Effect of Income Tax on Savings and Investment in India during the Assessment Years 2001-02 to 2010-2011

Abstract

Taxation, in its various forms, affects the ability and willingness of an individual to work, save and invest. These effects vary, depending on the base of the tax, the rate structure of the tax and the level of the tax burden. Several studies have shown that the structure of taxation can have a major influence on the real sector and that taxation policy can therefore be an important tool for promoting saving, capital formation and economic growth.

This paper examines how changes to the individual income tax affect long-term economic growth as regards domestic saving and investment during the study period 2001-02 to 2010-11.

Keywords: Income tax, Saving, Investment, GDP, Assessee, Correlation, Regression.

Introduction

Domestic Saving

Saving is defined as personal disposable income minus personal consumption expenditure. In other words, income that is not consumed by immediately buying goods and services is saved. So Gross Domestic Saving is GDP minus final consumption expenditure. It is expressed as a percentage of GDP. Gross Domestic Saving consists of savings of household sector, private corporate sector and public sector.

Review of Literature

Taxation Policy has been a widely debated issue all over the world. A large number of studies have been conducted covering different aspects of income tax structure.A brief review relating to this paper are cited below:

Indian Taxation Enquiry Committee (1924) was appointed by Government of India to examine the burden of taxation on different classes of people, equity of taxation and to suggest alternative sources of taxation under the chairmanship of Charles Todhunter.

Taxation Enquiry Commission (TEC) (1953-54) headed by John Matthai was set up to review the tax structure in India.

Kaldor (1956) was invited by the government of India in 1955 to review personal and business tax in the Indian tax system with a view to augmenting resources for the second five year plan.

Boothalingam (1968) was appointed by the Government of India to examine the structure of direct and indirect taxes in India.

Suman (1974) examined the role of personal income tax and corporation tax in the Indian. tax structure, their impact on savings and investments and role in mobilising resources for public sector during first three five year plans.

Direct Tax Laws Committee (1978) was appointed by the Government of India on June 25, 1977 under the chairmanship of N.A. Palkhiwala.

Lall (1982) in his study analysed the impact of direct taxes on individual and business income.

Mittal (1988) tried to outline the impact of corporate and personal income tax policy on saving and investment behaviour in India during the period1970-71 to 1985-1986.

Bagchi (1988) attempted to study the statistical significance of increase in personal income tax revenue during 1985-86 to 1987-88 and tried to identify the strength and weakness of tax enforcement measures undertaken since 1985-86.

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Aggarwal (1991) tried to study the impact of change in tax schedules and income inequality on the elasticity, progressiveness and redistribution of personal income tax in India during 1961-62 to 1983-84.

Tax Reforms Committee (1991) was constituted by the government of India under the chairmanship of Raja J. Chelliah to study structure of direct and indirect tax system following the economic crisis of 1991.

Kaur (1991) tried to evaluate the role of taxation as an instrument of resource mobilization for the five year plans from first five year plan to sixth five year plan in the Indian economy

Nahar (1994) tried to examine the impact of personal income tax on household savings with special reference to salaried class in India.

Raikhy, Om Prakash (2000) examined the tax structure in India, effect of liberalisation on tax-GDP ratio, growth rate and buoyancy of different taxes during pre and post liberalization period.

Sidhu (2003) carried out the study to ascertain the effectiveness of direct tax reforms introduced during the post liberalization period by covering the span of ten years from 1991-92 to 2000-01.

Kumar (2006) attempted to evaluate income tax revenue efficiency of 17 major states of India for the period 1989-90 to 2000-01 by using Stochastic Frontier Approach.

Aim of the Study

Ministry of Finance, Govt. of India sets provisions of Income Tax every year. Here we see that several changes, addition, deletion take place. But it is obvious there is certain effect in respect every change. Although, there have been no empirical studies or even no analysis with case studies either before introducing a provision, during its continuance or after its withdrawal. Sometimes some changes take place overlooking the existing provision bearing almost similar effect. This paper aims to bring into the discussion of different provisions of Income Tax Act relating to the individual assessees and to show the direct impact of the tax burden on their savings and investment.

