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Fiscal Policy and Economic Growth in Nepal

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Abstract

This paper seeks to investigate the impact of fiscal policy on economic growth in Nepal using endogenous growth model for the period of 1981-2003. This study finds a negative effect of all the fiscal policy variables including distortionary taxes, productive expenditures, non-tax revenues, private investment and budget deficit on economic growth. But unproductive expenditures and non-distortionary taxes have no effect on growth. As the present fiscal policy of Nepal has retarded growth by affecting factor productivities, the government has to revise it in order to expedite the pace of economic growth in Nepal.

Introduction

There has been much debate about the effects of fiscal policy on economic growth especially in developing countries because fiscal policy is regarded as a source of productive investment as well as a source of low productivity and inefficiency. Fiscal policy affects total output, employment levels, and price stability by changing the total or composition of revenues and expenditures of the government. "Fiscal policy is predominantly viewed as an instrument to mitigate short-run fluctuations of output and employment. By a variation in government spending or taxation, fiscal policy aims at altering aggregate demand in order to move the economy closer to potential output" (Zagler and Durnecker, 2003).

According to the neoclassical model, fiscal policy cannot affect the long-run growth of output since growth is determined by exogenous factors such as the dynamics of population and the rate of technical progress (Solow, 1956; Swan, 1956). Endogenous growth model has challenged the long-run policy ineffectiveness by modifying neoclassical assumptions (Barro, 1990; Lucas, 1990). However, the noble feature of endogenous growth model is that fiscal policy can determine the growth of the economy.

The introduction of endogenous growth model, which incorporate government sectors, has led to the opposite conclusion that fiscal policies can affect the long-run growth rate of an economy (Barro, 1990; Barro and Sala-i-Martin, 1992). According to endogenous growth theory, government policy can influence the growth performance of the economy. In

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endogenous growth models, fiscal policy can be one of the important determinants of the observed differences in growth performance depending heavily on the elasticity of labor supply and on aspects of technology to accumulate human capital and to create new goods about which very little is currently known (Jones, Manuelli and Rossi, 1993; Stokey and Rebelo, 1995).

According to the model, fiscal policy seems to be an important determinant of economic growth simply because some fiscal policy instruments are harmful for growth while others are not. Since the mid-1980s endogenous growth model have proposed a number of channels through which fiscal policy can affect the rate of growth of output. Apart from its macroeconomic effects, fiscal policy can affect the rate of growth of aggregate output through many channels. The three impacts of public education expenditure on human capital formation, of the provision of public sector infrastructure on the productivity of private capital, and of capital income taxation on saving (Gerson, 1998). Specifically, fiscal policy affects growth in the endogenous growth model through several channels such as production externalities, productivity growth, productivity differences, factor accumulation, crowding-out, and redistribution policies (Gemmell, 2001).

Previous Empirical Studies

Several studies were conducted to examine the impact of fiscal policy on growth. Engen and Skinner (1992) assessed the impact of fiscal policy on output growth, using a generalized model in a sample of 107 countries during the period 1970-85. They found a pronounced negative impact of tax increases on output growth. A 10 percentage point tax increase is predicted to reduce output growth by 3.2 percentage points per annum. A balanced budget increase in government spending and taxation of 10 percentage points was predicted to decrease long-term growth rates by 1.4 percentage points.

Easterly and Rebelo (1993) examined the relationship between fiscal policy and growth, using cross-section data for 100 countries for 1970-1988 and panel data for 28 countries for 1870-1988. They found that public transportation, communication and educational investment are positively correlated with growth per capita, and aggregate public investment is negatively correlated with growth per capita. They also found that there is a strong association between the development level and the fiscal structure: poor countries rely heavily on international trade taxes, while income taxes are only important in developed economies.

Gerson (1998) surveyed the theoretical and empirical literature on the relationship between taxation and public expenditure and economic growth and found that well-targeted government expenditures on health, education and infrastructure should have a positive impact on growth while the impact of taxation on the supplies of labor and capital, and on output growth is more muted.

Hermes and Lensink (2001) have analyzed the impact of fiscal policy on private investment and macroeconomic performance for a sample of thirty-three LDCs. The study attempts to analyze the relationship between a large number of government expenditure and revenue

categories and private investment. They show that capital expenditure and expenditure on defense start to have a positive impact on private investment only after a minimum level of expenditure on these categories has been reached. Moreover, with respect to expenditures on wages and health, it has been found that they stimulate investment up to a certain level. If expenditures on both categories are increased beyond this level, investment is reduced. Furthermore, relationships between specific fiscal categories and investment appear to be non-linear.

