Chapter 6

SUMMARY AND CONCLUSIONS

In the preceding chapters an attempt has been made to empirically prove the existence of tax competition behavior among the Southern states in India in choosing their sales tax rates and to examine the impacts of tax competition and tax rate differentials respectively on sales tax rates and sales tax revenues of the Southern states. This chapter summarizes the results of the preceding analysis and provides policy implications of the study. This chapter is organized as follows. Section 6.1 presents the summary and major findings of the study. Section 6.2 compares the results of this study with other studies. Some of the policy implications that may be drawn from the empirical analyses of the study are discussed in Section 6.3. Finally, the major limitations of the present study are stated in Section 6.4.

6.1. Summary and Major Findings

In federations where the sub-national governments such as states have the autonomy to levy (non-benefit) taxes on mobile tax bases, it is not uncommon to find mobility of tax bases across jurisdictional boundaries in response to favorable/ unfavorable tax treatment. An implication is that any single governmental unit by reducing its tax rate or by providing tax breaks can expand/retain its tax base at the expense of others either by way of attracting mobile tax bases in its territory or through preserving existing base. As a counter move, other units will also attempt to reduce their rates, thereby increasing/retaining the tax base. Such an interactive behavior among sub-national governments in making their tax choices is known as inter-jurisdictional tax competition. In the short run, the tax competition leads to rate differentials, which in turn
lead to revenue loss. In the long run, it may lead to a situation similar to the prisoner's dilemma (of game theory) and result in very low or zero tax rates in the competing jurisdictions. It may also lead to other consequences such as distortion of tax choices, under provision of public goods and services and regressive taxation.

In India, the sales tax competition has emerged in two possible ways: One way is to promote trade/sale of goods within the territory of a state by attracting out-of-state consumers, i.e. competition for cross-border shoppers. This occurs by way of reduction of tax rates on sale within a state. Another way is to compete for investments/industries by extending various tax concessions including lower rates on inputs; concession or tax-free sale of finished goods and tax holidays or interest-free loans of the collected tax.

Despite the importance given to sales tax competition in the state tax policy debates in India, a systematic analysis of the problem using appropriate theoretical and empirical model is practically non-existent. This is particularly the case of competition to encourage cross-border purchases. The existing evidences on this type of competition are not only insufficient but also anecdotal. This is in spite of the recent initiatives by the states to put an end to competition for cross-border shoppers by adopting uniform floor-rates of sales tax.

In this context, the present study has attempted to empirically examine the presence of tax competition among the states in the Southern part of India in choosing their sales tax rates and to analyze the impacts of tax-based competition for cross-border shoppers on rate differentials and sales tax revenues of the states. The Southern region of India consists of four border sharing states viz., Andhra Pradesh, Karnataka, Kerala and Tamil Nadu and the Union Territory (UT) of Pondicherry.
Toward this direction, in Chapter 2 a comprehensive survey of major literature, both theoretical and empirical, on tax competition among sub-national governments was presented. The key policy issues relating to tax competition was identified from the review of theoretical works. The survey of empirical literature highlighted the different approaches and various difficulties involved in the empirical verification of the existence of tax competition. It also highlighted issues relating to the empirical measurement of the effect of tax rate differentials on tax revenues. In India, the enabling condition for competition for cross-border shoppers differ from that present in other federations like USA and Canada due to the levy of central sales tax (CST) on inter-state sale transaction by the Indian states. Therefore, in Chapter 3, an analysis of the nature of levy of CST was made to point out how competition was made possible even in the presence of CST. Strategies followed by both the state governments as well as the final consumers to overcome the CST burden to make cross-border purchases a lucrative option were presented. The conditions for competition for cross-border shoppers in the Southern region were also explored.

In Chapter 4, first, the question of whether tax competition exists among the Southern states in choosing their sales tax rates was empirically verified. For this purpose, the tax reaction function was derived based on the Mintz and Tulken’s (1986) commodity tax competition model. Empirical version of the tax reaction function was estimated separately for 21 selected commodities selected for the study. Then the impact of tax competition on commodity wise tax rates was analyzed using statistical measures of mean and coefficient of variation of tax rates. In Chapter 5, the effect of sales tax rate differentials on sales tax revenues of the Southern states was analyzed. A conceptual
model developed in Fisher (1980) and Fox (1986) was utilized to motivate the empirical analysis. From the model estimable form of tax revenue function was derived. Using commodity-wise sales tax revenue data, the tax revenue function was estimated for 11 commodities chosen for the Southern states separately.