Gross Domestic Savings as a percentage of GDP

Table 1 presents Gross Domestic Savings (GDS) in India. Here we see that Household sector, private sector and public sector are combindly contributing Gross Domestic saving for the country. In the year-2001-02 to 2002-2003 contribution of public sector was negative, from the year 2003-04 it becomes positive. It is also seen that the contribution of household sector remain highest throughout the study period. Total amount of savings was gradually increasing from 2001-02 onwards.

Table-1
Gross Domestic Savings in India (at Current Market Price)   *Rs. in crore*

Year	Household Sector	Private Sector	Public Sector	Total
2001-02	545288	76906	(-)36820	585374
2002-03	564161	99217	(-)7148	656230
2003-04	657587	129816	36372	823775
2004-05	763685	212519	74499	1050703
2005-06	868988	277208	88955	1235151
2006-07	994396	338584	152929	1485909
2007-08	1118347	469023	248962	1836332
2008-09	1330873	417467	54280	1802620
2009-10	1630799	540955	10585	2182338
2010-11	1700174	620300	201268	2621742

Table-**2** presents the Sector-Wise Gross Domestic Savings (GDS) as a percentage of GDP in India. As can be observed form the table, that total GDS as a percentage of GDP has increased from 25.50 per cent in 1999-2000 to 33.63 per cent in 2010-11. Public sector savings which were negative by 0.5 per cent of GDP in 1999-2000 it reaches to 2.58 percent in 2010-11. This is mainly due to saving in the government sector, as the public sector enterprises have shown a distinct improvement in their performance during this period.

The private corporate sector contributed 4.30 per cent of GDP to GDS in 1999-2000 and subsequently its share improved and reached to 7.96 percent in 2010-11.The household sector improved from 21.70 percent in 1999-2000 to 23.09 percent in 2010-11. During the study period we see that the highest growth rate in the share of gross domestic savings among three sector is private corporate sector lowest is public sector. In case of household sector the share of contribution is very much consistent.

Table-2
Sector-Wise Gross Domestic Savings (GDS) as a percentage of GDP in India

Year	Gross Domestic Savings			Total
	House hold sector	Private corporate sector	Public sector	
2001-02	23.1	3.30	1.60	24.80
2002-03	22.20	3.90	-0.30	25.90
2003-04	23.10	4.60	1.30	29
2004-05	23.60	6.60	2.30	32.40
2005-06	23.53	7.51	2.41	33.45
2006-07	23.15	7.88	3.56	34.59
2007-08	22.41	9.40	4.99	36.80

2008-09	23.64	7.41	0.96	32.01
2009-10	25.18	8.35	0.16	33.69
2010-11	23.09	7.96	2.58	33.63

Percentage of GDP at current market price

Table-3
Volume and Index of Gross Domestic Savings   **(Rs. in crore)**

Year	Volume of Gross Domestic Saving	Index of Gross Domestic Saving
2001-02	585374	100
2002-03	656230	112.10
2003-04	823775	140.72
2004-05	1050703	179.49
2005-06	1235151	211
2006-07	1485909	253.83
2007-08	1836332	313.70
2008-09	1802620	307.94
2009-10	2182338	372.81
2010-11	2621742	447.87

For the purpose of finding relationship between income tax liability and domestic savings we represent highest tax rate along with surcharge and or education cess applicable to individual assessee.

In this case total period of study i.e. 2001-02 to 2010-2011 is considered. In the following **table no-4** tax rate, effective tax rate and its index are shown.

