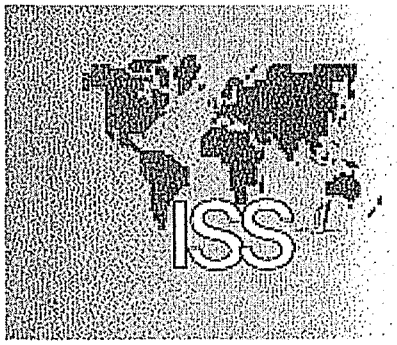


Institute of
Social Studies

Graduate School of Development Studies

Impact of Public Expenditure on Economic Growth and Poverty Alleviation in Nepal

A Research Paper presented by

Shiv Raj Bhatt
(Nepal)

In Partial Fulfillment of the Requirements for Obtaining the Degree of

MASTER OF ARTS IN DEVELOPMENT STUDIES

Specialization:

ECONOMICS OF DEVELOPMENT

Members of the Examining Committee

Dr A.S. Bedi
Professor Dr R.P. Vos

The Hague, December, 2001

Enquiries:

Postal Address:
Institute of Social Studies
P.O. Box 29776
2502 LT The Hague
The Netherlands

Telephone: +31-70-4260 460
Telefax: +31-70-4260 799
email: zubli@iss.nl

Location:
Kortenaerkade 12
2518 AX The Hague
The Netherlands

Acknowledgements

The 15 months stay at ISS was a great opportunity for me to learn. During my study I found extremely stimulating environment at the institute. I am indebted to many people for present work. I take this opportunity to mention a few here.

First of all my sincere thanks and gratitude goes to my first supervisor Dr. Arjun Singh Bedi without his useful guidance and comments, I could not have the paper as it is now. I have learnt a lot from him about the writing of research paper and he has always been a rich source of ideas, arguments and inspiration.

My sincere thanks and gratitude also goes to my second supervisor Prof. Rov Vos, who by his extensive knowledge and experience and by his valuable comments and suggestions helped me to avoid my problems and weaknesses.

I have gained a lot from discussion and critical comments of several colleagues, I wish to particularly mention Dawood, Hamidou, Admasu and Carolyn whose comments and insights on my work were highly rewarding. I am also grateful to all other ECD participants for their friendship and sharing of ideas, staff for their profound and fruitful lectures and Marja Zubli for her kind supports.

I am indebted to the managing committee of Siddhanath Multiple Campus Mahendranagar, Nepal, for recommending and allowing me to attend this course. I am also indebted to the Royal Dutch government for granting me fellowship.

I owe my special thanks to Santosh Bist for his inspiration and guidance. My thanks also goes to Besh Nath Sapkota, Bhabiswor Pandey, Lava Thapa, Salony Sainju Bajimaya, Naresh Khatiwada, Koshal Regmi, Yadav Pokharel, Shanti Prasai, and Sharada Pathak for all the support and fun during my stay in The Hague. And I also want to express my heartfelt thanks to Bimala Rai and Mona for their kind support and valuable suggestions.

My parents,' son and wife have been the greatest source of inspiration for me; I want to dedicate this paper to all of them.

November, 2001
The Hague.

TABLE OF CONTENTS

List of tables and figures:

Tables:

Figures:

Abbreviations:

FY = Fiscal Year
GDP = Gross Domestic Product
GNP = Gross National Product
HDR = Human Development Report
HMG = His Majesty's Government
IMF = International Monetary Fund
LDC = Least Developing Country
ln = Natural log
NA= not available
NPC = National Planning Commission
PPP = Purchasing Power Parity
Rs. = Nepalese rupees
UNDP =United Nations Development Programme
WB = World Bank
WDR = World Development Report
w.r.t. = With respect to

Chapter 1
Introduction

(1.1) Statement of the problem and purpose of the study:

Nepal, a small Himalayan kingdom, sandwiched between two giant neighbours China and India, with a very low per capita income of $[1] 244 per annum (NPC, HMG Nepal 2000), is one of the poorest countries in the world. Widespread poverty and unequal distribution of income are its most challenging issues. During the second half of the 20th century, Nepal has made substantial economic progress under planned development efforts, however crucial issues of economic development, specially the problem of poverty and inequality are still unsolved and are expanding day by day.

