# Tax Avoidance Strategies and Their Impact on National Revenue Collection

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## Abstract

Tax is essentially a contribution that the state requires from its citizens. The efficiency of inter-state taxes is evaluated using Data Envelopment Analysis (DEA). To apply DEA, we need information about both outputs and inputs. In this case, we've chosen the tax-to-GSDP ratio as the output, while per-capita GSDP and the inverse of the agricultural share in GSDP serve as inputs. Since inputs should positively influence the output, and the agricultural share has a negative impact, we use its inverse as an input. DEA assesses each state's tax efficiency by creating an efficient frontier. States that fall on this frontier are considered 100% efficient in generating tax revenue, while those below the frontier are deemed inefficient, with their level of inefficiency measured by how far they stray from the efficient frontier. There are various versions of DEA, but the one used in this study is input-oriented and operates under constant returns to scale (CRS) assumptions. This input-oriented model aims to minimize the number of physical inputs needed to produce a specific level of output. Conversely, the output-oriented DEA model focuses on maximizing output given a set number of inputs. The CRS-based DEA model assumes that the size of the state doesn't affect tax efficiency, treating all states as if they operate at a similar scale. In contrast, the variable returns to scale (VRS) model takes state size into account when estimating tax efficiency.

*Keywords*: *Tax Avoidance; National Revenue; Collection; Data Envelopment Analysis; GSDP.*

## 1. Introduction

By comparing the CRS-based tax efficiency with the VRS-based efficiency, we can identify inefficiencies linked to a state's size. Since the size of states is fixed, it's influenced by external factors like geography, natural resource availability, labor, and capital, making it impossible to adjust like we might with firms or other decision-making units (Jones & Basu, 2002). The CSR-based tax efficiency gives us a rough idea of how efficient a system is, factoring in size or scale (Karimov et al., 2024). However, in this case, relying on CSR-based tax efficiency just doesn't cut it. On the other hand, VRS-based tax efficiency focuses solely on the administrative or managerial efforts of a state, making it a much more precise measure of tax efficiency. That's why we're opting for VRS-based estimates in this study (Olbert & Spengel, 2017). This situation brings about some tricky international tax challenges, as income generated from these transactions might also be taxed in other countries. Various International Tax Conventions state that global taxes are assigned based on where a business is physically located. However, this doesn't hold for the Digital Economy (Banerjee & Kapoor, 2024). With the internet making everything so accessible, e-commerce transactions can happen without any need for a physical presence. This shift has really disrupted the traditional idea of global taxing rights, which used to rely on having a permanent establishment and where value is created (Arinze et al., 2021). We need a new international tax framework that acknowledges the taxing rights of the source country, allowing them to tax payments made regardless of whether there's a physical or virtual presence, based on what's called 'significant economic presence (Pernul & Fuchs, 2010; Mohammadinasab et al., 2014; Bosco et al., 2018).
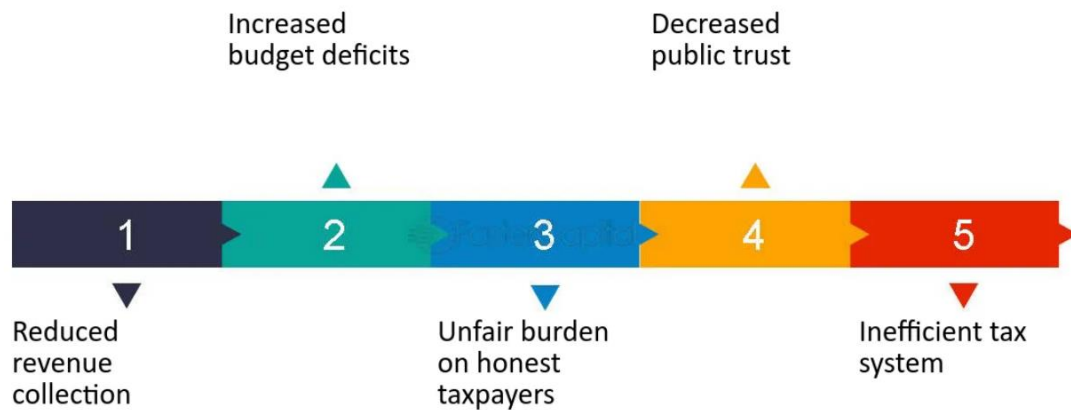
**Fig. 1:** Tax Avoidance