Perotti (2002) has studied the effects of fiscal policy on GDP, prices and interest rates in 5 OECD countries, using a structural Vector Autoregression approach. Its main results can be summarized as follows: 1) The effects of fiscal policy on GDP and its components have become substantially weaker in the last 20 years, 2) The tax multipliers tend to be negative but small, 3) Once plausible values of the price elasticity of governments spending are imposed, the negative effects of government spending on prices that have been frequently estimated become positive, although usually small and not always significant, 4) Government spending shocks have significant effects on the real short interest rate, but uncertain signs, 5) Net tax shocks have very small effects on prices, 6) The US is an outlier in many dimensions, US responses to fiscal shocks are often not representative of the average OECD country included in this sample.

Kneller, Bleaney and Gemmell (1999) found for a panel of 22 OECD countries for 1970-1995 that: (1) distortionary taxation hampers growth, while non-distortionary taxes do not; (2) productive government expenditure increases growth, while non-productive expenditure does not; (3) long-run effects of fiscal policy are not fully captured by five-year averages commonly used in empirical studies.

Zagler and Durnecker (2003) has surveyed the literature on fiscal policy and economic growth and find that several tax rates and expenditure categories exhibit a direct impact on the growth rate of the economy. They found that the level of education expenditures and the growth rate of public infrastructure investment both exhibit a positive impact on the growth rate of the economy. Similarly, they found that several tax rates, such as taxes on savings, on intermediate input goods, on research and development expenditures, on profit income and on manufacturing labor directly influence the division of labor between the manufacturing sector and the research and development sector, and thereby alter the innovation driven growth rate.

Gemmell and Kneller (2003) estimated the growth impacts of fiscal variables on long-run growth in 11 European countries, using the Barro (1990) and Barro and Sala-i-Martin (1992) models. These results suggest that increasing tax revenues from distortionary taxes by 1 per cent of GDP reduces the average growth of the economy by 0.411 percentage points, whereas increasing productive expenditures by the same amount increases growth by 0.387 percentage points, unproductive expenditure and nondistortionary taxes have no effect on growth.

Benos (2004) has estimated the impact of fiscal policy on economic growth by decomposing public spending and tax revenue into various subcategories and using

endogenous growth model. It uses an unbalanced panel data set covering 16 OECD countries and covers the period 1970-1997. Specifically, the main findings are: a) government spending on education, health and fuel-energy display a hump-shaped relationship with per capita growth, b) public expenditures on housing community amenities, social security-social assistance and transport-communication are characterized by a U-shaped relation with growth, c) the effect of public spending on education and social expenditures on growth is stronger the poorer a country is, while the opposite is true for expenditures on health, d) there is a non-linear impact of distortionary taxation on growth, but the form on non-linearity is sensitive to changes in estimation method, since sometimes we find a hump-shaped and sometimes a U-shaped relationship, e) budget surplus has a positive effect on growth.

Empirical Model

The aim of this paper is to investigate the impact of fiscal policy on economic growth in Nepal using annual time series data from 1981 to 2003. All the variables are measured in real terms. The endogenous growth model with some minor modifications has been applied in this paper in which output growth is assumed to be a function of several fiscal policy variables including total revenues, total expenditures, unproductive government expenditures, productive expenditures, distortionary tax revenues, non-distortionary tax revenues, non-tax revenues, budget deficit, and private investment. Thus, these variables can be expressed in natural logarithms (ln) as:

$$lnYp = ln\alpha + \alpha_1 lnPGE + \alpha_2 lnUGE + \alpha_3 lnDT + \alpha_4 lnIDT + \alpha_5 lnNTR + \alpha_6 lnBD + \alpha_7 lnPINV + \alpha_8 lnTR + \alpha_9 lnTE + \varepsilon$$

Where PGE = productive government expenditure which includes expenditure on health, education and economic services because of their effects on human capital accumulation. UGE = unproductive government expenditure is total consumption less recurrent expenditure on health, education and economic services because it affects consumers' welfare but not private production efficiency. DT = distortionary tax revenue which includes income and profit taxes, social security taxes, and payroll and manpower taxes. IDT = indirect tax revenue which includes domestic goods and service taxes and other tax revenues. NTR = non-tax revenue which includes capital revenue, fines, forfeitures, dividends etc. BD = budget deficit which is mostly negative for LDCs because of crowding out effects. TR =total revenue of the government. TE = total expenditure of the government. Yp = real per capita GDP which is used as dependent variable. PINV = private investment which is obtained by deducting government investment from gross fixed capital investment. α_1, α_2, ...,α_6 are elasticities, and ε is the stochastic term.