Nepalese government regarded planning as the most efficient method and an instrument to stimulate economic growth that raised living standard of common people. All the plans introduced during the past five decades have included the objectives of poverty alleviation, reduction in inequality, and improvement in the wellbeing of the people, directly or indirectly. The first five-year plan for Nepal was introduced in 1956 with the objective of accelerating the pace of socio-economic development of the country. Main objectives of the First Plan (1956-62) were (1) increase production and create employment and (2) raise standard of living and general wellbeing of common people. Similarly, the Second Plan (1962-65) had the objectives of (1) improvement in the living standards of people, (2) creation of employment opportunities, (3) provision of social services, and (4) justice in income distribution. The Third Plan (1965-1970) aimed to raise agricultural output, to develop basic infrastructure, to develop industries and to reduce social disparities. The main objectives of the Fourth Plan (1970-75) were: increasing GDP at the rate of four percent, establishing the base for sustaining long term economic growth, and creating conditions conducive to the emergence of a society free from exploitation. To achieve the goal of balanced economic growth the country was divided into four development regions, introducing the concept of regional plan. The Fifth Plan (1975-80) had the objectives to maximise output consistent with the needs of the people, to utilise labour force optionally and to strike a regional balance in

[1] $ Represents US dollar throughout this paper.

development process. By the time the Sixth (1980-85) and Seventh (1985-90) Plans were formulated, poverty alleviation and human development objectives had almost fully taken shape under the thin cover of Basic Needs Programme. In the decades of the 80s and 90s, the planning concepts in Nepal have been directed more towards the amelioration of the status of poor people. In the Eighth (1992-97) and the Ninth (1997-2002) Plans, poverty alleviation objective received explicit attention in line with the changed development orthodoxy of the major donors (particularly World Bank and UNDP, whose policy prescriptions seemed to shift from structural adjustment and growth towards poverty alleviation and human development). [Gurugharana, 1996].

Objectives of various plans show that the Nepalese government intends to use public resources towards the achievement of economic growth and the elimination of poverty. However, in reality the plans, programs and projects formulated and implemented since 1956, supported by various donor agencies, have done very little in percolating benefits to the poor, whose numbers are constantly rising. Indeed, the development projects have had a dualistic impact on the economy exacerbating the existing inequality in distribution of income and assets. Development of past five decades is not reflected in the improved living standards of masses of the poor, but in the modern consumption style of few families and their multi-storeyed buildings [ibid.]. The Nepalese government while reviewing the eighth plan accepted this truth:

"Despite the planned development efforts of more than four decades, high economic growth rate has not been achieved on one hand, and plans have been unable to make an expected impact on the living standard of general people, on the other" [Ninth Plan pp.27].

In a country like Nepal, economic growth should be the most important objective of the government policies, since there are fewer chances to achieve the goals of social justice and poverty alleviation without accelerating the rate of economic growth. As the World Bank asserted:

"Given the widespread poverty in Nepal--nearly half the population is below the poverty line- recent economic performance has not been good enough; and Nepal needs to grow more rapidly and equitably in order to make tangible progress in reducing poverty. There is little scope in Nepal for improving living standards of the poor through income redistribution, and higher growth is necessary both to increase

income levels and to generate additional resources to provide better services and infrastructure to the poor" [The World Bank 1997, pp. i].

To achieve the various goals of the welfare state, governments of both developed and underdeveloped countries formulate and implement economic policies using fiscal and monetary policies as instruments. Fiscal policy is the fundamental instrument in the hands of any government to achieve the aims of economic policy including the objectives of economic growth and poverty alleviation. It can generate the means to create economic and social infrastructures, which are necessary for economic growth. Government regulates the economic activities to achieve the goals of economic growth and social justice with the help of fiscal policy. It helps to stimulate private investment, and better utilisation of scarce entrepreneurial ability, which are key to economic growth. It can also be used to stabilise the economy. The scope of public finance includes both the revenue and expenditure aspects of government and is quite comprehensive. This paper focuses only on the aspect of expenditure. To achieve the various goals of economic policy (especially the alleviation of poverty) government should know where to direct resources and who will be the beneficiaries of such resources. This paper aims at tracing the effects of public expenditure policies on economic growth and poverty alleviation in Nepal.