This new approach would align with the principle of destination but would specifically apply to income taxation (Yang et al., 2022). Additionally, while state governments collect their own revenues, a portion of central revenues like Income Tax and Central Excise is shared with them according to a distribution formula set by the Finance Commission, which is a statutory body established under the Constitution of India (Yadav et al., 2024). The net tax proceeds shared with the states are certified by the Comptroller and Auditor General of India. Besides tax revenues, the government also receives income from non-tax sources (Noamna & Kiattisin, 2020).

## 2. Methodology

This study aims to help researchers grasp the growing trend of tax revenue across all states. It will also highlight the significance of each type of tax in these states (Agrawal & Fox, 2017; Agbo & Nwadialor, 2020). Additionally, we've included the share of another variable that we anticipate will positively relate to the dependent variable. It's important to note that we've chosen not to include the share of the secondary sector in our model to avoid multicollinearity issues. Instead, we opted for the share of the tertiary sector as an independent variable, given that it makes up about 60 percent of the gross national product, while the secondary sector contributes only around 25 percent to the national income on average (Ponomareva, 2022).
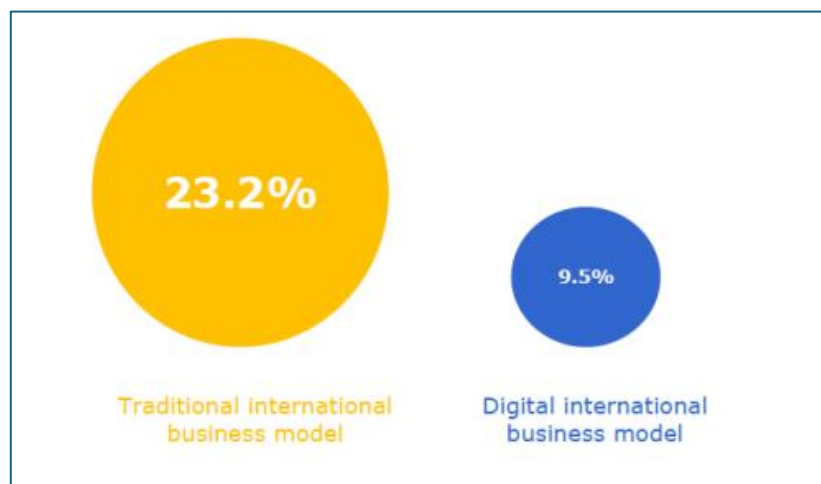


**Fig. 2:** Effective Average Tax Rate

The foundation for taxing e-commerce can be highlighted by the fact that the effective tax rate for traditional international business models is more than twice that of digital international business models. This leads us to the conclusion that e-commerce transactions should be taxed based on the customer's location, ensuring that a fair share of income is collected. When using the addition method, we determine the value added by summing up wages, rent, interest, and profit. The tax liability is then calculated by applying the VAT rate to this total value. In contrast, the subtraction method calculates tax liability by applying the VAT rate to the total sales value minus the total purchases. The credit method, also known as the invoice method, involves deducting the tax paid on purchases from the tax owed on sales to determine the VAT payable to the government for a specific period. This method gets its name because the invoice, which details the tax included in the sale price at each production and distribution stage, serves as the basis for tax liability. VAT is assessed on the dealer's profit margin when calculating tax liability, and the tax paid at earlier stages is deducted from the tax owed, with only the net amount being submitted to the government treasury. E-commerce poses significant challenges for tax authorities due to the often multi-jurisdictional nature of transactions and the potential anonymity of the parties involved. The VAT law is quite clear: those who sell independently or on behalf of someone else as a commission agent are responsible for paying taxes. By separating the roles of selling and facilitating, there can be a misuse of the law and tax evasion (Bacache et al., 2015). The government is insisting that all e-commerce businesses cough up their fair share, no matter if they label themselves as dealers, aggregators, retailers, facilitators, or commission agents. The current issue has come to light with e-commerce companies that store goods from various sellers in their warehouses before sending them off to buyers. When it

comes to VAT, we can look at the impact of e-commerce through three main types of transactions: selling physical goods to businesses or individual consumers, providing intangible goods or services to businesses, and offering intangible goods or services to private consumers (Abdul-JalilHamdan, 2019; Ariyibi et al., 2024).

