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RELATIONSHIP BETWEEN CORPORATE TAX REVENUE AND SELECT MACROECONOMIC FACTORS: AN EMPIRICAL ANALYSIS

Dr. A. Balakrishnan* Moinak Maiti**

Abstract

In this paper examine the relation between corporate tax revenue and select macroeconomic factors. We employ quarterly data of corporate tax revenue, gross domestic product, wholesale price index, and banks lending rate from 1990 – 2013. Empirical results exhibit that there is significant relation found between corporate tax revenue and bank lending rate. Further, no relation between corporate tax revenue and gross domestic product, wholesale price index exists.

Key words: Corporate tax revenue, gross domestic product, wholesale price index

1. Introduction

TAX is one of the major sources of income for any sovereign government. In India, taxes are broadly classified into two types namely direct taxes and indirect taxes. Direct taxes include corporate tax, personal income tax, wealth tax, gift tax etc. Among direct taxes, corporate tax has been the key contributor of revenue to the exchequer over the years. But recently corporate tax collection started trailing personal income tax revenue. According to ministry of finance report, the growth rate of personal income tax collections has doubled that of corporate tax mop-up. Data also indicate that individuals paid 20.51 per cent more personal income tax in

Department of Banking Technology, Pondicherry University

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2013-14 than in the previous financial year while the growth rate of corporate tax payers is 10.76 per cent lagged, even failing to keep pace with the 12.3 per cent rate of growth of the nominal gross domestic product (GDP). Corporate profits shrank due to various reasons. Possibly macro economic factors namely inflation, GDP, and bank rate might have contracted the corporate profits. The paper tries to understand that whether the above mentioned factors have any significant relationship with corporate tax revenue or not. If yes then what will be its contribution and to find out the possible reason for it. Hence, it is important to understand the determinants of corporate tax revenue for any country which is an emerging economy also of having bottlenecks stemming from inflation, fiscal deficit, and revenue deficit etc. Previous studies suggest that the determinants of corporate tax revenue are different for developed and developing nations. The above determinants tend to change frequently. Further, several multinational corporations have their business operations in India which necessitates considering various external factors. Hence, it is important to consider macroeconomic factors when tax structure is designed. A better understanding on the nitty-gritty of corporate tax system would yield better revenue to the nation.

The paper is organised as follows. Section II presents review of literature. Section III describes data and methodology. Section IV discusses empirical results of the paper. Final section sheds light summary of findings and conclusion.

2. Literature review

Alan and James (1987) find that corporate revenue is adversely affected due to the changes in the legislative powers. The study reveals that corporate tax variations are due to the legislative changes in corporate taxation. Robert J. Barro and Xavier Sala i Martin (1992) show the role of tax policy in different endogenous models of economic growth. The empirical results reveal that lesser private return than the social rate of return will encourage investment and in turn can raise the growth rate

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and thereby increase the utility by the household. Reint Gropp and Kristina Kostial (2000) record that there is a negative relation between FDI and corporate tax volume. The study finds that European Union tax policy significantly affects FDI positions in some countries. Joel Slemrod(2003) reveals that there is no association of the expenditure and GDP ratio with the corporate statutory rate. The study shows that more trade incentive countries collect more corporate tax due to more attraction for the investment. Randall G. Holcombe and Donald J. Lacombe (2004) examine how per capita income changes by marginal change in the state income tax rates. The study employs cross-sectional analysis of 30 years data over a period from 1960 to 1990 of the countries in the state borders with income growth to the neighbouring countries across the state border. It is concluded that the state taxes have a significant effect on the state economic performance. Garrett Thomas A, Wagner Gary A (2004) explore the causes and solution for the fiscal crisis using historical state financing decisions. The study sheds light that a good economic condition will not persist for a longer time and hence a good implementation of revenue and expenditure policy will fight out the crisis period. Lucas Bretschger and Frank Hettich(2004) experiment that tax competition theory by using different data and additional elements of economic theory. The study uses data of 14 countries for the period of 1967-1996 and shows that globalisation tends to raise labour taxes and social expenditures. Micheal, Rachel & Alexander (2005) test the determinants of corporation tax and finds that tax laws are the important determinants of corporate tax. Terence, Janet and Asegedech (2005) study the relationship between trade liberation, exchange rate changes and tax revenue in sub-saharan Africa. The data covers for 22 countries in the sub Saharan Africa, over the period 1980-1996. The study uses generalised method of regression.The findings of the study exhibit that trade liberalization with fine macroeconomics policy increases overall revenue. Rachel and Alexander (2005) examine for the Organization for Economic Development and Cooperation (OCED) countries tax pattern behaviour for the last twenty years and find out that the determinant of the corporate tax changes or shifting from previous years. Christina D Romer,and David H Romer (2007) document that the state's economy reflects the