The empirical analysis of this study uses the secondary data compiled from published sources. The data on commodity wise general sales tax rates have been compiled from Sales Tax Act/Law Publications. Sales tax revenue details of commodities have been collected from the Department of Commercial Taxes of the study states. The data on per capital state income and proportion of state income originating from manufacturing sector have been compiled from EPW (1998) and Central Statistical Organization (1999 and 2000). Details of state expenditures and transfers from centre have been compiled from Reserve Bank of India Bulletin on State Finances and the details of population from the Census of India.

**The major findings of the study are summarized as follows:**

(a) *Related to Existing Studies:*

1) Despite a well-founded theoretical literature on tax competition among sub-national governments the empirical application of the theory is sparse. This is particularly true for the case of commodity taxes.

2) Some of the conclusions from theory have found no empirical evidence. For instance, the tax competition theory indicates the inefficiently low levels of taxes or race to the bottom in rates in the competition jurisdictions. This has not proved empirically.

3) The existing empirical studies examining the presence interactive tax behavior of the sub-national governments suffer from a serious defect. They all motivate the empirical analysis using either tax competition or yardstick competition frameworks.
However, virtually none of them have proved empirically the underlying cause – tax competition or yardstick competition – of the observed interactive behavior.

(b) Related to Sales Tax Structure in India:

4) In India, the levy of taxes on inter-state sales in the form of CST has the potential to restrict the volume of cross-border purchases made out, particularly by the final consumers. This is in contrast to the situation observed in other major federations like USA and Canada, where there is no tax on inter-state transaction.

5) Notwithstanding the presence of CST, over the years, the state governments using the various charging provisions of the CST Act, 1956 have found convenient ways of reducing the burden of CST in order to facilitate cross-border purchases. Moreover, the traders and final consumers are found to follow various illegal means of cross-border purchases in order to avoid the CST payments on such purchases. Both of these has made cross-border shopping a serious problem in the India.

6) The preconditions necessary for competition for cross-border shoppers are amply present in the Southern region: (i) each state shares a common border with most other states, (ii) economic and social conditions of the Southern states are homogeneous and (iii) wide differences in commodity wise sales tax rates persists between states.

7) A major feature of sales tax rate structure of Southern states is the abysmally low level of tax rates present in Pondicherry on most of the high-priced consumer durable items. The low rates in Pondicherry is due to three factors: (i) it does not have to raise resources (and hence to impose high tax rates) to finance developmental plans, and (ii) since it is sparsely populated and small in size, it has a narrow tax base, and (iii) Other than grant in aid, Pondicherry do not receive any central transfers. An easy option followed therefore is to attempt to expand the tax base by way of attracting shoppers from other states by levying lower rates.

8) Low rates coupled with the unique manner by which Pondicherry is located in the Southern region has the potential in attracting cross-border shoppers from all other states in the region.
9) The study observes from the point of view of cross-border shopping that only the differences in the nominal/statutory general sales tax rates seem to have the potential to cause cross-border purchases and not differences in point of levy, input taxation, additional levies or tax exemptions.

(c) Related to Existence of Sales Tax Competition:

10) Econometric evidence of the present study shows that strategic tax competition exists among Southern states in setting their statutory sales tax rates. But the competition is present only in the case of 'high-value, low/high-volume and easily transportable' (HLE) commodities. In case of commodities that have 'low-value, low/high-volume and transportation difficulties' (LLD) competition is absent. The commodities for which strategic tax competition has occurred are Bullion & specie, Computers, Electronic goods, Electrical goods, Heavy vehicles (HVs), Light commercial vehicles (LCVs), Motor car, Motor vehicle chassis (MV chassis), Photographic Cameras (Cameras), Two & three wheelers. Absence of tax competition is established for the following commodities: Cement, Cosmetics, Diesel oil, Indian made foreign liquor (IMFL), Lifts, Liquefied petroleum gas (LPG), Paints, Petrol, Sanitary fittings and Soaps. This indicates that while the Southern states have acted independently in choosing the rates of commodities for which there is no/limited possibility of cross-border shopping (i.e. LLD commodities), in case of HLE commodities which are sensitive to cross-border shopping they have involved in competitive rate setting behavior. Thus, tax competition is commodity specific.