(1.2) Objectives of the study:

The main objective of this paper is to investigate the impact of government expenditure on poverty alleviation in Nepal. In doing so firstly the paper will assess the impact of government expenditure on economic growth, because in a country like Nepal poverty alleviation without growth is not possible. Secondly, the paper will analyse the trends, composition and growth of public expenditure. Towards assessing the impact of government expenditure on poverty alleviation this paper will examine the government expenditure on some key sectors like health and education. This will help analyse the effect of government spending on the well being of people.

(1.3) Research hypothesis:

Economic growth is positively correlated with public expenditure. Public expenditure on human resources development improves productivity and income-earning power of the people hence reduces poverty.

(1.4) Research Question(s):

This paper deals basically with two key questions:

(1) What is the relationship between public expenditure and economic growth?
(2) To what extent is poverty and wellbeing of the people affected by public expenditure?

(1.5) Research methodology and sources of data:

To achieve the overall objective of this paper (that to addressing the question as to how public expenditure works as a tool of poverty alleviation?), at first the impact of public expenditure on economic growth will be analysed. The effect of public expenditure on economic growth will be analysed using the time series data for Nepal. To answer the first question the models developed by Ram (1986) and Sattar (1993) on the basis of Solow model (production function framework) will be used. Impact of public expenditure on economic growth will be analysed using the OLS method; government expenditure will be included in production function as an input.

Towards addressing the second question, firstly I assume (on the basis of numerous empirical findings) that good health and schooling are positively correlated with productivity and income generating power of people. Any effort to improve the educational and health status of people enhances their income generating power, hence reduces poverty. Finally, on the basis of this assumption the impact of public expenditure on education and health sectors will be examined. The educational status of people will be proxied by primary school enrolment rate while the life expectancy at birth and infant mortality rates will be used as the proxy measures of health status. The

impact of government expenditure on these two-outcome variables (of wellbeing) will be examined. Any improvement in these two variables will indicate improvement of wellbeing and the reduction of poverty. Required data are abstracted from Economic Survey of Nepal 1998-99 and Nepal Living Standards Survey Report 1996 (HMG Nepal), Nepal Human Development Report 1998 (Nepal South Asia Centre), World Development Indicators 2001 and World Development Report 1978 to 2000 (The World Bank), Human Development Report 1990 to 2000 (UNDP) and International Financial Statistics 2000 (IMF).

(1.6) Limitations:

Since this study is mostly based on secondary data, it is not possible to analyse the sectoral expenditure programs and their impact on the wellbeing of people. Secondly, although the size and composition of government expenditure affects the growth as well as wellbeing of the people, it is imperative to understand how financing of such government expenditure has been made. However, due to the time constraint this study will focus only on the size and composition of public expenditure. The information gathered from secondary sources and some empirical evidences on different aspects of public expenditure will hopefully indicate the nature, trend and impact of public expenditure on poverty alleviation. This paper attempts to view very important aspects of public expenditure, which are very closely related with wellbeing of people.

(1.7) Organisation of the paper:

This paper is divided into five chapters. Second chapter presents the review of literature and theoretical framework for the paper, which itself is divided into three sections. Divided into three sections, this chapter reviews literature on the role of government, relationship between public expenditure, economic growth and poverty.

Chapter three has been devoted to trace out the relationship between public spending and economic growth. Overview of the Nepalese economy, the composition and pattern of public spending and the relationship between public spending and economic growth will be discussed. Theoretical framework and models, which will be used to evaluate

the role of public spending on economic growth, empirical test of the models and results will also be analysed in this chapter.

Chapter four links the role of public expenditure on poverty alleviation. Upon presenting the poverty profile, analysis of the role of education and health in alleviating poverty will be conducted. Empirical findings and the public spending in Nepal will be examined. When doing so firstly some empirical findings of other researchers will be presented which suggest that education have positively, correlated with economic development. Secondly some findings which suggest that education play a crucial role in poverty alleviation, by enhancing the productivity and income generating power of poor will be presented. Finally chapter five will conclude the paper and present some policy recommendations.

