



Tax Reforms, Fiscal Illusion and Moral Hazard: Some Econometric Evidence from Indian Economy

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ABSTRACT

Theory of 'Fiscal illusion' as a theory of government expenditure was first conceived by an Italian economist Puviani suggesting that the benefits from tax revenue through government expenditure are not fully understood by the taxpayers if the government revenues are unobserved. This is due to information asymmetry. Since some or all taxpayers benefit from government expenditures from these unobserved or hidden revenues the public's demand for government expenditures increases, thus providing politicians incentive to expand the size of government. Fiscal Illusion is invoked as an explanation of the flypaper effect when a higher level of government provides a grant to a lower level of government because the local taxpayers are under the mistaken perception that the grant is to local government and not, in fact, to them. One of the sources of fiscal illusion is the complexity of the tax system. According to the fiscal illusion hypothesis, governments spending can be influenced by the size of the public sector and complexity in the tax system. An attempt is made in the present study to examine the fiscal illusion and explore its relationship with the fiscal dimension including revenue receipts and spending of the government. Considering the Indian federal system, the paper examines revenue diversification that has occurred during 1970 and 2016, and it estimates a model that examines the degree of moral hazard which arises mainly due to fiscal illusion within the framework of the principal agent.

Keywords: *Corruption; Moral hazard; Fiscal illusion; Tax complexity; Principal-Agent Theory.*

1.0 Introduction

In public finance problem of moral hazard may arise when the people (tax payers) engage in risk sharing under conditions such that their privately taken action (tax evasion etc.) affect the probability distribution of the outcome manifest in tax collection.

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This situation is similar to a principal-agent relationship in which the agent (the government) provides a productive input (expenditure on education, health, etc.) that cannot be observed by the principal (public) directly due to fiscal illusion caused by tax complexity. The main source of moral hazard in taxation is the asymmetry of information between the perception of the people paying the tax and the benefit of public goods. One natural remedy to alleviate the problem of moral hazard is to monitor the behavior of individuals which may not be possible because of high cost of administration. Of late the principal-agent problem has been employed to illuminate diverse areas, such as the management-shareholder relationship in corporations, real-estate markets, insurance, employment, and other real-life situations.

Tax reforms are universal and have become an essential agenda in the economic reforms in most of the economies. In industrial economies it is due to complexities prevailing in the tax system whereas in developing economies it is because of narrow tax base. Currently for most of the European economies tax reforms has become essential because of large public debt leading to austerity measures. On the other hand, in emerging economies like India, Brazil and others the motivation is more pressing due to new tax bases. In most economies, there are improvements in the capacity of tax administration because digitalisation facilitates the tax reform movement almost universal. One of the strong motivations behind such reforms should be to bring about simplicity both in the tax system and tax administration. In the context of tax reform proposals, it is commented that good taxation is equitable as well as efficient. It should offer a haven of simplicity in an increasingly complex world.

In a democratic set up of political system, the tax systems are generally complex and remain so despite frequent tax reforms (Warskett *et al.*, 1998). Important lessons learned from the experiences of tax reform in developing economies are that reforms are successful when tax administration is a central focus of reform efforts. The tax reform is specifically directed toward economic rather than noneconomic objectives. Moreover, tax simplification and tax rate reduction along with indirect tax reforms (such as Goods and Service Tax in India) are popular in the agenda of every government. Based on empirical evidence, it is observed that the share of indirect taxes to total tax revenues fall with economic development, leading to the transformation of the economic structure (Chelliah 1989, p. 154). For, the tax burden from indirect taxation is usually underestimated because its revenue is less observable as compared to that of direct taxes. A number of guiding principles for tax reforms and the characteristics of an “ideal” tax system for a developing country, suggested by the IMF, includes the tax simplicity based upon taxes primarily as a means to finance government expenditure (Stotsky, 1995). The

acceptance of taxation as an expenditure-financing instrument implies that the capacity to contain government expenditure is mainly determined by the level of taxation.

The nature of the relationship between tax revenue and government expenditure is significant because of differences in policy implications. A positive relationship observed between tax revenue and current expenditure by Please (1967) has far reaching policy implications. The line of causation running from tax revenue to government expenditure suggests that effort to containing government expenditure has to start by cutting tax revenue. This relationship is sometimes marred by the information asymmetry due to complexity of tax system which leads to fiscal illusion which refers to a systematic misperception of the costs of government. The source of this misperception can be reflected in the government's revenue structure or another feature of its fiscal system (Hendrick, 2002). Revenue diversification may obscure the real tax burden so that taxpayers accept higher levels of taxes than they would if they had more accurate information. There are situations when revenue diversification is likely to lead to a larger government expenditures. Besides the revenue diversification or complexity of the tax structure, other sources of fiscal illusion are *inter alia* the use of "invisible" and indirect taxes such as excise and sales.