11) The best response that a given state had to an average decrease (increase) in the sales tax rates of HLE commodities of other states in the Southern region was to decrease (increase) its own rate. That is, the states are making a matching response to changes in the tax rates in competing states in the region. In game-theoretic parlance, this finding indicates that the tax rates of competing states are "strategic complements."

12) The choice of tax rates on HLE commodities of a given state in the Southern region is strategically dependent not only on the tax rate choices of border sharing, but also on the choices of other states in the region.
13) Per capita income has statistically significant association with tax rates of Bullion & specie, Cement, Diesel oil, IMFL, LPG, MV chassis, Motor vehicle tyres (Tyres), Paints, Petrol and Soaps. The association is negative in all cases, except in MV chassis, Tyres and LPG. The results, by and large, indicate that tax base expansion effect of income dominates rising public good demand effect.

14) Public expenditure has positive and statistically significant effect on the rates of Bullion & specie, Cement, Diesel oil, Electrical good, HVs, Motor cars, MV chassis, Lifts, IMFL, LCVs, LPG, Paints and Petrol. This finding shows that rising expenditure pressure necessitates the states to increase the sales tax rates irrespective of whether the commodity under consideration is sensitive to cross-border shopping or not.

15) The effect of transfers on the rates of most of the commodities is negative and statistically significant. They include Cement, Computers, Electronic goods, HVs, LCVs, Motor car, MV chassis, Tyres, Two & three wheelers, Lifts, Paints, LPG and Sanitary fittings. This indicates that higher resource transfers from the centre acts a major inducement for the states to reduce the tax rates of these commodities.

(d) Related to Impact of Tax Competition on Tax Rates:

16) By and large the Southern states exhibited a tendency to indulge in "race to the bottom" in setting tax rates of HLE commodities for which strategic response was present. At the same time other (LLD) commodities witnessed an upward movement of tax rates. These evidences are consistent with the theory that the fear of tax-induced migration of tax bases (here trade/consumption) would result in inefficiently low level of taxes on such bases. The rising rates of LLD commodities suggest that in the absence of tax competition or tax base migration states are able to set their sales tax rates efficiently.

17) Most of the reduction in tax rates of HLE commodities occurred between 1980-81 and 1990-91. However, their rates exhibited a rising trend between 1990-91 and
1999-00. This indicates that that competition for cross-border shoppers was severe for these commodities during the eighties.

18) The rising rate of HLE commodities, particularly Motor vehicle items, in the 1990s is due to two factors. During 1990s like many other states the Southern states have taken efforts to reform their sales tax system which includes, among others, increase in the rates. Further, in the 1990s, many of the Southern states have imposed entry taxes on out-of-state purchases of all types of Motor vehicles to prevent the cross-border purchases of it. This has enabled the states to increase the rates of Motor vehicles in the 1990s.

19) The tax rate differentials between the states with regard to majority of the HLE commodities have widened (i.e., divergence of rates) over the years. They include Electrical goods, Electronic goods, Computers, LCVs, HVs, Two & three wheelers, MV chassis, and Cameras. In contrast, the differentials in the rates of most of the LLD commodities have either decreased (i.e., convergence of rates) or remained more or less same over the years. They are Soaps, IMFL, Petrol, Diesel oil, Cement, LPG, Lifts, and Cosmetics. These results are due to the dynamics of which states – above-average or below-average tax rate states - are the main movers in exerting tax changes.

20) The tax rate differentials between states in respect of HLE commodities make consumers in the Southern region to change their locations of purchase of these items from home state to not only from their immediate border sharing states but also from other states in the Southern region.

(e) Related to Revenue Loss:

21) The adverse revenue impact of sales tax rate differentials is present only in the case of HLE commodities and not LLD commodities. In other words, the hypothesis that changes in the sales tax rate do cause consumers to change the location of purchases is accepted only in the case of HLE commodities. The commodities for which adverse tax rate differential impact present are Electrical goods, Electronic goods, Motor car
and MV chassis. Absence of such impact is established in the case of Cement, Diesel oil, IMFL, Paint, Petrol and Soaps. Thus the effect of tax differentials on cross-border purchases is commodity specific.