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level of taxation. The study predominantly considers the narrative record of the presidential speeches, congressional report and executive's branch documents. With these, the study tries to identify the size, timing, and prime motivation of tax policy. The conclusion of the study is such that the macroeconomic variables have a sound effect on the tax changes. Roger Gordon and We Li (2009) experiment the possible reason for many puzzles in the developing countries tax structures. It is found that there is a holistic difference between tax structure and countries which are of developed and developing in nature. The study also observes that developed countries make use of financial institutions for enforcement of the tax collections. This facilitates the tax collection and generates revenue for government at cheaper cost. Gary C Cornia and Ray D Nelson (2010) reveal that both macroeconomic factors and structure of the tax will determine the government revenue. The net effect of the two will not be much in the short run but for long run both of these effects will have a significant effect. Further the paper also explains of the individuals and sales tax effect on the volatility and tax growth. Masood and Sulaiman (2010) experiment the determinant of tax buoyancy of the developing countries and the study concludes that the growth on agriculture sector has no effect on tax buoyancy. The study employs cross sectional data of 25 countries from 1998 to 2008 to support their conclusion. Also it is shown that the import, manufacturing, services sectors, monetization and budget deficit influence have positive influences in the tax buoyancy. Arikan and Yalcin (2013) study the determinants of the exogeneity of tax components with respect to GDP". The study was conducted for Turkey. The empirical results divulge that SCT and income revenues should be increased rather than the corporate and VAT. The study also finds that the SCT and income revenue affect the GDP. Hakim, Bujang and Ismail (2013) examine that whether taxes are able to contribute the economic development by generating more revenue. The study was undertaken for OECD Countries. The study observes that different impacts of taxes are caused due to the different optimum level of the taxes. The study contrasts the old tax theory of less tax rate will generate greater economic growth by the new theory of the tax that high tax rate will generate more economic growth, by investing that tax

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collection in the education and the infrastructure of the country. Harun, Mehmet and Hakan (2013) examine the main macroeconomic indicators and tax revenue in Turkey over a period of 33 years from 1980 to 2013, using sophisticated tools like time series analysis and others to avoid any errors in the calculations. From the literature review it is clear that many major studies have been done all over the world on the determinants of the corporate tax over the period of times, as far as India is concerned, very limited study has been undertaken. From the literature review it is also observed that the corporate tax structure or the selection of the determinants varies from country to country as per the requirement. India as an emerging economy it is important to have very sound corporate tax policies, structures to generate revenue with proper international standard tax structure and to sustain international taxation. The present study aims at finding out the relationship between corporate tax and select macroeconomic factors so as to be important for the policy making for the Indian economy.

3. Data and Methodology

We employ quarterly data of Corporate Tax Revenue, Gross Domestic Product (GDP), wholesale price index (WPI), and lending rate (LR) etc. The data are employed from 1990 to 2013.Data are collected from the websites of Ministry of Finance and Reserve Bank of India. According to recent reports being released by ministry of finance, it is observed that corporate tax revenue is affected by certain macroeconomic factors. Hence, we use few select macroeconomic variables mentioned above in order to verify if corporate tax revenue is shrunk due to increase in those factors.

First we take natural logarithm value for corporate tax revenue in order to even out the amount of corporate tax collection with other variables for estimation purposes. Then we take corporate tax revenue as dependent variable while GDP, WPI, and LR are taken as independent variables from 1990 to 2013. Then we regress log value of corporate tax revenue for three macroeconomic variables specified above. The regression equation being used is as follows.

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$$ctr = \alpha + gdp\beta_1 + wpi\beta_2 + lr\beta_3 + et \quad (1)$$

4. Empirical results

It is observed from the Table 1 (B) of regression results that alpha coefficient is statistically significant (at 1%). If the corporate tax collection is depending on only these three factors, then the intercept (alpha) will be indistinguishable from zero. Hence, the significant value of alpha coefficient confirms that corporate tax revenue variations could well be explained by other macroeconomic factors which are not incorporated in this study. On the other hand, of three control variables, GDP and WPI do not significantly contribute to explain corporate tax revenue variations. This is confirmed from the fact that t statistic of GDP and WPI are statistically insignificant (at 1%, 5%, and 10%). The control variable of LR is statistically significant at 1% level. Adjusted R^2 as a measure of goodness of fit is 0.826 which indicates that 82.6% of corporate tax revenue is explained by lending rate.

Table 1(A): Summary Statistics shows mean value and standard deviation for the dependent variable and independent variables.

Table 1(B): Results of the OLS Estimation

	CTR	GDP	WPI	LR
Mean	10.421	6.537	6.720	14.043
Std. Dev.	1.581	2.048	2.599	2.219

Table 1(B): Results of the OLS Estimation

Variables	Coefficient	Std. Error	t-value
Constant	18.882	1.289	14.649*
GDP	0.074	0.074	0.998
WPI	-0.060	0.054	-1.113
LR	-0.608	0.068	-8.904*
Adjusted R^2 = 0.826			

*Significant at 1% level

Conclusion

In this paper, we examine the relation between corporate tax revenue and select macroeconomic factors. We employ quarterly data of corporate tax revenue, GDP, WPI, and LR from 1990 – 2013. Empirical results exhibit that there is a significant relation existing between corporate tax revenue and LR. Possible explanation for a strong relation between corporate tax revenue and LR could be such that Indian corporate may have employed more debt capital funds rather equity capital fund. Empirical results of GDP and WPI are piquant as they are failing to explain corporate tax revenue despite the fact that they are important macroeconomic factors. The study may be useful for Government of India, regulatory bodies, and Indian corporate.

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