Chapter 2

Review of Literature

The role of the state in economic life was accepted since the birth of economic analysis[2]. However, as to the extent of the desirable role of the public sector, there is a big difference in the views held in 1770s (Adam Smith) and in 1970s (John Galbraith) [Sahni, 1972]. Since the birth of economic science, the intervention of the state in economic life is a topic of great controversy[3]. Early economic thinking was dominated by the followers of Adam Smith, who supported the 'laissez-faire policy',[4] and argued that, minimum government interventions are fruitful for an economy. However after World War II the growing importance of the public sector has been seen in developing as well as developed countries and government policies as a necessary ingredient of development. In what can be called the "public interest" view[5], governments must intervene to foster development because unmodified interaction of private agents will not achieve the goals of economic efficiency, and poverty alleviation. This approach reserves a special place for government in influencing the distribution of income and alleviating poverty. Promoters of public interest view argue that the incidence of poverty determined by the market is not usually just or appropriate, so that government may-and should-step in. It might do so through progressive taxation and through expenditures targeted to the poor [WDR, 1988].

This changing view shapes the roots of development economics as a distinct branch of economics. Various models of development were formulated and implemented after the

---

[2] Economic science has its foundations before 1776, which is the year when Adam Smith published his 'Wealth of Nations' a celebrated and most influential book in economic history. Adam Smith is usually known as the 'father of economics', and it is argued that, economics as a distinct science emerges after the work of Adam Smith.

[3] "The configuration of states has varied widely across continents and centuries, but arguments over the proper roles of the public and private sphere have not. Whether in Machiavelli's "The Prince", Kautilya's "Arthasastra", Confucius' writings, or Ibn Khaldoun's The Muqaddimph, the discussion has revolved around the mutual rights and obligations of state and citizens. Almost all these traditions have included a role for the state in providing basic public goods...Using public resources to provide critical public goods and to raise private productivity is nothing new" [WDR1997, pp. 20].

[4] Classical economist favoured the free-competitive market economy and opposed the government's intervention in economy, which is generally known as 'laissez-faire policy'.

[5] According to this view, free market underprovides "public" goods or can overproduce goods that impose costs beyond those borne by the producers. Market mechanism may produce insufficient growth as well as macroeconomic imbalances. These market failures need to be corrected by governments.

end of Second World War, but the early development models mainly concentrated on the growth of output, while the distribution of output and the issue of poverty were neglected. Early development economists (mainly Orthodox) believed that the benefits of growth would trickle down to the poor. Following the growth models suggested by them, many countries have recorded substantial economic growth during the last fifty years. However, it has been realised that, despite impressive growth rates of GNP per capita during 1950s and 60s, poverty has continued to persist and in some cases has worsened, which suggests that, income growth alone is not sufficient.

Redistribution with growth became a theme when there was also the realisation that besides the iron curtain there was a poverty curtain [Desai, 2000], the 'Basic Needs Approach' gained widespread popularity in the 1970s.

Decade of 1980s represents a setback in many developing countries to the growth process though some countries showed that an open- export- oriented economic policy was capable of generating growth while reducing poverty. During the late 1970s and 1980s concern about the expansion of the public sector arose in the industrial and developing countries. Slow growth, lagging private savings and investment, high inflation, balance of payments deficits, heavy debt burdens, continued poverty, and unemployment began to be seen, at least in part, as the result of the excessive growth of the public sector. The late 1970s also marked an important turning point in centrally planned economies, where reliance on direct command of governments was increasingly seen as a drag on economic growth [WDR, 1997]. These concerns found an intellectual underpinning in the re-emergence of what can be called the "private interest" view, tracing its roots back to the classical liberal economics, especially Adam Smith [WDR, 1988].

Economic difficulties of the 1980s led a number of countries to 'Structural Adjustment Programs' (SAP) with the assistance of the World Bank and the IMF. Adjustment policies frequently involve a cut back in government expenditure. With the introduction of SAP, poverty reduction had lost salience for LDC governments and donors. Pressures for fiscal stabilisation and market liberalisation would reduce public expenditure, and curtail poverty programs. Even primary education and basic health were exposed to cuts and user charges. The poor would be the main losers, and defenceless, as a result the number of people living below the poverty line in many

'adjusting countries' has increased [Cornia et al 1987, Lipton and Ravallion, 1995]. This dissatisfactory result of SAP calls for reorienting development priorities of the developing countries away from exclusive preoccupation with maximising economic growth towards broader social objectives like the eradication of poverty and reduction of income disparities.

The decade of 1990s came with the broader concept of poverty, wellbeing and development. A better understanding of the nature of development pioneered by the UNDP with the publication of the first HDR advanced some crucial ideas in this respect. It was realised that, the state is not merely a referee, making and enforcing the rules from the sidelines; it is also a dominant player in the economic game. The actions undertaken by government have profound effects on transaction costs and on economic activity and economic outcomes. Played well, the state's activities can accelerate development. Played badly, they will produce stagnation or in extreme, economic and social disintegration [WDR, 1997].

