxed by the Commercial Taxes Department, the latter two are taxed by other departments. A few other services also taxed in Karnataka by the Commercial Taxes Department are Works Contracts; Leasing (under VAT) and Hotels, Health Clubs, Marriage Halls (under the Luxury Tax), Entertainment (under the Entertainment tax). As per the Empowered Committee decision, Tax on Electricity and Goods & Passenger Tax are not to be subsumed in GST.[3]

VAT rates in Karnataka are three, viz., 1 percent, 4 percent and 12.5 percent. While, the 1 percent rate is applicable to jewellary and other precious metals, the 4 percent rate is applicable to inputs and some items of basic necessities, the 12.5 percent

[3] This has been communicated us by the Government of Karnataka that a decision has been taken on 10th November, 2009 that both these taxes will not be subsumed in GST.

rate is the general rate applied to the residual commodity group. Apart from this, in the case of entertainment tax, various specific or ad valorem rates are applied, depending upon the type of entertainment. In addition concessional rates and complete exemptions also prevail in case of certain other entertainment category. In the case of Betting, the rate of tax is 25 percent of the total amounts of bets and also 25 percent of the bet amounts on licensed bookmakers. Further, goods that come under luxury tax are cigarettes/tobacco products and gutka.

These apart, entry tax is levied in lieu of "octroi" - (which was a local levy earlier), by Presidential assent, at the following rates: 2 percent on "scheduled" goods (textiles, tobacco products, and sugar). In addition the goods that are also taxed under this tax are raw materials, machinery, packing materials, chemicals, petroleum products, motor vehicles, pharmaceutical goods, electrical goods, hardware and general goods, etc. The rate of KTEG, however, cannot exceed 5 percent, under Presidential assent. CST rate on interstate sales which is 2 percent at present will have to be zero by the end of the fiscal year 2009-10. The Structure of revenues mobilized from all these sources is given in table 2. As is well known, major share of the revenues comes from KVAT, followed by sales tax and CST. These three together constitute more than 85 percent of the total revenues collected by the Commercial Tax Department. The other predominant component is KTEG (Karnataka Tax on Entry of Goods). Luxury Tax, Betting Tax and Entertainment Tax constitute miniscule proportion of the total taxes collected and to be subsumed under GST. As Goods and Passenger Tax and Electricity Duty are not to be subsumed under GST, the RNR estimation will have to target revenues of Rs. 10753 crores, consisting of Rs. 9125 crores of VAT revenues, Rs. 1262 crores of CST revenues, Rs. 353 crores of Entertainment tax and Rs. 13 crores of Betting and Luxury tax, with respect to the year 2007-08.

Table 2: Structure of Taxes

	2006-07			2007-08		
	Revenues (Rs. crore)	Distribution (%)	Growth (%)	Revenues (Rs. crore)	Distribution (%)	Growth (%)
KVAT	7161.5	52.1	60.4	9125.2	58.6	27.4
CST	1498.9	10.9	19.4	1262.1	8.1	-15.8
Sales tax	3101.4	22.6	-25.3	3506.7	22.5	13.1
ET	56.1	0.4	22.5	71.2	0.5	26.8
AIT	1.4	0.0	-21.7	3.7	0.0	167.9
PT	392.3	2.9	18.2	451.4	2.9	15.1
KTEG	1078.2	7.8	11.2	837.3	5.4	-22.3
LT	220.0	1.6	94.7	231.8	1.5	5.4
BT	37.1	0.3	15.6	46.1	0.3	24.3
BT (Lottery)	123.7	0.9	63.1	31.3	0.2	-74.7
Spl. ET	69.0	0.5	63.1	0.0	0.0	-74.7
Total	13739.5	100.0	19.4	15566.8	100.0	13.3

Source: Commercial Taxes Department, Karnataka.