22) The extent of revenue loss resulting from sales tax rate differential is higher for a state facing an adverse sales tax rate differential vis-à-vis its immediate geographical neighbor than otherwise.

23) The imposition of entry taxes by some of the Southern states on Motor vehicle items in the 1990s acted as an effective deterrent against the cross-border purchases of Motor cars and MV chassis and hence prevented revenue loss to the states.

24) The own rate elasticity values are significantly positive and more than one for Cement, Electrical goods, Motor car, MV chassis, Diesel, IMFL, Petrol and Soaps. It is significantly positive and less than one for Electronic goods.

25) Per capita income has positive and statistically significant influence on revenues from Electrical goods, Electronic goods, Motor car, MV chassis, Tyres, Cement, Diesel oil, IMFL, Paints, Petrol and Soaps.

26) State income originating from manufacturing sector positively and significantly influences revenues from Electrical goods, Electronic goods, MV chassis, Tyres, Cement, Diesel oil, IMFL and Petrol.

Thus, in case of commodities (HLE commodities) for which there is adverse revenue impact due to unfavorable tax rate differentials, the Southern states appear to have engaged in competitive tax setting behavior. The result of which is an inefficiently low level of taxes, i.e., race to the bottom in rates. In contrast, no such competitive tax behavior is evident in respect of commodities (LLD commodities) having absence of adverse tax differential impact. Interestingly, a race to the top in rates has emerged for these commodities.
6.2. Comparison of Results with other Studies

It is of interest and useful to compare our results with other studies. Since no earlier studies exist on the topic in India, the comparison can be made with selected studies in other countries which analyze the same issues. However, it should be noted that the results are not strictly comparable due to variations in taxes analyzed, tax variables used, methodology, data set and in the inclusion or exclusion of other explanatory variables.

Table 6.1 provides the comparison of our results of convergence hypothesis of tax competition with that of other studies. Since the results obtained from other studies are mixed in respect of sales tax as well as other taxes a definitive conclusion cannot be made from comparison. However, it is of interest to compare our results with that of Rao and Vaillancourt (1994), which is the only other study made in India on the same topic. They show that the effective sales tax rates in India diverged between 1975-76 and 1990-91. This finding is opposite to our finding that by and large the statutory rates of HLE commodities converged and that of LLD commodities diverged between 1980-81 and 1999-00. This only reveals the apparent weakness involved in using the crude measure of effective tax rates by Rao and Vaillancourt (1994). This measure helps in no way to trace the actual tax setting behavior of the states. This is particularly true in a country like India where large number of rate categories used for many commodities.

Table 2.1 in Chapter 2 presents the summary results of past studies estimating tax reaction function. Positive sign of the interaction coefficient is the major feature shared by all the existing studies although different taxes are considered. Our results with positive parameter for many HLE commodities fall in the same category.
### TABLE 6.1
**A COMPARISON OF MEASURES OF TAX DIFFERENTIALS WITH OTHER STUDIES**

<table>
<thead>
<tr>
<th>Study and Year</th>
<th>Tax Variable</th>
<th>Differential Measure</th>
<th>Government Type</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaillancourt (1992a)</td>
<td>Statutory rates (ST) of personal income tax (PT), corporate tax (CT) and retail sales tax (RT); and effective rates (ET) of PT, CT, RT, property and total taxes</td>
<td>Coefficient of variation</td>
<td>States in Canada and the USA (for 1976 and 1986)</td>
<td>USA: ST of PT, RT converged a bit CT diverged; all ET converge Canada: ST of PT converged but CT and RT diverged; ET of all ST not RT converged</td>
</tr>
<tr>
<td>Vaillancourt (1992b)</td>
<td>Statutory &amp; effective rates of payroll taxes (PT), land taxes and municipal rates (LT), stamp duties (SD), tobacco products franchise fee (TFF) and total taxes (TT)</td>
<td>Coefficient of variation</td>
<td>States in Australia (for 1977-78 &amp; 1987-88)</td>
<td>Statutory rates: PT, LT and SD (Divergence) and TFF (Convergence) Effective rates: PT, LT, SD and TFF (Divergence) and TT (Convergence)</td>
</tr>
<tr>
<td>Rao and Vaillancourt (1994)</td>
<td>Percentage of tax revenues to state income in respect of sales tax; state excise duty; taxes on motor vehicles, passengers and goods; stamp duties and total tax revenue</td>
<td>Coefficient of variation</td>
<td>States in India (from 1975-76 to 1990-91)</td>
<td>Divergence in total taxes, sales taxes, motor vehicles and passengers and goods tax Convergence in excise duty</td>
</tr>
<tr>
<td>Present Study</td>
<td>Statutory sales tax rates</td>
<td>Coefficient of variation</td>
<td>States in India, 1980-81-1999-00</td>
<td>Convergence in HLE Commodities &amp; Divergence in LLD Commodities</td>
</tr>
</tbody>
</table>