## 3. Results and Discussion

It turns out that the average revenue from commercial tax was lower than the revenue receipts, coming in at about ten times less than the total receipts throughout the study period. You can see this clearly illustrated in Figure 2.
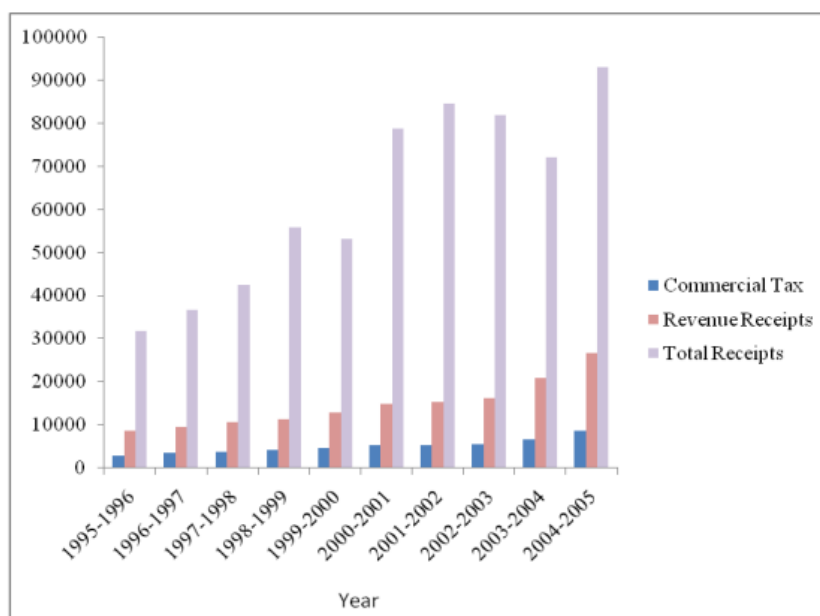


**Fig. 3:** Trends in Commercial Tax, Revenue Receipts, and Total Receipts

The analysis has revealed some interesting trends in the growth of commercial tax, revenue receipts, and total receipts from 1995 to 2005. It turns out that the growth rate of commercial tax jumped from 18.82% in 1996-97 to an impressive 30.87% by 2004-05. Likewise, the growth rates for revenue receipts and total receipts also saw an upward trend during this time. However, it's worth noting that the growth rates for commercial tax outpaced those of revenue receipts and total receipts in the 2004-2005 study period, as illustrated in Figure 3.
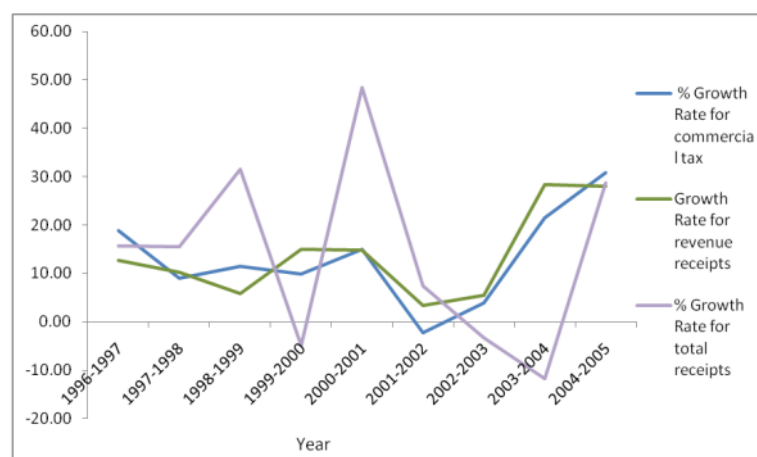