The views regarding the role of government are different and the history of public economics is very old. However, in the early days of its (public finance) development, the study of public expenditure has suffered from serious neglect; the whole literature of public finance concentrated mainly on various issues of taxation, while the expenditure side of the public budget was neglected. As Meerman (1979, pp.9) asserted:

"For many decades economists have sought a precise answer to the question, Who pays taxes? An entire literature, methodological and empirical, has grown out of this concern. More recently attention has moved to the more complex question, who benefits from public spending?"

The analysis of public expenditure has been recognised as distinct fields of public finance recently. Nowadays the scope of public expenditure economics is fairly extensive, it absorbs the energies of the not only economists, but also political scientists and sociologists, economic analysis of public expenditures is basically concerned with its role in the allocation and distribution of resources in the economy [Sahni, 1972]. In the following three sections, the review of literature is briefly presented in a systematic form which also serves as a theoretical framework of this study. Section (2.1) deals with the literature on the role of government and fiscal policy, section (2.2) with the

relationship between public spending and economic growth and section (2.3) presents the role of public spending in poverty alleviation.

(2.1) Role of Government:

Historically, the role of the government in the efficient running of the economy is controversial. Classical economists favour a small and balanced budget, since, they dominated early economic thinking; state remained small by modern standards until well into the twentieth century. A series of dramatic events in the aftermath of World War I marked the turning point; 'Russian Revolution of 1917' was the first in the series, which led to the abolition of private property, second was 'The Great Depression' and third event was the rapid break-up of European empires. Geopolitical change as well as the clamour for social insurance in the industrial economies-ushered in fifty years of policy debate focused around a more activist role for government [WDR, 1997].

Besides all these controversial and unsettled thinking about the role of government in an economy, dimensions and volume of government's activities increased all over the world during the last century. Even in industrialised countries like the USA and the UK, which are strong supporters of 'laissez- faire policy'; the scale of public finance has increased dramatically. In 1880 the (unweighted) average of public expenditure as a share of GNP in some selected industrialised countries was about 10 percent, by 1985 the average share had reached 47 percent [WDR, 1988 pp.44]. However, the growth of public sector in developing countries is not as high and constant, it has a fluctuating trend. Sometimes in the name of SAP and sometimes in the name of privatisation and liberalisation, governments of developing countries were forced to cut down their budget, which reflected in the uneven growth of public spending in developing countries[6].

In developing countries, where resources are scarce, government faces a lot of problems, while trying to achieve the goal of social justice. Government tries to attain

[6] Public expenditure as a percentage of GDP (1975-95):

	1975	1980	1985	1990	1995
Nepal	9.13	14.86	18.88	20.98	17.54

Sources: calculated from Economic Survey of Nepal 1998-99.

various objectives of economic policies, such as rapid, sustainable and balanced growth, poverty alleviation, greater equity, economic efficiency and stability, with a host of more specific objectives from dealing with balance of payments problems to encouraging particular investment by using fiscal and monetary policy. Fiscal policy is one of the key instruments at the disposal of the government to intervene in the economy. Basically fiscal policy fulfils three functions[7]:

(1) It raises the resources needed to finance public administration and government policies (taxation policy),

(2) It allocates resources between the various policy objectives (transfer and investment policy),

(3) It sends right signals to markets so as to induce the private sector to behave in a way consistent with policies decided upon (price and subsidy policy).

Therefore fiscal system should be analysed not only from the point of its scale but also from the view of, its integrity and its efficiency. Fiscal policy mainly operates through taxation and public expenditure. Taxation provides the means to raise resources to meet government expenses. Public expenditure is the expenditure of the public sector, which includes capital as well as current expenditure. 'The public sector' is the area of economic activity for which the government has some executive responsibility [Diamond, 1975].

The classical economic rationale for government interventions in a market economy rests on the argument of market failure, it is often argued that poorer countries are characterised by more extensive market failure [Hemming, 1991], hence government has to play a dominant role in these countries. In this perspective, the consensus areas of active government role are:

(a) *Pure public goods:* markets alone cannot provide these goods such as defence, law and order, and environmental protection. Because all share their benefits automatically, no one is willing to pay for them individually thus government should provide them.