III. DESIGN OF GST

Arriving at an appropriate design of GST is an important pre-condition for the desired outcome of the tax. Also it needs to be kept in mind that it is not easy to arrive at a consensus on a design of GST in a vast federal country like India with multiple tax authorities both across the levels of governments and also among the states. The Empowered Committee of State Finance Ministers is trying to arrive at a consensus on the design of the new tax system. A number of decisions have been made and it appears that an agreement emerged on the more important structural aspects of the GST. As per the consensus arrived at, the central government and states are contemplating a dual GST with following features:

- Two tax rates, one levied by the centre, the other levied by the states
- All transaction of goods and services will be subject to central and state GST
- Taxes paid against central and state GST and ITC thereon could be utilised only against the payment of central and state GST
- Cross utilization of ITC is not allowed
- Threshold limit prescribed under the state VAT may be adopted under the central GST also

- The compounding scheme/composition for the purpose of GST should be designed keeping in view of the present threshold limit

As per the design, the central and state taxes to be subsumed in GST are:

- Central excise duty
- Additional excise duty
- Service tax
- Additional customs duty (CVD)
- Special additional duty of customs (SAD)
- Surcharge, cess
- VAT/sales tax, entertainment tax, luxury tax, taxes on lottery betting and gambling, state cesses and surcharges.

As far as taxing of items outside the VAT net but within the existing sales tax system is concerned, following norms have been proposed:

- States continue the existing practice to levy tax on alcoholic beverages.
- Tax on tobacco products should be subject to GST with ITC.
- In case of petroleum products, the existing practice continues.
- Exports should be zero rated.

Inter-state transactions of goods:

- The seller in the exporting state collects GST for both the central and state government and deposits in designated bank to the credit of the state government of the importing dealer.
- This information will also be available to the state government of the importing dealer through GST portal where the bank of the exporting state uploads information.

- The purchasing dealer can claim ITC from its state government.

Apart from this, the design talks about uniform procedures for collection of both central and the state GST. In the proposed model, manufacturers for goods with a gross turnover exceeding 1.5 crores will belong to both the centre and the state and the other tax payers for goods will be assigned exclusively to the states for other procedures like registration etc. for both central and state GST. The present threshold limits prevalent in states (which differ) may be adopted for GST and the same thresholds applicable to goods should be applicable to Services also in the respective states. The other procedural aspects like returns, TIN, assessment, enforcement, audit, are spelt out. Composition limits will be as prevalent in different states, but would have a floor on rate of tax and a cap on the upper limit of the said scheme.

Taxes or levies to be subsumed should be in the nature of indirect taxes either on the supply of goods or on the supply of services and such taxes or levies should be part of the transaction chain from the point of import/manufacture/production of goods or services to the point of their consumption. This sub summation should result in free flow of ITC both at the intra and interstate levels. Revenue fairness for both centre and states should be there and fees that are not related to either supply of goods or supply of services should not be subsumed under GST.

It is proposed that in case of services of intra-state nature, the model to be adopted for taxing of inter-state transactions of goods and services, the Empowered Committee has accepted the Integrated Goods and Services Tax Model (IGST) which was recommended by the Working Group of concerned officials of Central and State Governments. The scope of this model is that the Centre would levy IGST, which would be Central GST + State GST on all inter-state transactions of taxable goods and services. Appropriate provision will be made for consignment or stock transfer of goods. The inter state seller will pay IGST on value addition after adjusting available credit of IGST, CGST and SGST on his purchases. The Exporting State will transfer to the Centre the credit of SGST used in the payment of IGST. The importing dealer can claim credit of

IGST while discharging his output tax liability in his own state. The Centre will transfer to the importing state the credit of IGST used in the payment of SGST. This model would ensure that the SGST amount will be transferred to the destination state.

IV. ESTIMATION OF REVENUE NEUTRAL RATES: METHODOLOGY

An exercise of this nature requires an estimation of correct base for GST which in any form of taxation is the key for the measurement of tax potential. Theoretically, the applicable base of a GST depends on a number of factors related to its design, e.g., whether it is origin or destination based, of the income or consumption type, implemented with a credit invoice or subtraction method and contains many or few exemptions. As discussed, the proposed GST will be destination based, consumption type system implemented with a credit invoice method, like the VAT as continuing in the present context.

The starting point for the estimation of base is the gross domestic product of an economy, in the case of states the gross state domestic product, since it represents the sum total of the value added in the production of goods and services within a state economy. However, for a destination based consumption type GST, the legitimate question that arises is whether final consumption expenditure, which represents the sum total of value added of domestic consumption is not a more direct starting point in estimating the base. Though at the outset it appears to be correct, in practice, it depends to a large extent on the scope and the nature of exemptions under consideration. For a destination based consumption type of GST levied comprehensively with no exemptions, the base is simply the final consumption on goods and services, which may not be possible in the real life situation. Like in the case of goods, even in the proposed GST regime, there are many services that would be exempted from the service taxation.