Plan of the paper is as follows. After the brief introduction of the phenomenon of fiscal illusion an attempt is made in the present study to regard the tax complexity as a source of fiscal illusion which in turn leads to asymmetry in the system. Considering Indian tax system it examines trends in revenue diversification that have occurred in the governments between 1970 and 2016. The subsequent sections provide the methodology and findings, respectively and the last section discusses draws conclusions.

2.0 Fiscal Illusion and Moral Hazard-Literature Review

In a principal-agent relationship, one party – the *agent* – is required to perform some service on the behalf of the other party – the *principal*, who involves the delegation of some discretion and decision-making authority. The problem highlighted by the agency model is that there may be a divergence between the actual decisions made by agents and the decisions that would maximize the principal's benefits. This divergence arises because, when making a decision, agents also seek to maximize their own self-interest. Therefore, whenever the agent's actions are for the sole benefit of the principal (and thus contribute nothing for promoting the agent's self-interest), he/she will engage in a lower level of effort instead of a high level. Depending on perspective, who is the agent and who is the principal within the framework of principal-agent model may differ. In our model, the Government of India acts as the agent (principal, providing

public funds to implement a set of actions to benefit the public which behave as the principal. The relationship between the Government and the public may be interpreted as an agency problem subject to asymmetric information which may lead to bigger size of the government and inefficient outcomes (Buchanan, 1967). In case of low output or higher expenditure, the Government is not in a position to distinguish the cause, unless it uses some form of audit. The principal's problem is to design the contract that most efficiently forces the agent to meet the requirements of the people. The contract must therefore specify a level of expenditure (depending on the state of nature) associated with a certain level of transfer, as well as some control and sanction parameters.

This information asymmetry refers to a systematic misperception of the costs of government, the revenue burdens it places on the public, and other areas of fiscal performance. Fiscal illusion occurs every time a taxpayer is ignorant of how much he pays to the state or how much he receives from the state in return. The study of fiscal illusion is important because this is a source of distrust between the state and its citizens. This double "ignorance" is the result of asymmetric information that can harm the democratic system in a country (Puviani, 1903). Theme of fiscal illusion study re-emerged in the first decade of the twenty-first century with Sausgruber and Tyran (2005). For instance fiscal illusion becomes the political illusion which occurs when politicians try to deceive the public by denying or obscuring the social reality that these rulers know is actually happening and becomes a source of corruption within the theory of public choice. If politicians use fiscal instruments to deceive taxpayers, then political illusions are essentially fiscal illusions (Baake Pio and Borck, 2007). Economies needs to be regulated due to the presence of asymmetric information, monopoly power, moral hazard, corruption, political influence, and other problems were left to regulate themselves with disastrous consequences.

Fiscal illusion as a theory of government expenditure was first conceived by an Italian economist Puviani (1903). It suggests that the benefits from tax revenue through government expenditure are not fully understood by the taxpayers if the government revenues are less observed. Since some or all taxpayers benefit from government expenditures from these unobserved or hidden component of the revenues the public's demand for government expenditures increases, thus providing politicians incentive to expand the size of government. Secondly, fiscal illusion is invoked as an explanation of the flypaper effect when a higher level of government provides a grant to a lower level of government because the local taxpayers are under the mistaken perception that the grant is to local government and not, in fact, to them. One of the sources of fiscal illusion is the complexity of the tax system. Costs of administering a complex tax system is offset by a corresponding simplification of the tax rules which might imply less progressive tax

rates even if the government's distributional objectives remain the same (Baake Pío *et al.*, 2004). According to the fiscal illusion hypothesis, how governments finance spending can influence the size of the public sector.

Fiscal illusion as a theory of Public Choice which has serious consequences for government expenditure may also lead to an increase in the public debt (Puviani, 1903), deterioration in long-term public balances (Buchanan and Wagner, 2000), the preference for indirect taxation (Mill [1848] 1994), and tax fragmentation (Sausgruber and Tyran, 2005). Budget deterioration which is also a manifestation of fiscal illusion happens more often in contexts of countries with poor institutional quality which becomes a source of corruption in public life. In such cases, it follows that fiscal illusion belongs to the group of optimistic political illusions. With optimistic political illusions, taxpayers feel that they are paying less than they actually pay.