Table-4
Income Tax Rates (top) and Rate-Index of the income of Individual Assessee

Years	Top Rate of tax on Individuals' Income	Surcharge (Percentage)	Education Cess	Effective Tax Rate	Rate Index of Tax on Individuals' Income
2001-2002	30	17	--	35.1	117
2002-2003	30	02	--	30.6	102
2003-2004	30	05	--	31.5	105
2004-2005	30	10	--	33	110
2005-2006	30	10	02	33.6	112
2006-2007	30	10	02	33.6	112
2007-2008	30	10	02	33.6	112
2008-2009	30	10	03	33.9	113
2009-2010	30	10	03	33.9	113
2010-2011	30	--	03	30.9	103

After knowing the data as stated in above two tables, the effect of individual income tax on gross domestic savings can be examined by calculating the correlation co-efficient and regression co-efficient. For calculating these we like to use the following formula.

$$r = \frac{n\sum dxdy - \sum dx.\sum dy}{\sqrt{[n\sum dx2 - (\sum dx)2][n\sum dy2 - (\sum dy)2]}}$$

In under mentioned table, in which *x* indicates the rate index of individual income tax and *y* indicates the index of gross domestic savings in India.

Table-5
Calculation of Correlation Co-efficient
(Gross Domestic Savings)

Year	Rate index (*x*)	*dx* (110)	dx^2	Index of gross domestic savings (*y*)	*dy* (220)	dy^2	dx.dy
2001-2002	117	07	49	100	(-)120	14400	(-)840
2002-2003	102	(-)08	64	112.10	(-)107.9	11642.41	863.2
2003-2004	105	(-)05	25	140.72	(-)79.28	6285.32	396.4
2004-2005	110	00	00	179.49	(-)40.51	1641.06	00
2005-2006	112	02	04	211	(-)9	81	(-)18
2006-2007	112	02	04	253.83	33.83	1144.46	67.66
2007-2008	112	02	04	313.70	93.7	8779.69	187.4
2008-2009	113	03	09	307.94	87.94	7733.44	263.82
2009-2010	113	03	09	372.81	152.81	23350.90	458.43
2010-2011	103	(-)07	49	447.87	227.87	51924.74	-1595.09
n = 10		Σ*dx*= (-)01	Σdx^2= 217		Σ*dy*= 239.46	Σdy^2= 126983.02	Σdx.dy= -216.18

Hence, r= $\dfrac{(10x-216.18) - (-01x239.46)}{\sqrt{[10x217x (-01)^2] [10x126983.02x (-239.46)^2]}}$

r = 0.041

This is co-efficient of correlation. Here the co-efficient of correlation 0.041. It shows that both variables *x* and *y* are positively related or they are in linear way. In other words, as the tax rates on individual income rise, the domestic saving by individual assessees increase. The exact relationship between these two variables may be expressed by calculating the regression co-efficient. It may be calculated by using the following formula.

Regression of X on Y = r. $\partial x/\partial Y$

Regression of Y on X= r. $\partial Y/\partial X$

Where 'r' is coefficient of correlation, ∂X and ∂Y represent standard deviation of X and Y respectively and X = $\sum (x - x)^2$

In order to calculate the regression co-efficient, standard deviation will be calculated generally the variance of and standard deviation is the square root of the variance.

x = $\sum dx^2/n-(\sum dx/n)^2$,

∂y= $\sum dy^2/n-(\sum dy/n)^2$

So ∂x =4.657 and ∂y =110.11.

Hence, we get regression coefficient of

y on x= 0.041x110.11 /4.657=**0.969**

Hence, we get regression coefficient of

y on x= 0.041x110.11 /4.657=**0.969**

Income tax rate is increased by 1 percent, the gross domestic saving by individual assessee will increase by 0.969 percent or if the individual income tax rate is decreased by 1 percent By calculation of regression of co-efficient of *y* on *x* we get result 0.969 which means that if the individual the gross domestic saving will decrease by 0.969 percent. From this it is concluded that between 2001-2002 to 2010-2011 the individual income tax has positively affected the growth of domestic saving by this degree of volume although the influence of income tax liability on domestic saving of individual assesses is not so bigger.