Generally, there are three alternative methods of estimating base of GST, viz., GDP adjusted for exports and imports, the consumption expenditure and the taxable turnover of goods and services. GDP adjusted for external sector transactions would represent the total expenditure on private consumption, government consumption, fixed capital formation and changes in business inventories. The estimated GDP adjusted for the value of services of exempted sector, government wages, fixed capital formation and net consumption abroad would precisely define the GST base. Although GDP data is available from the national account statistics, it is very difficult to get disaggregated data on exempted sectors and on value of goods and services to be excluded from GST base. Use of GDP, thus as GST base becomes problematic even at the national level GST calculation. It becomes even more difficult in the case of states as there is no reliable data available on exports and imports from the states apart from the items to be excluded from the estimation of GST base within the exempted sector from the state GSDP. In case of Karnataka, it has been argued that a substantial portion of the IT services are exported out of the state.

Another alternative, which can be used as the base of the GST, is the consumption expenditure on goods and services. The consumption expenditure data is available at the state level as well as at all India level. The state specific consumption expenditure data can be used as a proxy for the base of GST. The aggregate private consumption expenditure data for the country as a whole is provided by the National Accounts Statistics (NAS). State wise consumption expenditure data is also available from national sample survey on 5 yearly basis. This method of estimating GST is called consumption expenditure approach. However, the consumption expenditure method is not free from limitations, primarily due to the non-availability of data on exempted commodity consumption and exemption of dealers with turnover below the taxable limit. Given these limitations, it is difficult to estimate the GST revenues of individual states through consumption expenditure approach.

Also National Sample Survey consumption expenditure data suffers from the problem of underestimation of consumption expenditure for both goods and services when compared with the private final consumption expenditure provided in the national accounts statistics. In fact, as per the 61st round (2004-05) consumption expenditure survey, the total private final consumption expenditure was Rs. 931415 crore and as per the National Accounts Statistics, the same was Rs. 1873729 crore. In other words, NSS estimates of private final consumption expenditure was 49.7 per cent lower than the NAS estimates. Given this gross underestimation of base by the NSS consumption expenditure survey, we have not used it. Also the listing of goods and services in the NSS schedule is quite different than the actual taxable base of goods and services. Also as the consumption expenditure data reflects household consumption, relying on it for the purpose of tax base would be erroneous. There exist issues of concordance between the two estimates based on their methodologies. While NSS is a household survey and their estimates of private consumptions are based on only household information and does not include consumptions of the private non-profit organisations serving the households, NAS on the other hand is derived from a commodity flow approach.

It is possible to estimate GST revenues through "tax turnover" method. Advantage of tax turnover method is that it is based on the data of taxable turnover of goods available with the respective sales tax department of states on goods. As under GST, like in VAT, tax paid on input by a VAT registered dealer would have to be rebated, one has to estimate the inputs eligible for input tax rebate from the tax turnover data. It is also to be noted that inputs eligible for credit will be the taxable inputs alone. Thus, one has to determine not only the input component from the taxable turnover, but also the structure of input used, viz., taxable input and non-taxable/exempted inputs. Another issue that requires attention is the quantification of locally produced inputs and the use of imported inputs within the taxable inputs as they would be treated differently.

In the case of goods, as it is well known, taxable goods produced within a state is sold via (i) local sales, (ii) taxable inter-state sales, (iii) consignment/branch transfers and (iv) international exports. In the present system, data available with the sales tax department of Karnataka, though provided commodity wise/dealer wise data on general sales tax and central sales tax, and also eligible input tax credit, we have used an indirect approach to arrive at the taxable turnover in Karnataka. We have used weighted average tax rates for the estimation of taxable turnover from the data on tax collected under Karnataka VAT excluding those which would not form part of the GST, viz., liquor, diesel, petrol and ATF. Before we go into the methodology and the details of the estimation procedure, it is important to recollect, the existing taxes that would form the base of GST.

Present Tax Base

All goods produced and consumed in Karnataka taxed under VAT which excludes:

- Interstate sales
- Consignment and branch transfers
- Exports to other countries
- Specified goods which are exempt from tax
- Some of the goods brought into the local areas of Karnataka subjected to entry tax.

Services in Karnataka

- Three services are available for taxation: entertainment, electricity and transport of goods and passengers.