Empirical Analysis

The results presented in Table 1 reveals several important relationships between fiscal policy variables and economic growth. It is obvious from the table that both unproductive consumption expenditure (UGC) and non-distortionary tax revenue (IDT) are not statistically

significant. Consistent with the theory, unproductive expenditure and non-distortionary taxes have neutral effects or no effect on growth and can therefore be removed from the regression equation. According to this model unproductive government expenditure do not affect growth. The effect of unproductive government expenditure on the rate of economic growth is insignificant because the productivity of the private sector remains unaffected.

Table 1: Effects of Fiscal Policy Variables on Per Capita Real GDP Growth

Explanatory Variables	Model I	Model II	Model III	Model IV	Model V	Model VI
DT	-0.3752* (-5.3542)	-0.2249* (-3.0316)	-0.1943* (-3.1127)			0.0819 (0.6395)
TR				-0.2432*** (-1.6884)		
TE				-0.5929* (-3.4780)		
PGE	-0.9817* (-5.6525)	-0.6575* (-3.7602)	-0.4697* (-2.9817)			-0.5758* (-3.2785)
NTR		-0.3155* (-3.2297)	-0.1799*** (1.9493)			
PINV			-0.3053* (-3.0853)	-0.3097* (-3.2690)	-0.2354*** (-2.014)	
IDT					-0.7392** (-2.675)	-0.6577* (2.9024)
UGE					0.0062 (0.0314)	-0.2108 (-1.3664)
BD					-0.2222** (-2.5371)	
C	20.4565* (16.8396)	18.7522* (16.5664)	18.6144* (19.7686)	19.5707* (32.6817)	19.1656* (26.0075)	20.9953* (19.8073)
R2	0.9525	0.9693	0.9799	0.9802	0.9799	0.9745
Adjusted R2	0.9477	0.9645	0.9755	0.9771	0.9755	0.9688
DW Statistic	1.4014	1.5275	2.2153	2.2297	2.1363	1.6886
F Statistic	200.3928*	200.069*	219.709	313.875*	219.599*	171.670*

Note: Figures in parentheses indicate t-Statistic.
*, **, and *** indicate significance at 1%, 5%, and 10% levels respectively.
Source: Author's calculations based on data from Economic Survey (Various Years), Ministry of Finance, Nepal Government.

This study finds that the coefficient of distortionary taxes (DT) is statistically significant at 1 percent level with a negative sign meaning that an increase in tax revenues from distortionary taxes by one percent reduces the growth rate by 0.19 percent or even larger simply because it distorts the decision to invest. Distortionary taxation reduces economic growth by lowering savings and investment through its impact on the net rate of return to private investment and through its impact on the cost of capital and by reducing the marginal productivity and the supply of capital and labor. It reduces the disposable income and savings leading to greater loss of efficiency by distorting private agents' allocative decisions with regard to factor accumulation and supply and thus obstructs growth. Insofar as distortionary taxes interfere in the private decision to save and invest, they may very well change the accumulation process of capital, and thus alter the growth rate of the economy (Milesi-Feretti and Roubini, 1998). Thus, distorting the household's consumption-saving choice, this tax acts as a disincentive to accumulate physical capital and as a result harms economic growth (Engen and Skinner 1996, Boadway and Wildasin 1994).

It also finds that the coefficient of productive expenditure has statistically negatively significant at 1 percent level meaning that increases in productive expenditure were associated with lower levels of growth. Increasing productive expenditure by one percent decreases growth by 0.47 percent. The negative effect of productive expenditures on growth suggests that composition of the expenditure category needs to be re-examined with a view to reorganizing it so that it contributes to economic growth. Moreover, the negative relationship also suggests the inefficiency associated with the use of public funds and public investments in Nepal. Productive expenditures seem to have hindered the rate of growth of an economy because the expenditures could not complement private investments and crowd out private capital. Low level of expenditures allocated on education, health, and infrastructures exhibit a negative impact on the growth rate of the economy. Low level of investment on physical infrastructure such as transportation, communication as well as information systems, water and sewer systems as well as energy facilities could not facilitate private investment and improve productivity and thus hampered the rate of growth. Since the average stock of human capital plays a decisive role in determining the long run growth rate of an economy, a reduced access to education is likely to have a negative growth implication. Education through schools, campuses and universities should therefore ensure a continuous human capital accumulation process. Low level of expenditures on the health cannot improve the rate of economic growth partly because it cannot reduce illness and absenteeism leading to a cutback in the quantity of labor and partly because it cannot increase workers ability to acquire new knowledge and skills leading to have an effect on the quality of labor.

