Chapter 1
INTRODUCTION

1.1. Statement of the Problem

A federation involves a national/federal government and a set of sub-national/local governments (such as states). The fiscal federalism literature suggests how various functions can be assigned to different levels of government and how they can be financed using fiscal instruments such as taxation and intergovernmental transfers. It further suggests that sub-national governments should not rely heavily on non-benefit taxes on mobile bases such as income (or) capital/production (Musgrave, 1959; Oates, 1972, 1999). This is because a mobile tax base can migrate across jurisdictions to avoid the tax and thus produces an excess burden (the normative argument) and may lead to low or zero tax rates in equilibrium (the positive argument).

However, in almost all federations, sub-national governments rely heavily on non-benefit taxes on mobile tax bases.\(^1\) Since mobile bases can move across boundaries of jurisdictions due to favorable/unfavorable tax treatment, each governmental unit will have an incentive to fix a low rate or to provide tax incentives. Suppose one unit increases its tax rate, then the neighboring units will have an incentive to reduce/retain their rates, thereby increasing the tax base. Thus, any single government can increase its tax base at the expense of others, i.e., by reducing its tax rate. The presence of such interdependence among sub-national governments in making their tax choices is termed as inter-jurisdictional tax competition in the literature.

\(^1\) The following are reasons for the incongruity between theory and practice: (i) all tax bases except land are mobile, (ii) benefit taxes are highly impractical to apply as benefits accruing from public goods provision are difficult to measure, and (iii) benefit taxes are inequitable and politically unfeasible because ability-to-pay principle is generally not taken into consideration.
The ramifications of tax competition are manifold. Firstly, it would lead to distortion in tax choices. To preserve/attract the mobile tax bases, the governments would attempt to levy a low rate. This tendency leads to rate differentials and loss of tax revenues. Secondly, the revenue losses due to competition would result in inefficiently low levels of public goods and services. Thirdly, tax competition leads to inefficient pattern of location of mobile economic resources (Oates, 1972). Fourthly, tax competition ends up in zero-sum game because the gain to any one government in terms of inflow of tax bases is the loss to others due to tax base outflows from there. Fifthly, the income redistribution policies of the governments get affected due to tax competition. Sixthly, tax competition gives rise to regressive form of taxation. For instance competition for "cross-border" shoppers tends to reduce taxes levied on luxury goods as they are sensitive to such shopping, which otherwise are to be taxed at higher levels. Seventhly, tax competition results in "tax exportation." For instance, when the consumers of a high taxed state purchase taxed commodities from a low taxed state then the latter collects the tax revenue which otherwise accrues to the former if the consumers

1 Location inefficiency results when the location of economic resources is guided solely by the goal of obtaining a favorable tax treatment rather than by economic rationale.

2 However, when all governments have the same incentive to cut taxes to attract mobile tax bases, the tax competition results in negative-sum game wherein ultimately all governments losses. This is because, as the competing tax breaks cancel each other out, little or no relocation of the tax bases will occur in equilibrium.

3 If sub-national governments redistribute income through relatively progressive income taxes, then mobility of rich residents in response to higher taxes prompts governments to levy low levels of income tax.

4 Tax exportation refers to a situation wherein the taxes levied in one jurisdiction are paid by the residents of other jurisdictions. An implication is that residents of a given jurisdiction may be able to get outsiders to absorb part of the cost of their own local public services. Tax exportation also occurs when a jurisdiction produces a highly specialized commodity, which the residents of other jurisdictions will have to be purchase only from that jurisdiction. For instance suppose that a jurisdiction possesses coal deposits, which others do not have. In this case the jurisdiction may be able to take advantage of its position and place high taxes on those who consume coal, but may not consume public services that the tax amount finances.
there make home purchases. Finally, if there is no ‘competitive equality\(^6\) among the competing jurisdictions, tax competition tends to widen the disparities between the jurisdictions. In particular, richer jurisdictions, due to their superior financial position can compete more vigorously in attracting mobile tax bases than poorer jurisdictions. This will affect the revenues of poorer jurisdictions. Thus, tax competition is economically harmful in many ways.