Other taxes in the nature of services:

- Works Contract Tax
- Leasing
- Luxury tax on Hotels, Health Clubs, marriage Halls
- Entertainment
- Betting
- Goods and Passenger tax

Estimation of Service Sector Tax Base for Karnataka

Apart from the taxable turnover of goods estimated according to the method discussed above, we need to estimate the base for the service sector. The list of services given above is not the exhaustive one. These are not the only list of services that would be available for the purpose of taxation once GST is introduced. Our objective is to quantify the available base of GST for the state of Karnataka with a comprehensive list of services. To estimate the comprehensive base, we have started with the National Industries Classification code (NIC) of 2004 to identify what constitutes service sector at the national level (See Box: 1). This is done to obtain the exhaustive list of services available for the purpose of taxation and those services to be exempted from taxation. This comprehensive listing as per the NIC code eliminates the subjectivity in the estimation of base. Unlike in other estimates, we start with the base not with the taxes.

Box-1: What is Service Sector as per NIC Classification?

NIC-2004	Activity
55	Hotels And restaurants
602	Other land transport
61	Water transport
63	Supporting and auxiliary transport activities: activities of travel agencies
64	Post and telecommunications
659	Other financial intermediation. [This group includes financial intermediation other than that conducted by monetary institutions.]
66	Insurance and pension funding, except compulsory social security
67	Activities auxiliary to financial intermediation
70	Real estate activities
71	Renting of machinery and equipment without operator and of personal and household goods
72	Computer and related activities
73	Research and development
74	Other business activities
80	Education
85	Health and social work
90	Sewage and refuse disposal, sanitation and similar activities
9191	Activities of religious organizations
9199	Activities of other membership organisations N.E.C.
92	Recreational, cultural and sporting activities
93	Other service activities

Having obtained the NIC classification, we have used the Prowess data base to find out what could be the available value of sales for services for the purpose of taxation at the national level. This is done by mapping NIC code with the Prowess data set. Prowess data set provides data as per the NIC code and we have obtained the sales turnover of services sector at the national level as per the NIC classification from the Prowess data set. It is also to be noted that use of Prowess data base would give the most conservative estimate of the tax base, because it does not include services provided by entities not registered in the stock exchange and also the services that are consumed by the household to a considerable extent. Before we go into the estimation of revenue neutral rate for Karnataka, we need to discuss the Prowess data base.

What is available from the Prowess Data Set?

Prowess is a database of large and medium Indian firms. It contains detailed information on over 20,000 firms. These comprise:

- All companies traded on India's major stock exchanges
- Several others including the central public sector enterprises.
- The database covers most of the organised industrial activities
- Banking
- Organised financial and other services sectors in India.

The companies covered in Prowess account for 75 percent of all corporate taxes and over 95 percent of excise duty collected by the Government of India. Prowess provides detailed information on each company. This includes a database of the financials covering 1,500 data items and ratios per company. Besides, it provides quantitative information on production, sales, consumption of raw material and energy use. The data extracted on the service sector sale at all India level is reported in table 3. As evident, this for the year 2007-08 works out to be Rs. 3,35,189 crores. From the Prowess data set the all India services sector sales as a percentage of service sector's GDP works out to be around 7 percent of GDP and 18.3 percent of service sector GDP.

We have tried to have more realistic estimate of service sector base by mapping service wise tax collection data against the data on sales obtained as per the NIC code and adjusting the turnover/sales based on the tax collected from each category of services. Having done this adjustment, we have obtained revised sales of service sector at Rs. 754883 crore. This is further adjusted for some of the important currently exempt services which would be part of GST base, viz., railway passenger fares and railway freights on exempted commodities and air fares. For all the services, two kinds of adjustments have been made, viz., deduction for taxable inputs used for service provision and deduction of services provided when used as inputs into taxable activities. For these corrections, the input-output table for 2006-07 has been used to derive service specific input-output ratios (see table 4). As evident from the table 3, service sector sale as a percentage of service sector GDP excluding the exempt sector works out to be 68.6 percent. However, this is a gross base and been corrected for inputs and all India net taxable base for services is reported in table 4, which is Rs. 203844 crore. In other words, the net base is only 25.81 percent of gross sales. This is happening because corrections have not only been made for input component but also where the final use would also be used as an input.