The coefficient of non-tax revenues is found to be negatively correlated with per capita output growth, possessing long run elasticity within a range of -0.17 to -0.31. Non-tax revenue seems not to have any role in determining economic growth in Nepal, since it is also a distortionary way of financing government expenditure. As non-tax revenue is distortionary in nature, it is therefore associated with lower economic growth.

Sound economic growth must be based on the rapid formation of domestic capital and investment expansion, which is almost impossible to achieve without an appropriate volume

of domestic savings. Therefore, fiscal policy should be used to increase savings and encourage the efficient use of savings to finance investment. The coefficient of private investment is statistically negatively significant, which varies between -0.23 and -0.30 percent, suggesting that this type of activity does not significantly contribute to economic growth because it could not enhance the productivity of the private sector. In contrast to the developed countries, public investment may have crowd-out private investment, thus lowers productivity and growth.

The coefficient of taxation is statistically negatively significant at 10 percent level, which suggests that an increase in tax rate by one percent decreases growth by 0.47 percent and thus obstructs economic growth. Taxation has no effect on long-term growth rates of Nepalese economy because it not only reduces the productivity of labor and capital but also lessens the accumulation of physical capital. The tax wedge will reduce saving, and hence reduce output growth rates as wealth accumulation suffers. "Static tax distortions do affect output growth by encouraging the flow of investment and labor supply into sectors which largely escape taxation. The expansion of these lightly taxed or even subsidized sectors will lead to lower sector-specific capital and labor productivity. Hence, for a given rate of investment and labor supply growth, output growth is likely to decline. If the economy is on a steady-state growth path, taxation will have no effect. Alternatively, if the lightly-taxed sectors such as industrial production for export or substitutes for imports provide positive benefits, then taxes which direct more resources into these socially productive activities can augment output growth rates" (Lucas, 1985; Manas-Anton, 1985). Only a tax on asset income has growth effects because it affects households saving. Moreover, taxation affects investment through its impact on the cost of capital in the long term

The coefficient of total government expenditure is statistically significant at 1 percent level with a negative sign, which signifies that an increase in total government expenditure by one percent decrease the rate of growth by 0.59 percent. It is obvious from the fact that government consumption expenditures impede the growth rate partly because it could not improve the marginal productivity of the private sector's physical capital and labor and complement private investments, and partly because it crowd out private capital. Although the government expenditures focused on redistributional programs in depressed regions of the country yield positive gains to the government, it retards growth. Whilst consumptive public expenditures do not directly affect the long-run performance of the economy, they may very well exhibit positive welfare implications (Turnovsky, 1996).

The coefficient of budget deficit is negatively significant at 5 percent level, which indicates that an increase in budget deficit by 1 percent reduce the growth rate by 0.22 percent. It implies further increase in budget deficit can destabilize economy and hamper economic growth. The net effect of the changes made in the fiscal policy in the 1990s is negative in Nepal. All the variables are equally responsible for the ineffectiveness of the fiscal policy in Nepal.

Concluding Remarks

The impact of fiscal policy on economic growth of Nepal has been examined both at the aggregated and disaggregated level using endogenous growth model for the period 1981-2003. At the aggregated level, taxation and government expenditure do not have any effect on the rate of economic growth. At the disaggregated level, this study has found strong negative effect of all the variables including distortionary taxes, productive expenditure, non-tax revenue and private investment on economic growth. The significant negative effect of productive expenditure on economic growth indicates the inefficiency associated with the use of public funds and public investments in Nepal. It suggests that composition of productive expenditure category needs to be re-examined with a view to reorganizing it so that it contributes to economic growth. Non-tax revenue is associated with economic decline because this form of revenue is also distortionary in nature. However, unproductive expenditure and non-distortionary taxes have neutral effects on growth. The coefficient of private investment is statistically negatively significant which suggests that fiscal policy does not contribute to economic growth through increasing private investment. As the present fiscal policy hardly contributes to the rate of economic growth, the government has to revise it in order to expedite the pace of economic growth in Nepal.

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