In India, the Constitution empowers the state governments to levy taxes such as sales tax, state excise, stamps and registration fees, motor vehicles tax and electricity duty. Among the state taxes, the sales tax that is levied on the sale/purchase of goods within and across the boundaries of the state is by far the major important own tax revenue source of most states. It alone accounted for 60 per cent of total own tax revenue of 14 major states in the country in 1999-2000.

The sales tax, that is a non-benefit tax, falls mainly on consumption/trade, but also on production. An unregistered or final consumer purchases for consumption. A registered dealer purchases for selling again, i.e., for trading. Consumption/trade can be mobile in border areas or if there is illegal shift of the sales location. It does not have as mobile a base as income, but production/investment can be shifted to some extent. Since the sales tax has been one of the major sources for revenue mobilization in many Indian states and each state has its own sales tax legislation, it has been possible for the states to alter their rates and to provide industrial incentives to attract (or retain existing) consumption/trade and investments. The fact that both trade and investment can move

\(^6\) Competitive equality refers to the equality in the power of jurisdictions to compete. It ensures that no individual jurisdiction is able to exploit or unfairly compete away the tax sources that should accrue to another jurisdiction (Breton, 1987).
across state boundaries due to favorable/unfavorable tax treatment, each state has an incentive to fix a low rate or to provide tax incentives. Suppose one state reduces its rate, the neighboring states will have an incentive to reduce their rates, thereby retain/increase the tax base. Further, though the states have the Constitutional powers to levy many taxes, most of them are not remunerative. At the same time, the large Constitutionally assigned expenditure obligations of states demand a large resource mobilization. They, in turn, result in excessive squeezing of sales tax in all states. A major consequence has been the tendency among the states to attempt to enhance their tax revenues by way of attracting trade and investment by offering tax-based incentives. In this context, the tax choice of one state government can influence the choices of others, leading to tax competition.

The tax competition can emerge in two possible ways. The first is when a state attempts to attract consumption/purchase of goods by residents of other states by reducing tax rates on sale within its territory. This is called competition for cross-border or out-of-state shoppers or trade. The second possibility arises when a state lures investments/industries by extending various tax concessions such as lower rates on inputs, concession or tax-free sale of finished goods and tax holidays or interest-free loans of the collected tax. This is known as competition for investments.

Several committees/commissions such as Indirect Taxation Enquiry Committee (Government of India, 1977) as well as a few independent studies (e.g., Tulasidhar and Rao, 1986; Rao and Vaillancourt, 1994; and NIPFP, 1994) have highlighted the efficiency implications of sales tax competition behavior among the Indian states and called for tax harmonization/coordination. However, they do not provide any concrete
evidence of existence and consequences of sales tax competition of above kinds. They provide only anecdotal evidences, particularly on competition for cross-border shoppers (trade).\(^7\)

In this context, the recent unanimous decisions of Indian states concerning the adoption of uniform floor rates of sales tax and abolishing sales tax incentives for new investments assume significance. These reform measures have been initiated mainly for eliminating tax-based competition among the states for cross-border shoppers and investments/industries. However, the appropriateness of such reform may be a subject of debate due to the absence of concrete empirical evidence on the presence, nature and consequences of sales tax competition in India. Hence, a study may be useful to test the existence of tax-based competition among Indian states for cross-border shoppers/trade and assess its consequences.\(^8\)

The state governments levy sales taxes on sale or purchase of almost all goods except newspapers. Therefore, it is a daunting task to collect details on tax rates, revenue generation etc., for different commodities under sales tax net in all the Indian states overtime. In addition, the general observation indicates that competition for cross-border shoppers or trade is commodity specific.\(^9\) Considering the above aspects of sales tax system in India, the present study attempts to empirically verify the existence and

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\(^7\) A major exception is Tulasidhar and Rao (1986) who provide a quantitative analysis of cost and efficiencies of industrial incentives in the state of Madhya Pradesh. Rao and Vaillancourt (1994) estimate the coefficient of variation in the percentage of tax revenues to Net State Domestic Product (NSDP) in respect of four major taxes (sales tax, state excise duty, motor vehicles tax, and stamps and registration) as well as total tax revenue from 1975-76 to 1990-91 and show a very high degree of inter-state tax disharmony with respect to all these taxes. Then, they argue that this could be due to tax competition.