[7] From Pyatt, 1992.

(b) *Merit goods:* the goods with positive externalities, or spillover benefits, are worth more to society than to any one consumer. For example public health reduces infection rates, education adds to society's knowledge base, and adoption of new technology raise productivity. Market tends to under-supply these goods, so the complementary public provisioning can improve efficiency. Similarly market ignores negative externalities, such as industrial pollution. Regulation to control pollution can improve the social welfare, which government should act upon.

(c) *Infrastructural investments:* like roads and communications, demand high investment longer time period for returns. They are key components for development. Private sector does not take the risk for such a long time in these sectors.

The case for fiscal policy rests on its ability to correct market failure, Wolfson (1979) concluded that the theory of fiscal policy is basically a theory of market performance. Apart from the normative rules describing the extent to which government ought to intervene positive explanations of the degree to which they actually do intervene must be based on: (1) the extent of market failure, (2) distributional objectives and (3) the efficiency cost of compensating interventions [Hemming, 1991].

In the era of structural adjustment, government interventions are confined to the more classical and hence relatively uncontroversial areas. It was argued that quality of government is more important than its size, and the quality might be defined broadly to cover five factors: (1) Prudent fiscal policy, (2) efficient revenue mobilisation, (3) priorities for public expenditure, (4) appropriate structure of government, and (5) good administration [WDR, 1988]. During the period of SAP, governments in developing countries were encouraged to withdraw from producing and marketing private goods. The World Bank suggested to maintain macroeconomic stability and to follow above five factors as guiding principle.

Thus, to make public expenditure policy sound, two things should be given utmost importance:

(1) The level of public expenditure should be such that macroeconomic stability can be sustained.

(2) Public expenditure should concentrate on the following functional categories:

(a) Infrastructure development (b) education (c) health (d) research and development and (e) development of good institution of governance.

But this does not necessarily imply that private sector should not play any role in these areas. Public and private spending are complementary in all these areas. Setting aside the case of pure public goods, an appropriate mix of public and private participation in these areas is most desirable. Government intervention is justified only if it has advantage over the market for a given economic problem. Public provisioning must become the exception rather than the rule, state intervention is justified only where market fails and then only to the extent that it improves upon the market [WDR, 1996].

(2.2) Relationship between public expenditure and economic growth:

The relationship between public expenditure and national income (which is usually used as a proxy of economic growth) has been treated in a characteristically dissimilar manner in two major areas of economic analysis. Public finance studies have generally postulated that growth in public expenditure over time is caused by growth in national income, while most macroeconomic models have tended to take opposite view [Sahani and Singh, 1985]. Accordingly the literature on the relationship between government size and economic growth can be divided into two groups:

(1) Public finance approach, which follows Wagner's "Law of Increasing State Activity", has considered public expenditure as a behavioural variable, similar to private consumption expenditure. The law suggests that the demand for increase in the scope of public sector activity would be a natural consequence of the higher living standards, which accompany economic industrialisation. A number of factors were advanced in support of this view: as society becomes industrialised, the set of social, commercial, and legal relationship within it becomes more complex and government occupies a more prominent role in establishing and running institutions to control this complexity. In addition, as the industrialisation process and economic growth proceeds, the demand for public expenditure on merit goods provision would increase, putting further upward pressure on the relative size of the public sector. Hence the law asserts that as the process of economic growth takes place, government expenditure will grow at a faster rate than output.

(2) Macroeconomic perspective, which follows Keynes, treated public expenditure as an exogenous policy instrument designed to correct short-term cyclical fluctuations in aggregate expenditures, and a powerful instrument to achieve the objective of full employment. It analyses the impact of public expenditure on the growth of national income.

To test the Wagner's law, several different proxies can be used for government size and economic growth and the relationship can be hypothesised in different forms. Musgrave (1969) used data from a large number of countries to examine the law and find the law valid. However, Abizadek and Gray (1985) tested the law using data from 53 countries grouped into developing and developed countries and found that the law is valid only for developing countries. Similarly Ram (1987) argues that government share in GDP may seem to increase with economic development simply because of an increase in the relative prices of public goods, although the real "quantity" of government outlays may be constant or even declining. He delicately balances the arguments with the conclusion that:

"There is much diversity in the character of the covariance between income and government expenditure in different countries. Therefore it is difficult to make a universally valid statement and one can get a result of almost any kind by focussing on limited time-series or cross-section evidences. While the individual country time-series results indicate the proportion of favourable and unfavourable cases roughly 3:2, most of the cross-section evidence seems unfavourable to Wagner's hypothesis. Thus one can find almost as much evidence in favour of hypothesis as against it" [Ram, 1987, pp196].