Wagner (1976) was the first to use the Hirschman–Herfindahl concentration index (HHI) to examine fiscal illusion¹. Subsequent studies of the revenue-complexity hypothesis have used this index as the measure of the illusion variable (Oates 1988). In this paper, we apply the HH index as computed below and it ranges from 0 to 100. In order to capture a variation in revenue diversification we use the Herfindahl-Hirschman Index (HHI) that has been often employed in previous studies to measure the extent which a government relies on multiple revenue sources. In this research, the HHI is computed as:

$$HHI(n) = \sum t_i^2$$

where t_i is the revenue share of tax i in the tax system, and n is the number of tax categories. At the level of the Central Government, the revenue diversification generally extends to direct taxes and indirect taxes tax structures to sales and excise taxes. Thus the index for the central government is calculated using these two sources of taxes. If each tax is from single source the index equals 1; and the index is small if the tax revenue is from many sources. A higher level of the HHI denotes that the government has less complex revenue structure. In the literature on tax diversification, the HHI is usually considered as a measure of the complexity or fragmentation of the tax structure defined as the extent to which total tax revenue is dispersed over various categories of taxes. It is seen as the first source of the complexity of a given tax system. Some argue that complex payment structures (together with indirect taxation) create a fiscal illusion that induces under estimation of the tax prices of public expenditures. According to this hypothesis, the more complicated the revenue system, the more difficult it is for the taxpayer to perceive the “tax price” of public spending and the more likely that the tax burden associated with public programs will be underestimated.

In the literature on fiscal illusion, the share of revenue collected from indirect taxes is indicative of a greater exploitation of fiscal-illusion strategies by the policy maker (Pommerehne and Schneider, 1978). More complicated tax structures and revenue diversification tend to increase tax burden or expenditures which in turn will increase the deficit (Wagner, 1976, Dollery and Worthington, 1996 and Pommerehne and Schneider, 1978). In contrast, Clotfelter (1976) and Munley and Greene (1978) fail to support this claim. Thus in the literature on revenue diversification, the evidence of impact of the HHI is mixed (Oates, 1988). If the economic reforms lead to the expansion of private sector then it may also influence the fiscal illusion.

3.0 Methodology, Data Base and Empirical Results

The specification of the model considered here relates the agent's action to fiscal illusion of the principal considering the revenue diversification and the ratio of indirect taxes to direct taxes on different sets of dependent variables: first, growth of tax revenue, total expenditure, gross fiscal deficit and the tax effort considered as the ratio of tax revenue to GDP. For the States 'government we have considered growth in tax revenue, tax effort and gross fiscal deficit. Total tax revenue measures the overall efficiency of all taxing decisions and operations, while deficit indicators consider the efficiency of taxing and expenditure decisions. As the equation and definitions below show, the model controls for conditions that might also affect both tax and expenditure level decisions independently of conditions that determine efficiency of operations and outcomes.

$$(\text{Tax Effort})_t = \alpha + \beta \text{FI}_t + \lambda \text{DUM}_t + u_t$$

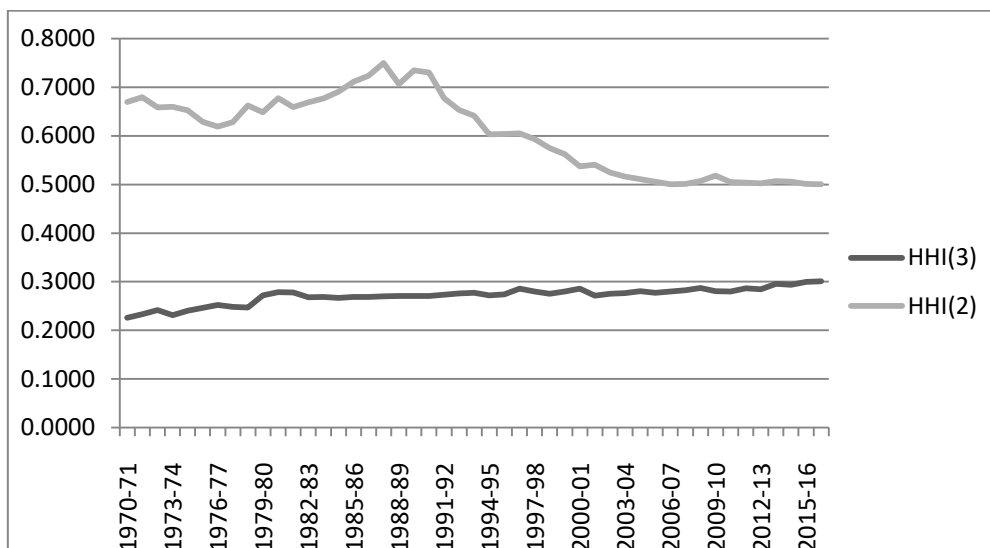
$$(\text{Deficit})_t = \alpha + \beta \text{FI}_t + \lambda \text{DUM}_t + u_t$$