Table 3: The Estimate of Taxable Service Sector Base from Prowess Data Set

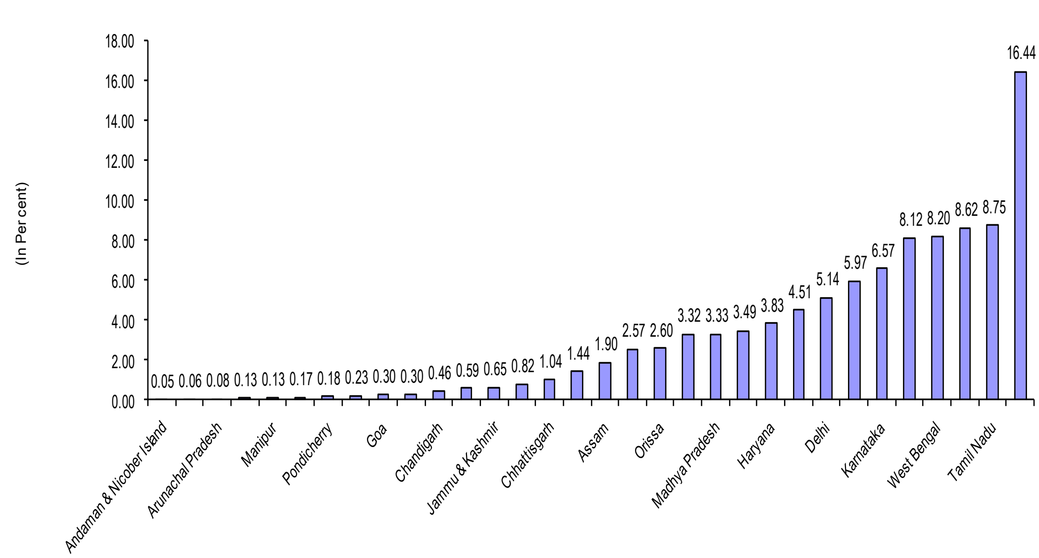
Sales Data: As per NIC Code	2007-08
Service sector sales (all India as per Prowess data)	335189
Revised sales figure	789711
GDP at factor cost	4320892
Service sector GDP	2339468
Service sector sale as % of GDP	18.3
Service sector sale as % of service sector GDP	33.8
Service sector excluding exempt sectors	1151404
SS sales as % of services excl. exempt. services	68.6

Table 4: Input Coefficients and the Adjusted Base

	Taxable inputs/ output ratio	Ratio of sales used as inputs	Net additional base (Rs. crore)
Hotel and restaurant services	0.310535	0.137036	5906
Transport services	0.407863	0.43389334	41279
Post and telecommunication services	0.124205	0.70641745	33211
Financial services	0.07555	0.72606917	39070
Real estate activities	0.046972	0.06472144	23187
Renting of machinery and equipment without operator and of personal and household goods	0.015183	0.64301983	4679
Computer and related activities	0.103611	0.07353309	86181
Research and development	0.045501	0.00088177	54
Other business activities	0.127913	0.84847271	21475
Education	0.127913	0.00088177	15712
Health and social work	0.299092	0.00893679	474
Sewage and refuse disposal, sanitation and similar activities			
Activities of religious and organizations and other membership organizations	0.13176031	0.41057617	868
Recreational, cultural and sporting activities	0.13176031	0.41057617	6282
Total			**278384**
Additional services coming under tax net			
Railways: passenger earnings			11750
Railways: freight on exempt commodities			2471
Air fare			20606
Services excluded in the estimation of base			
Real estate activities			23187
Computer services and related activities			86181
Net Additional Base for GST			**203844**

The real challenge is to arrive at the sale of services within Karnataka for the purpose of taxation. Also when one is talking about the sale within Karnataka, one has to exclude the export sale as that would not form the part of the tax base as state would not have any revenue gain out of these export sales. Given the nature of the service sector in Karnataka, a major part of the service export would be IT export. In order to have a very conservative estimate of base we have excluded the entire computer and related activities from the base. Also we have excluded real estate activities from the sale because of the problems of estimation as discussed in Section II. We have limited the tax base for research and development, education and health services in the base depending on the level of tax collection in these sectors.[4] Having adjusted the base for all these services, we have estimated the share of Karnataka by applying its share in total value added in the service sector in the country (see figure 1). The share of Karnataka in the total service sector value added in the country is 5.75 percent. Having applied this ratio on the all India sale adjusted for all the exemption and services that are excluded for the purpose of taxation, we have arrived the taxable base of service sector for Karnataka.