Many economists also tested the relationship between public spending and economic growth in macroeconomic perspective and the results are mixed. Empirical evidence for a wide range of industrial and developing countries reveals no consistent correlation between aggregate public expenditure and growth [Hemming, 1991]. Empirical studies support the view that capital expenditure have a positive impact on growth and within capital expenditure, education and other social sector spending exerted the strongest influence [Diamond, 1990]. Landau (1986), Scully (1989) concluded that a larger government size depressed growth. However, Rubinson (1977), Ram (1986), and Sattar

(1993) found evidence of a positive relationship between government expenditure and economic growth.

The contrasting empirical results may be explained by the facts that growth is influenced by the composition of expenditure rather than its volume, since certain types of spending may have more growth orientation. Providing infrastructure to facilitate private investment, education service to increase human capital, health services to increase labour productivity, and a general administration and legal framework to support an increasingly complex economy thus promotes growth. Growth of public expenditure in developed countries is explained by the rapid expansion of the welfare benefits with susceptible effects on factor productivity especially on labour. On the other hand in developing countries a larger portion of public expenditure is made towards investment in physical and social infrastructure and increase the productivity of capital as well as labour [Sattar, 1993]. Eshag (1983) has examined the major categories of government consumption, which accounts for the bulk of government expenditure. These are general administration, defence, economic services, education and health. It is clear that expenditure on the last two categories can play an important role in the promotion of development.

There is no precise optimum size of public expenditure, which can be determined ex-ante. However, experiences in developing countries suggest that as the sphere of public expenditure expands beyond traditional areas such as health, education, and transport, economic efficiency of the state suffers, and it eventually draws the resources away from the traditional (core) areas of public spending [Pfeffermann, 1987]. The World Bank also supports 'Better and Slimmer Government' and argued that the state has to move from doing so many things badly to doing its fewer core tasks well [WDR, 1996]. Availability of finance is also a crucial element in determining the level of public expenditure, most of the developing countries, which are heavily indebted and dependent on foreign aid, can not maintain a high level of public expenditure. Governments play a vital role in development, but there is no simple set of rules that tells them what to do, its role depends on capacity, capabilities, country's level of development, external conditions, and a host of other factors [WDR, 1999/2000].

Nowadays, demographic and social factors are given importance in analysing the demand for public programs. High birth rates and declining infant mortality rates, has resulted in rapid growth in population as whole and particularly younger age cohorts, led to increased spending on education and health in developing countries. However the aged population explains the increased public expenditure in developed countries, large transfer payments for social security and welfare purpose has little direct impact on growth.

This paper will test the nature and direction of causality between public expenditure and economic growth, in macroeconomic perspective. In other words, the impact of public expenditure on economic growth will be examined. This study aims at testing the hypothesis that size of public expenditure has a positive impact on economic growth and public expenditure on education and health sectors improve the quality of life hence reduces the poverty.

(2.3) Public expenditure and poverty alleviation:

Poverty reduction is the fundamental objective of development. Public finance is the prime instrument in the hand of any government to alleviate poverty. World Bank rightly asserted, *"Public finance shapes the course of development"* [WDR, 1988, pp.1].

A country which desires to use public resources towards the elimination of poverty and accelerating growth, needs to know who receives which resources and why[8]. Knowledge about poor is essential if government wants to attack poverty more effectively. Public finance is one of the central instruments through which government influences the economic activities and wellbeing of the people. It affects the pace of development and generates more resources and opportunities for the people. On the other hand its social effects are also important i.e., effects on life expectancy, infant mortality rate and primary school enrolment, which are extremely important aspects of wellbeing, especially in developing countries where poverty is widespread.

[8] Robert S. MacNamara expressed similar view in his address to the Board of Governors of the World Bank: "Shift in the patterns of public expenditure represent one of the most effective techniques a government possesses to improve the conditions of the poor....Governments can best begin to shift public expenditure towards those who need it the most by initiating surveys on the effects of their current patterns of disbursement: where do the funds really go, and who benefits the most?"(Cited from Meerman, 1979 pp.3).