### TABLE 6.2
**A COMPARISON OF ESTIMATES OF TAX RATE DIFFERENTIAL COEFFICIENT WITH OTHER STUDIES**

<table>
<thead>
<tr>
<th>Study and Year</th>
<th>Tax</th>
<th>Dependent Variable</th>
<th>Government Type</th>
<th>Tax Differential Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mikesell (1970)</td>
<td>Sales tax</td>
<td>Per capita city sales</td>
<td>Central Cities in SMSAs in the USA, 1973</td>
<td>Negative and significant</td>
</tr>
<tr>
<td>Fisher (1980)</td>
<td>Sales tax</td>
<td>Total sales tax revenue, revenues from food and apparel sales</td>
<td>District of Columbia metropolitan area and the surrounding Maryland and Virginia suburbs in the U.S., 1962-1976</td>
<td>Negative and significant for food and sales revenue</td>
</tr>
<tr>
<td>Fox (1986)</td>
<td>Sales tax</td>
<td>Annual sales tax base; food purchased at home; food away from home; apparel; &amp; furniture</td>
<td>Metropolitan areas located along the border of Tennessee State in the USA.</td>
<td>Negative and significant (for all)</td>
</tr>
<tr>
<td>Present Study</td>
<td>Sales tax</td>
<td>Per capita commodity-wise sales tax revenue</td>
<td>State governments in India, 1990-91 to 1999-00</td>
<td>Negative and Significant for HL Commodities</td>
</tr>
</tbody>
</table>
Table 6.2 presents a comparison of the results of sales tax rate differential coefficient of this study with other works. The sign of the coefficient in the present study is similar (negative) to other related works, indicating the presence of adverse revenue effects of rate differentials.

6.3. Policy Implications

We discuss the policy implications of this study subject to two caveats. First, policy suggestions based on an all-India study covering all the states in India will be of more use than the present one which covers only five of the India’s about 35 states and union territories. However, the findings of this study are relevant to Southern states and may be generalized to similar states in other parts of the country. Second, very recently states in India have taken measures to stop competition for trade/sale by adopting uniform floor sales tax rates policy. Therefore any suggestions based on this study should not overlook the appropriateness and effectiveness of this reform measure.

Given that (i) competition exists among Southern states in fixing their sales tax rates of HLE commodities, (ii) competition has resulted in inefficiently low tax rates of HLE commodities, and (iii) rate differentials have adversely affected the sales tax revenues from HLE commodities, the appropriate policy solution lies in attaining a harmonized sales tax rate structure in the states in respect of HLE commodities.1

1 Another possible measure to curb tax competition is the levy of entry tax on goods entering into the territory of a state from other states. Entry tax is meant to collect the difference between the local sales tax liability and the actual tax paid on goods purchased outside the state. Such a tax discourages out-of-state purchases. In India, states frequently levy entry taxes, particularly on Motor vehicle items purchased from outside the state. In the light of our empirical evidence that entry taxes effectively discouraged cross-border purchases of Motor cars and MV chassis and hence prevented revenue loss to the Southern states one may suggest such a levy for all other goods sensitive to cross-border shopping. However, as a policy measure entry taxes are not preferred. The tax is effective in respect of only those goods whose physical movements are easily identifiable or tangible (e.g. Motor vehicles). It may not be successful in checking out-of-state purchase of goods whose inter-state movements are difficult to identify (e.g. electronic chip) and
Harmony in rates can be brought in two ways. One possibility is to bring complete uniformity of sales tax rates across states and another is by way of reducing/minimizing tax rate differentials among the states. The former measure completely eliminates the gain for the consumers from out-of-state purchases and the latter solution reduces it.