$$(\text{Government Exp})_t = \alpha + \beta \text{FI}_t + \lambda \text{DUM}_t + u_t$$

The FI is the Index for fiscal illusion, we have considered two measures of FI, first is the revenue diversification measured in terms of HHI. Second measure of fiscal illusion (FI) is the ratio of indirect tax to direct tax (TAXI/TAXD). We have considered receipts of the Central Government receipts and state governments separately for the period 1970-2016. In many respect the analysis attempted here is very primitive. Trends in HHI for the Centre Government (HHI (2) and States Governments (HHI (3)) are shown in Figure 1. The HHI for the States' Governments represented by HHI (3) is based on three categories of revenue namely direct taxes, indirect taxes and states share. The HHI for the Centre Government is HHI (2) is based on two categories namely direct taxes and indirect taxes. The HHI shows slightly rising trend in the pre-reform period. In the post reform period however the HHI for the Centre Government has declined, whereas for the States Governments it has remained more or less stagnant. From this it

can be concluded that reducing the tax complexity in the tax system has never been in the agenda of Tax Reforms in the Indian economy.

Figure 1: HHI for the Centre [HH (2)] and the States [HHI (3)] Governments



Source: Author's computation

A dummy variable for economic reforms in 1991 is considered to control for the changes in the tax structures in Indian economy, it is a 'dynamic' dummy in the sense that it intends to capture the impact of widespread changes in tax and trade policy imposed after the year 1991 which is a key year since it marks the end year of the era aptly characterized as the "*Inspector Babu Raj*" by Raj Krishna. When a dummy was introduced for economic reforms our results are as given below:

4.0 Empirical Results

This study attempted to offer a robust theory about revenue diversification and form of government. Regression models that examine the impact of revenue diversification on tax effort (total taxes/total personal income) are given in the Table 1. Following Hsieh (1995) the size of government has been defined as the share of total government expenditure in GDP and revenue growth is the tax revenue in natural logarithm.

Table 1: Impact of Fiscal Illusion, 1970-2017

Dependent Variable	Intercept	HHI(2)	TAXI/TAXD	DUM91	R Square	
Centre Government lnTaxRev	1.88631 <0.00001	0.106019 0.54462			0.0082138	
lnTaxRev	2.2564 <0.00001	-0.411869 0.15999		-0.1025 0.03287***	0.106747	
Gross Fiscal Deficit/GDP	0.760072 0.60003	7.15493 0.00399***			0.169874	
	-6.20127 0.01818	16.8962 0.00004***		1.92801 0.00241***	0.328172	
Government Expenditure(Total)	9.13631 <0.00001	10.078 0.00043***			0.242852	
	3.22502 0.28580	18.3506 0.00013***		1.63719 0.02531*	0.3251	
Taxeffort	11.3893 <0.00001	-3.23813 0.06816*			0.0720	
	11.7507 <0.00001	-3.74386 0.22287		-0.100096 0.83872	0.0729	
lnTaxRev	1.93603 <0.00001		0.00524 0.58863		0.00655	
	2.06593 <0.00001		-0.0219963 0.15865	-0.0994004 0.03127 **	0.107007	
GFD	3.94497 <0.00001		0.416351 0.00239***		0.187192	
	1.5282 0.07131		0.923234 0.00002***	1.84933 0.00217***	0.345086	
EXPTOT	13.5815 <0.00001		0.601482 0.00013***		0.281468	
	11.3518 <0.00001		1.06913 0.00002***	1.70618 0.0121***	0.378297	
TAXEFFORT	9.88932 <0.00001		-0.167126 0.09029***		0.06243	
	9.87345 <0.00001		-0.163798 0.31785	0.0121438 0.97960	0.0624493	
State Governments lnTAXRev	-20.0643 <0.00001	97.7011 <0.00001***			0.773624	
lnTAXRev	-11.0174 <0.00001	60.6196 <0.00001***	1.82952 <0.00001		0.891112	
Tax Effort	-10.68722 0.0000	67.091416 0.00001***			0.8285055	
	-10.2247 <0.00001	65.1955 <0.00001***	0.0935408 0.67370		0.829203	
GFD	-1.59937 0.33209	15.7174 0.01198**			0.132262	
	-0.68040 0.75654	11.9508 0.16347	0.185838 0.52537		0.140271	