**Fig. 4:** Trends in Growth Rate of Commercial Tax, Revenue Receipts, and Total Receipts

The trend of VAT revenue in absolute terms, along with its comparison to our own tax revenue, is illustrated in Figure 4. It clearly indicates that both types of taxes have been steadily increasing throughout the study period. However, it also reveals that the average revenue generated from VAT is lower than that of our own tax revenue. This is clearly depicted in the figure below.
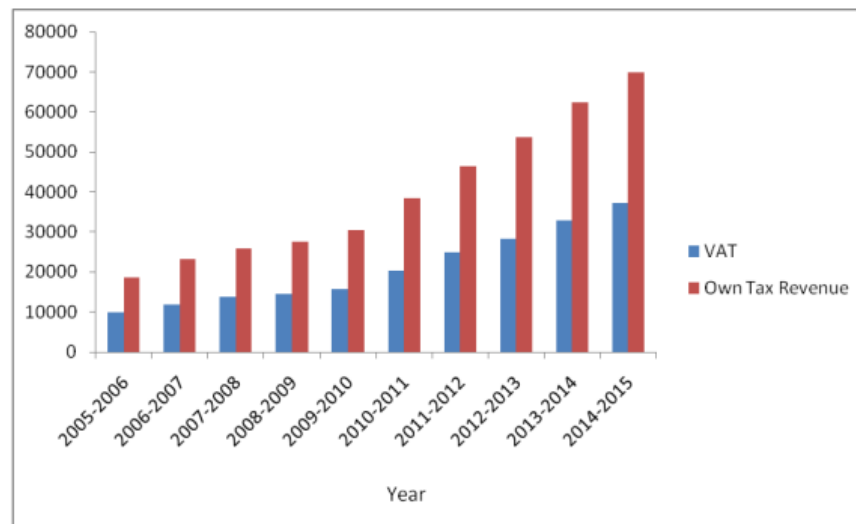
**Fig. 5:** Trends in VAT Revenue Compared with Own Tax Revenue

The groundwork for the statutory provisions is already laid out. We're on the brink of a major shift in the indirect tax system. Karnataka is leading the charge to replace VAT with GST. However, there are some administrative hiccups between Karnataka's VAT officials and the central government's machinery for indirect taxes, particularly regarding the sharing of powers and responsibilities. It's crucial to work out the slab rates with the cooperation of all states in the Indian union. There's a lack of consensus on how to impose and collect service tax, and all states are closely monitoring the situation. This has opened opportunities for research to assess the ground realities and revenue conditions in Karnataka, which will inform policy decisions about adopting GST soon.

# 4. Conclusion

Complex fluids are truly captivating materials that possess intricate internal microstructures. The way these structures change can greatly affect how the material behaves, especially when it comes to its flow properties, which we refer to as rheology. These materials are incredibly valuable in practical applications because we can modify their microstructures through flow processing to achieve specific mechanical, optical, or thermal traits. One of the most effective ways to tap into the potential of complex fluids is by creating composites. By blending two components that typically don't mix, we can discover new or enhanced properties in the resulting material, often making this a more economical option than starting from scratch. Additionally, we can fine-tune the characteristics of these composites by adjusting their composition, concentration, and, importantly, the arrangement of their phases. Among these composites, polymer blends are particularly noteworthy. When processed under optimal conditions, the dispersed phase can stretch into long, slender fibers. Once these fibers solidify, they provide reinforcement, giving the composite remarkable strength. This effect is especially pronounced when a liquid-crystalline polymer forms the fibrillar phase. Another fascinating example is polymer-dispersed liquid crystals, which hold great promise for electro-optical applications. In these composites, droplets of liquid crystal are embedded within a polymer matrix. From a scientific perspective, these composites are quite intriguing. They involve the dynamic interaction of three different length scales: the macroscopic flow behavior, the mesoscopic interface between the components, and the molecular or supramolecular structure within each part. However, analyzing these materials theoretically and numerically has been challenging due to their complexity. The main hurdle lies in the shifting and changing interface between the two components. Traditionally, these are treated as sharp boundaries in fluid dynamics, which require certain conditions to be met. Various modeling techniques have been developed to address this issue.

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