\(^8\) Tax-based competition for investment/industries is not considered in the present study.

\(^9\) This important point was revealed in our discussions with the officials of the Department of Commercial Taxes in Southern states.
consequences of sales tax competition among the Southern states in India. Specifically, it attempts to identify the commodities for which the tax competition exists and empirically test whether the sales tax competition leads to inefficiently low rates and low revenues.

The study area consists of four border-sharing Southern states: Andhra Pradesh, Karnataka, Kerala and Tamil Nadu and a Union Territory of Pondicherry.\(^\text{10}\) The geographical closeness of these states in this region as well as the presence of traditionally low tax regime of Pondicherry provide an ample scope for analyzing the problem of sales tax competition and its impacts on tax rates and tax revenues.

1.2. An Economic Setting for “Tax competition”

In a federal system, the interaction among sub-national governments in choosing their tax levels can emerge due to political as well as economic factors. For that reason, it has attracted the attention of political scientists as well as economists. The political scientists have analyzed the issue through “political choice” or “yardstick competition” framework in which interdependent tax choices emerge when governments attempt to minimize the political costs of raising taxes (Hettich and Winer, 1988; Inman, 1989; Breton, 1991; Besley and Case, 1995). In their view, resident voters of a jurisdiction may compare their tax burdens with that in other jurisdictions, thereby evaluating the tax policy of their own government. They will punish the government if they find that their burden is more. In this way voters set the stage for taxes to be influenced by taxes in the

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\(^\text{10}\) Pondicherry is classified as a ‘Union Territory’. It falls in the category of a union territory with a legislature. As such, it has most of the attributes of a state government. Hence throughout this study we simultaneously use the terms union territory and state to refer Pondicherry.
neighboring jurisdictions. Thus, the political scientists emphasize Hirschman’s (1970) ‘voice’ mechanism\(^\text{11}\) as a force underlying tax interaction.

On the other hand, the economists use their analytical tools to investigate the tax choice interaction among sub-national governments. They view that the tax choice interdependence is due to the mobility of tax bases across jurisdictions in response to tax increases or decreases (Oates, 1972; Zodrow and Mieszkowski, 1986; Wilson, 1986; Mintz and Tulkens, 1986).\(^\text{12}\) They use the market competition framework to analyze the tax policy interdependence. As firms in a market, jurisdictions compete for scarce mobile base such as capital. The mobile base will leave out of the jurisdiction if the jurisdiction levies a high tax. Therefore, each jurisdiction will have an incentive to levy a low tax as compared to its neighbors in order to retain and attract the base. In this context, the tax choice of one jurisdiction depends on the tax choices of others.

If there are large numbers of small jurisdictions the situation is similar to the perfect market. In this case the tax rates in other jurisdictions are irrelevant, and strategic behavior is absent. When there are small numbers of large jurisdictions like states, economists use imperfect model (i.e., Oligopoly model) especially the Nash equilibrium of game theory to explain the tax competition behavior. In this case, the tax rates in other jurisdictions are relevant for a given jurisdiction while deciding its tax choice, leading to strategic behavior. They derive a tax reaction function that relates own tax rate of a particular jurisdiction to the rates in the neighboring jurisdictions. A significant tax coefficient would indicate the presence of tax competition. The present study follows this economic tradition to analyze the issue with respect to sales tax. Since the Indian states

\(^{11}\) Voice mechanism refers to taxpayer’s opposition to taxation and its effects on the electoral prospects of the rulers.