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Our results show that the reduction in the tax complexity does not lead to higher growth of tax effort for the Central Government during the period 1970-2016. Considering pattern of receipts of the State Governments the effect of tax complexity is not significant but has *a priori* sign. To examine the impact of tax complexity on the deficit, out of the three measures of deficits of the Centre Government namely Gross Fiscal Deficit, Gross Primary Deficit and Revenue Deficit, we have considered Gross Fiscal Deficit. Measuring tax complexity by Herfindhal index yields the coefficients which are either not significant or often yield the wrong sign. According to Heyndels and Smolders (1995) the use of the Hirschman-Herfindahl index would attach too much weight to the impact of size inequalities as a determinant of local expenditures. For revenue it has negative sign and for expenditure its sign is positive sign thus providing scant support for the fiscal illusion hypothesis (Misiolok and Elder 1988). The reduction in tax complexity leads to increase in the deficit. This increase is due to information asymmetry. If we consider the revenue and expenditure as proportion of GDP for the central government, tax simplification increases the revenue receipt as proportion of GDP but reduces revenue expenditure². Similarly, for the States' Governments if we consider the aggregate receipts as proportion of GDP, it increases with the simplification of States' taxes.

The estimate of the impact of revenue diversification on total tax effort shows a negative effect that is weakened by the government's fund balance. This outcome is more consistent with a managerial view of the variable and other fiscal behavior than what is proposed by the fiscal illusion argument. The fact, revenue diversification has a negative effect, in conjunction with the negative effects of revenue diversification, suggests that tax effort for central government and tax effort in states government is far more strategic for Indian economy than what is proposed by fiscal illusion explanations or found in the some other studies. Park and Park, (2018) argue that revenue diversification can be adopted not only to satisfy public demands for an increase in public expenditures but also to achieve another goal such as revenue stability.

5.0 Conclusion

Link between the level of tax and the complexity of the tax system on the one hand and ease of administration, compliance and corruption on the other has always been attracting both economists and policy administrators during the process of tax reforms which has become a universal phenomenon. In this paper, we argue with the economic growth the tax structure undergoes some changes in an economy. Those changes are due to the variations that we observe in the relative importance of different kinds of taxes in

the overall tax revenue. The objective of tax reforms has to reduce the tax complexity so that there is transparency in the taxation. Complexity in taxation is influenced by the informational requirements of the tax system: the more information authorities require from taxpayers, the more complex the tax system becomes. Researchers have examined the implications of changes in the structure of taxes by either looking at changes in the total taxes as a percentage of GDP or composition of different taxes in total tax revenue. The objective in this paper has been to investigate the impact of fiscal illusion measured in terms of tax complexity both at the Centre Government and the States' Governments and ratio of indirect taxes to direct taxes in case of the Central government in the Indian tax system. Results from our empirical analysis show that the dummy for 1991 implies that the economic reforms in India have influence on the degree of fiscal illusion led to tax simplification. On the contrary, at the level of the State Governments the tax complexity has remained stable during the period under consideration.

Further tax complexity measured by Herfindhal Index has negative relationship with the growth in tax revenue and tax effort. Meanwhile degree of tax complexity affects the deficit of Centre Government indicating a strong evidence of asymmetry between administrators and the public which may lead to corruption. However; it can be argued that the solution to the problem of corruption may not lie in reducing the level of taxes but certainly simplification of tax structure. The determinants of corruption are complex and many and differ from region to region (Sinha, 2014). In-depth investigation is required to establish the link between tax simplification and corruption. While we also attempted to provide some explanations for fiscal illusion introduced by the tax complexity driven tax share changes, the question of why these taxes changed in the way they did requires further analysis in the future. One of the strong motivations behind the every tax reforms ought to be the simplicity in the tax system.

Endnotes

1. For Herfindahl index in revenue complexity literature and other illusionary hypotheses, see Oates (1988) and Dollery and Worthington (1996, 1999).
2. Some studies have made a clear distinction between the tax effort and the tax ratio models (Chelliah and Sinha, 1982)

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