Full uniformity in rates across the country can be achieved either by shifting the power to levy the sales tax from the states to the centre or by persuading the states to agree for a uniform levy. Both the options are highly unlikely to be achieved. Given that sales tax is the only and most productive tax source of the states it cannot be expected from them to give up their right to levy sales tax. Moreover, past experiments with replacing sales tax on certain specific commodities (textiles, sugar and tobacco) with central excise duty shows that states are generally dissatisfied with such an arrangement. 2

Persuading the states to agree for a system of complete uniformity in sales tax rates all over the country is also difficult to achieve due to several reasons. There exist wide differences in economic conditions and revenue requirements of the Indian states. These considerations might require the concerned states to fix their own rates. The complete uniformity in rates denies the states their autonomy of determining their own rates, which they enjoy at present under the Constitution. Further, the states are unlikely to give up their autonomy. Complete uniformity in the tax rates goes against the very principle of federalism, where residents of different states can have their preferred levels of public services and tax rates. Thus, full uniformity in tax rates does not appear to be a practicable solution.

2 Goods which are purchased through illegal means. Thus, from tax administration point of view entry taxes have only restrictive use. Further entry taxes are economically harmful. They provide a fillip to illegal means of cross-border shopping. In addition, they act as an impediment for free movement of goods within the country.

2 For details see footnote 18 in Chapter 3.
Given that, the approach to tax harmonization in a federation must recognize regional diversity and state autonomy. This would necessarily call for alternative options. The ideal solution is to minimize/reduce tax rate differentials among states across commodities. Minute differences in the tax rates may discourage diversion of trade/sale from one state to another. This can be achieved through mutual negotiation and cooperation between the states which, in turn, can be either through their voluntary effort or through the initiatives from the centre. Although several attempts in this direction were made in the past\(^3\) to achieve a harmonized system of sales tax rates, only very recently a breakthrough was achieved when the states agreed to comply with uniform floor sales tax rate system commencing from January 1, 2000. The floor sales tax rates agreed upon by the states were zero, 1, 4, 8, 12 and 20 percent. Of these rates of 1 and 20 are special rates applicable for certain select commodities like Bullion and Liquor and all other rates are applicable for the general category of commodities. Accordingly, the states are given the freedom to levy rates which can be higher than or equal to the floor rate prescribed on any of the commodity, but cannot go below the floor rates. Thus the floor rates are the

\(^3\) In the past many efforts were made to solve tax competition problem, but with limited success. First time in 1957 states decided to levy sales tax at not less than 7 percent on 15 commodities. Subsequently, the minimum rate was increased to 10% (Mehta and Manay, 1992). Again in 1974 it was decided by the states that the difference in sales tax rates should not be more than 2% or 7% depending upon the commodities taxed at the higher and lower rates respectively. As a follow up, the centre came up with a list of 49 commodities on which a harmonized rate structure might be followed subject to marginal differences. This was further discussed in the Chief Ministers' conference held in September 1980, but no decision could be arrived. In 1984 a Committee of Sales Tax Commissioners was appointed to inquire into the possibility of bringing uniformity of rates of selected durable goods on a national level. The committee suggested levying a uniform minimum floor level rate on 29 commodities. A general consensus was arrived to adopt floor rates on these commodities in the Chief Ministers conference held on February 9th and 10th 1989. However, no further progress was made thereafter (Mehta and Manay, 1992; Sebastian, 1994).
minimum rates. This was expected to check the race to the bottom in tax rates and prevent cross-border purchases. The main advantage of floor levy is that, to a larger extent, it does not impinge on the states' freedom to levy their own rates. At the same time it may bring in the desired level of harmony in tax rates. Currently, all states and union territories in India, including the Southern states conform to the floor rates system in fixing the sales tax rates.