\(^{12}\) Thus the economists emphasize exit mechanism as a source of tax interaction.
levy sales tax on many commodities, it is useful to identify the commodities for which the competition takes place. Then, for those commodities, tax coordination would benefit the competing states.

If a jurisdiction reduces its rates in order to attract tax-induced migration of mobile tax bases from other jurisdictions, it will lead to an increase in the rate differentials. However, other jurisdictions in their attempt to retain/attract those bases will choose to adopt the tax policies of their competitor. That is, they will also reduce their rates. Therefore, the tax differences among jurisdictions might be reduced. Thus, the problem turns to be one of testing whether tax differentials among jurisdictions have widened or narrowed overtime. To quantify tax differentials, the economists have initially used the statistical measures such as standard deviation (SD) or coefficient of variation (CV) in the tax rates. Proof of a smaller tax differential at a point in time or narrowing of the tax differentials over a period of time is considered as an evidence of the presence of tax competition. However, in recent years, co-movements of the mean and CV of tax rates has been examined to verify the existence of tax competition. A falling mean and CV of tax rates and a falling mean and rising CV tax rates are treated as evidences of the presence of tax competition.

An important hypothesis emerging from theory is that tax competition results in inefficiently low level of taxes on mobile bases. When a jurisdiction offers low taxes in the hope of preserving/attracting tax bases that jurisdiction may benefit from that course in the short-run. But, in the long-run, when others feel forced to follow the same it will lead to a race to the bottom in taxes. However, none of the existing studies have
analyzed this specific issue. Hence, the present study attempts to test this hypothesis using the mean of tax rates.

Since the tax competition can adversely affect the tax base/revenues of competing jurisdictions, the economists have analyzed the impact of tax differentials on tax base/revenues of sub-national governments. They specify the tax revenue function that includes own rate as well as rate differential variable as independent variables and estimate the revenue elasticity values. The negative and significant parameter associated with rate differentials variable would indicate the revenue loss due to rate differentials emerged from tax competition. In the context of commodity taxes in India, a knowledge of how rate differentials affect the revenues and for which commodities the differentials lead to revenue losses would benefit the policymakers to make appropriate policy prescriptions.

1.3. Value of the Analysis

Various theoretical models have analyzed the competitive behavior of sub-national governments in the context of many taxes such as property taxes (Beck, 1983; Zodrow and Mieszkowski, 1986; Wilson, 1985&1986; Wildasin, 1988), and commodity taxes (Mintz and Tulkens, 1986; de Crombrugghe and Tulkens, 1990; Trandel, 1994; Nielsen, 2001). Wilson (1999) provides an excellent survey of these theoretical works. The empirical literature on this issue is relatively sparse. Following the pioneering study by Case et al. (1993) on expenditure policy interdependence among U.S. state governments, a few studies have emerged to test empirically the existence of competitive/interactive tax

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13 This is particularly true of studies examining the existence of competitive tax behavior among sub-national governments and the effect of tax competition/differentials on tax revenues or bases of sub-national governments. However, a large number of empirical studies exist examining the impact of state-local taxes/tax incentives on firm or investment location and economic growth.
setting behavior of sub-national governments. For instance, Brueckner and Saavedra (2001) and Brett and Pinkse (2000) analyze the property tax competition in USA and Canada respectively; Buettner (2001) studies the local business tax competition in Germany; Hayashi and Broadway (2001) examine the existence of corporate income tax interaction in Canada; and Heyndels and Vuchelen (1998) and Revelli (2001) look for interdependence in the choice of local taxes in Belgium and England respectively. Notably all these studies are concerned with developed nations.

Although studies such as Mintz and Tulkens (1986) theoretically prove the relevance of tax competition in the sphere of commodity taxes, a few empirical studies such as Hamovitch (1966), Mikesell (1970; 1971), Fisher (1980), and Fox (1986) analyze the influence of sales tax rate differentials on sub-national government’s tax revenues/bases in USA. However, no attempt has so far been made to empirically test the existence of sales tax competition in any country. The present study is a pioneering work in analyzing this specific issue.