Figure 1: Share of Karnataka in total Service Sector Value Added



Having obtained Karnataka's share in the total service sector base of the Country, we have added with the base of goods arrived through the weighted average taxation method to arrive at the comprehensive base of goods and services tax. The estimated revenue neutral rate is given in table 5. As evident from the table, in scenario I, it works out to be on an average around 8.8 percent if it is a single rate and 13.2 percent if it is double rate. The Scenario II estimates the taxable base by assuming that 50 percent of the computer and related activities form the part of the taxable base. In Scenario II, the RNRs in single and double rate category declines to 8 and 11 percent respectively. As evident

[4] For example even when the health sector is exempted from service tax, health clubs are not. So such adjustments have been made in the base within the exempted sectors.

from Table 8 these rates are based on the data on revenue provided by the Commercial Tax Department, Government of Karnataka. If we use the Finance Accounts data, the RNR goes up further. If we use the data provided by the Empowered Committee, the rate goes up even further (See Table 5) due to the differences in data from different sources. It is also to be noted that this base has further been adjusted for the central excise duty collection, which would not be available once GST is introduced.

Table 5: RNR Calculation: 2007-08

(Rs. Crore)

	Data provided by CTD Karnataka	**Finance account data 2007-08**	**Empowered committee data 2007-08**
Revenues for RNR	**10753.09**	**10905.53**	**11747.23**
VAT	9125	8842	9094.44
CST	1262	1262	1704
CST to be compensated		1683	2272
Entry Tax	0	0	0.00
Entertainment Tax	353	83	83.25
Betting Tax	1	77	77.41
Luxury Tax	12	220	219.76
Cesses & Surcharges	0	0	0.00
VAT BASE	109457	105203	108195
Base of Services-Scenario-I	12325	12325	12325
GST Base	121782	117528	120520
Base of Scenario-II: If 50 % of Computer and Related Activities are Taxable	25083	25083	25083
GST Base	134540	130286	133278
Scenario-I:			
RNR-GST-Single Rate	8.8	9.3	9.7
RNR –GST-Two Rates	13.2	14.4	15.7
Scenario-II:			
RNR-GST-Single Rate	8.0	8.4	8.8
RNR –GST-Two Rates	11.0	12.1	13.4

V. CONCLUSIONS

Based on the above analysis, it can be concluded that GST rate in a two rate structure would be higher than the general rate of VAT at 12.5 percent. However, there is a scope of trimming the number of commodities in lower rate category, which can give a higher base and correspondingly lower revenue neutral rate. It is also to be noted that the base of service sector estimated here is the most conservative one. It does not have the full coverage of the base of services by the households and of those entities providing services but not registered in the stock market. In reality, with these sectors coming into the GST net and the overall efficiency gain that GST would bring in, the actual taxable base of the service sector will be much higher than what is estimated in this report and accordingly the revenue neutral rate will be lower.

References

Aggarwal, P. K. and A. V. L. Narayana (1995): "Revenue Implications of Alternative VAT Rates and Derivation of Revenue Neutral Rates: Technical Note", National Institute of Public Finance and Policy, New Delhi.

Aggarwal, P. K. (2003): "A Review of Options for Revenue Neutral Rates of VAT for Orissa: Background and Methodology", National Institute of Public Finance and Policy, New Delhi.

Aggarwal, P. K. (2002): "A Review of Options for Revenue Neutral Rates of VAT for Andhra Pradesh", National Institute of Public Finance and Policy, New Delhi.

Ahmad, E, Raju Singh and Benjamin Lockwood (2004): "Taxation Reform and Changes in Revenue Assignments in China", ***IMF Working Paper WP/04/125***, International Monetary Fund, Washington, D.C.

Bagchi, Amaresh (1997): "A State Level VAT? Harmonising Sales Taxes: A Comparison of India and Canada". In Parthasarathi Shome (ed.) *Value Added Tax in India: A Progress Report*, National Institute of Public Finance and Policy, New Delhi.

Rao, M G. (2003): "Reform in Central Sales Tax in the Context of VAT", ***Economic and Political Weekly***, 38(6); pp. 627-636.