Therefore, it is of interest to see whether the minimum floor rates system has helped to achieve the expected results. Table 6.3 presents the general sales tax rates in the Southern states in respect of the commodities selected for our study in the post-uniform floor rate regime. In seven out of eleven HLE commodities selected for the study the complete uniformity in rates persists among the states at present. Further, for Motor vehicle tyres the rate differentials have come down from 1980-81 level. But for Electrical goods, MV chassis, Two & Three wheelers, the differentials are still higher. However, for Electrical goods and Two & Three wheelers the higher differentials is because Pondicherry has not yet implemented floor rates in respect of these goods. On the whole, it seems that the floor rates system has helped the Southern states to achieve full uniformity in the rates of some major HLE commodities and to reduce tax differentials in respect of several others. Obviously, this has helped to eliminate tax competition. In the light of our findings this implies that the initiatives by the states to curb tax competition are steps in the right direction.
### TABLE 6.3
GST RATES OF SELECTED COMMODITIES IN THE SOUTHERN STATES, 2001-02

<table>
<thead>
<tr>
<th>Comodities</th>
<th>Minimum Floor Rate</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AP</td>
<td>KAR</td>
</tr>
<tr>
<td>Bulion &amp; specie</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cameras</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Computers</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electrical goods</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Electronic goods</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Heavy vehicles</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>LCVs</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Motor car</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>MV chassis</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Tyres</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Two &amp; Three wheelers</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

** Source:** Complied from Sales Tax Act/Law Publications

* These commodities are yet to be brought under floor levy system.
** Coefficient of variation.

What is perplexing however is the decision of the states to adopt floor rates for all commodities (see Table 6.3). This only points to the absence of empirical basis for such major policy initiative. The study empirically proved the existence of tax competition and its adverse effects only in the case of HLE commodities, indicating that application of floor rate ceilings for commodities that are not subject to tax competition would serve no purpose. Therefore, states should maintain their autonomous status with respect to commodities for which cross-border shopping is not at all a concern. For those
commodities, each state should choose the rates according to their economic conditions, revenue needs and the rate elasticities.

6.4. Limitations of the Study

The following are the major limitations of the study

a) The study analyzes only the competition for cross-border shopping aspect, and not the competition for investments/industries through incentives. This study can be extended to cover this aspect.

b) The study uses the GST rate and ignores CST/other levies. This is mainly due to the difficulties involved in distinguishing between the inter-state purchases by different types of buyers (i.e. by the registered dealers and unregistered dealers/final consumers), and between different kinds of out-of-state purchases (i.e., by way of direct visits to other states or through inter-state sale channel).

c) Due to data limitations the econometric analysis examining the impact of rate differentials on tax revenues was not carried out for the same set of commodities used in the strategic tax competition analysis. Moreover, for the same reason, the period of analysis was restricted to ten years from 1990-91 to 1999-00. As a result, a strict comparison between the results of both analyses was not fully made possible.

d) Due to non-availability of time series data on rates and revenues of many commodities, the study fails to estimate tax reaction/revenue functions separately for each state. Such an exercise would be more useful to policy makers to provide state specific suggestions.

e) The study is region specific as it applies only to Southern states. However, a study covering all the Indian states is desirable. Further, this study may be extended to other regions in the country.
f) Two major defects associated with the empirical methodology used for testing the presence of tax competition are valid. The first one is related to the sign of the slope (tax) coefficient of the tax reaction function, which indicates the direction of competitive tax setting behavior. The theory is silent about the slope of the reaction function. That is, in the presence of tax competition (proved if the tax coefficient is statistically significant) the slope can be either positive or negative, although in practice the positive slope tends to emerge. The second defect is that both the tax competition and yardstick competition frameworks can be used to interpret the findings of the empirical analysis on tax interaction though we have employed the former. In other words, a non-zero slope for a tax reaction function is consistent with both the yardstick competition and tax competition models. However our analysis provides additional evidence to show that the observed interactive tax behavior is due to tax competition behavior of the states. The evidence comes from the race to the bottom tendency in rates exhibited in case of HLE commodities (for which strategic tax competition is present) and the race to the top in rate observed in case of LLD commodities (for which absence of competitive tax setting behavior is proved).

Despite these limitations, this study provides useful information regarding sales tax-based competition among Indian states for cross-border shoppers. It is a first analysis of tax competition in the sphere of commodity taxes both in the developed and developing country contexts. They study also proves that the recent reform initiative of the Indian states to curb competition for cross-border shoppers by and large is working in right direction.
REFERENCES


Purohit, Mahesh C. 1982. "Structure of Sales Taxes in India," *Economic and Political Weekly* 17, August 21, pp. 1365-75.