Specifically, the present study is useful to see whether tax competition exists among Southern states in India and if competition exists how it influences sales tax rates and sales tax revenues. Besides the study attempts to provide answer to the following fundamental questions: For what type of commodities, the Southern states compete for cross-border shoppers? What are the consequences of tax competition on tax rates of commodities? Do sales tax differentials among states cause consumers to resort to out-of-state purchase of commodities from higher tax states to lower ones? If so, in what type of commodities does such cross-border purchases take place and what impact has it on the sales tax revenue of the states?
Knowledge of these aspects is also useful to evaluate the appropriateness of the reform measures undertaken by states to curb cross-border shopping. If competition for sale exists and has adverse consequences, the reform measures are in right direction. On the other hand, if competition does not exist for many important commodities, then suitable modifications in the reform measures may be called for. Hence this study will supplement the information necessary for effective control of tax competition among states.

1.4. Objectives of the Study

In the light of foregoing account, this study has the following specific objectives:

(i) To test empirically whether strategic behavior exists among the Southern states in choosing their sales tax rates for various commodities during 1980-81 to 1999-2000;

(ii) To analyze the impact of tax competition on the sales tax rates of various commodities in the Southern states during 1980-81 to 1999-2000; and

(iii) To examine the commodity wise revenue impact of rate differentials in the Southern states during 1990-91 to 1999-2000.

1.5. Organization of the Thesis

The remainder chapters of the thesis proceed as follows:

Chapter 2 gives a review of major theoretical literature relating to tax competition behavior of sub-national governments with the aim of highlighting the conceptual issues that have arisen concerning tax competition. It also critically evaluates the existing empirical works that examine the existence of tax competition behavior
among sub-national governments, rate differentials and the effect of rate differentials on tax revenue.

Chapter 3 provides the background information. It provides an overview of nature of sales tax levy in India and highlights the revenue significance of sales tax in the Southern states using trends, buoyancy etc. It also explains the nature and sources of competition for cross-border shoppers. Finally, the circumstances for competition for cross-border shoppers in the Southern region are examined based on three criteria's namely geographical proximity of the states, similarity in economic and social conditions of the states and the extent of variations in sales tax structures of the states.

Chapter 4 first presents an abridged version Mintz and Tulkens (1986)'s commodity tax competition model. This model explains the strategic tax setting behavior of two large jurisdictions, say states, when there is inter-jurisdictional mobility of consumers/cross-border shoppers in response to tax differentials across jurisdictions. From the discussion of the model an intuitive interpretation of tax reaction function and its diagrammatical exposition is arrived. The estimable form of the tax reaction function is specified and estimated for 21 selected commodities selected for the study using the instrumental variable technique to provide evidence of presence/absence of tax competition among Southern states. Following this, the impact of presence/absence of tax competition on tax rates of commodities is analyzed employing the statistical tools of mean and coefficient of variation of tax rates. Detailed discussions on the econometric issues involved in estimating tax reaction function, selection of commodities, tax rate variable and other explanatory variables and data sources are also presented.
Chapter 5 presents a general conceptual model based on the works of Fisher (1980) and Fox (1986) to assess the impact of sales tax rate differentials on sales tax revenues of states. The model describes changes in sales tax revenues of a state in terms of sales tax rate differentials between that state and other states. From the model the estimable equation is derived. The equation relates sales tax revenue of a state to sales tax rate of that state, sales tax differentials between that state as well as other states and other explanatory variables explaining sales tax revenues of that state. The results of the model estimated for 11 selected commodities using panel data methodology are presented. Revenue elasticity values for those commodities are estimated.

Chapter 6 presents the overall summary and major findings of the study. The results of the study are compared with earlier studies. Some of the limitations of the study are also discussed. Finally the policy implications of the study are also presented.