Domestic Investment

Investment is the production per unit time of goods which are not consumed but are to be used for future production. At any period of time the stock of capital includes all assets associated with productive capacity such as factories, machinery, plant and equipment, inventories. These assets represent postponed consumption that is; people invest in assets because they expect these assets to deliver goods and services in the future. Therefore, investment is the flow into this stock of capital goods and thus investment is nothing but is the addition, over some time period, to the real capital stock. In other words, capital is a stock which is measured at a point in time where as investment is flow over a period of time which augment the stock of capital and add to the overall productive capacity.

Table-6
Volume and Index of Gross Capital formation

Year	Volume of Gross Capital Formation	Index of Gross capital Formation
2001-02	602456	100
2002-03	633277	105.11
2003-04	742717	117.28
2004-05	1052231	141.67
2005-06	1266073	120.32
2006-07	1540583	121.68
2007-08	1896799	123.12
2008-09	2000103	105.44
2009-10	2351255	117.55
2010-11	2843415	120.93

Table- 7
Calculation of Correlation Co-efficient (Gross Capital Formation)

Year	Rate Index (*x*)	*dx* (110)	*dx*²	Index of Gross Capital Formation (*y*)	*dy* (110)	*dy*²	*dx.dy*
2001-2002	117	07	49	100	(-)10	100	70
2002-2003	102	(-)08	64	105.11	(-)4.89	23.91	39.12
2003-2004	105	(-)05	25	117.28	7.28	53	(-)36.4
2004-2005	110	00	00	141.67	31.67	1002.98	00
2005-2006	112	02	04	120.32	10.32	106.50	20.64
2006-2007	112	02	04	121.68	11.68	136.42	23.36
2007-2008	112	02	04	123.12	13.12	172.13	26.24
2008-2009	113	03	09	105.44	(-)4.56	20.79	(-)13.68
2009-2010	113	03	09	117.55	7.55	57	22.65
2010-2011	103	(-)07	49	120.93	10.93	119.46	(-)76.51
n = 10		$\sum dx$= (-)01	$\sum dx^2$ =217		$\sum dy$= 73.10	$\sum dy^2$= 1792.19	$\sum dxdy$ = 75.42

Remarking An Analisation

Using the same above stated formula we get the value of r i.e. correlation coefficient

$$r = \frac{(10 \times 75.42)-(-01 \times 73.10)}{\sqrt{[10 \times 217 \times (-01)^2] \times 10[1792.19 \times (73.10)^2]}}$$

r = (-) 0.38

This is co-efficient of correlation. Here the co-efficient of correlation (-) 0.038. It shows that both variables *x* and *y* are negatively related. They are not in linear way. In other words, as the tax rates on individual income rise, the domestic capital formations by individual assessees decrease. The exact relationship between these two variables may be expressed by calculating the regression co-efficient. It may be calculated by using the afore stated formula. Here we shall calculate regression coefficient of y variable on x variable.

So regression coefficient of y on x is = r x $\partial y/\partial x$,

$$\partial y = \sqrt{1792.19/10-(73.10/10)^2} = 11.215$$

$$\partial x = \sqrt{217/10-(-01/10)^2} = 4.657$$

Hence, we get the value of regression coefficient of y on x= (-) 0.38 x 11.215/4.657

= (-) 0.915

By calculation of regression of co-efficient of *y* on *x* we get result (-)0.915 which means that if the individual income tax rate is increased by 1 percent, the gross domestic capital formation by individual assessees will decrease by 0.915 percent or if the individual income tax rate is decreased by 1 percent the gross domestic capital formation will increase by 0.915 percent. From this it is concluded that between 2001-2002 to 2010-2011 the individual income tax bears adverse effect on the growth of their domestic capital formation in India by this degree of volume.

Concluding Observations

From the aforesaid analysis we find that the impact of direct tax on the behavior of the individual assesses in their investment and savings is positive.

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