Many social scientists attempt to define poverty, but there is no one universally excepted definition of poverty, there is a huge debate about its definition and measurement. Poverty means going short materially, socially and emotionally [Alcock, 1997]. The WDR 1990 defined poverty as the inability of an individual to attain a minimum standard of living. The living standard of an individual is measured in terms of incomes i.e., poverty is defined as a shortfall of income with respect to a specific poverty line. Two common poverty lines has been identified by the WDR, 1990: (1) Extreme poor ($ 275 a year) and (2) Poor ($370 a year, i.e., roughly one dollar a day), where all values are in 1985 PPP. The most simple and widely used measure is the Head Count Ratio (HCR or P_0), which is simply the percentage of the population with per capita income (or consumption) below the poverty line. Although the HCR is straightforward and widely used, it can not explain how poor the poor are. Poverty Gap Ratio (PGR or P_1) is another measure, which takes into consideration the depth of poverty. Foster, Greer and Thorbecke (1984) defined a general class of poverty measurement:

$$P_\alpha = \frac{1}{N}\sum_{n=1}^{q}[(Z - Yi)/z]^\alpha$$

Where Z is the poverty line, Y_i is the income (or consumption) of the ith poor person and N is the total population. From this equation if $\alpha = 0$; P_0 is the HCR which measure the proportion of poor below the poverty line. If $\alpha = 1$; P_1 is the PGR, which measures aggregate shortfalls in the incomes of the poor from the poverty line. And if $\alpha = 2$; P_2 is the severity of poverty index. From the policy point of view P_1 is the most attractive because it is sensitive to both the number of poor and how poor they are. P_1 measures the actual amount of income necessary to bring every unit below poverty line up to the poverty line. This amount of income may not be sufficient, of course, since perfect targeting may not be possible, but it does gives a lower bound on the transfer of resources required to eradicate poverty.

Various measures of deprivation and poverty were developed by UNDP during the decade of 1990s, which are convenient for all to use as a best measure of development

and situation of poverty in a country, main concepts are, Capability Poverty Measure, Human Poverty Index and Human Deprivation Measure.[9]

Having a discussion on the definition and measurement of poverty we now turn to the question of its alleviation. The role of public policy in poverty alleviation is unquestionable; to achieve the goals of welfare state it should play an important role. Market alone cannot solve the problem of poverty because of: (a) market responds to demand backed by cash, not to need, therefore peoples ability to satisfy their needs through the market is limited by their assets. (b) The normal functioning of the market increases the vulnerability of the people who only own labour [Wuyts, 1992]. Thus government interventions to reduce poverty is desirable. Bhagwati (1988) divided the policy instruments designed to achieve the goal of poverty alleviation into two main categories. ***(1) The indirect route:*** the use of resources to accelerate growth and thereby impacts on income and hence the living standards of the poor. ***(2) The direct route:*** the public provisioning of minimum-needs-oriented education, health, nutritional supplements, housing, and transfers to finance private expenditure on these and other components of living standards to the poor. This public provisioning enhances the security in two ways; such expenditure protects vulnerable groups against misfortune and enhances people's ability to secure a livelihood [Wuyts, 1992]. Distinction between these two approaches is creating income (hence consumption and wellbeing) and providing consumption as well as investment on human resources development, as Schultz (1961) argued that education is not merely a consumption activity, but is an investment that leads to the formation of human capital.

After the Second World War it was realised that poverty anywhere is a threat to prosperity everywhere thus study of poverty is more important than the study of wealth of nations. However in 1950s and 1960s the growth based indirect route to attack poverty was more in fashion. By the 1970s it was realised that growth based development strategy of poverty reduction is ineffective and in some cases even harmful and only the direct route in the form of 'Basic Needs Strategy' was the solution. The 1980s restored the indirect route, because the neglect of the growth

[9] See Chapter 4 for a detail discussion on the measurement of these concepts.

processes created additional more painful problems in developing countries. It was realised that, even if its indirect impact on poverty through increased income for the poor is negligible or harmful. But in context of long run it foster the ability of the state to sustain the expenditure required to finance the more productive direct route [Bhagwati, 1988].

Various factors shift the thinking in favour of the indirect route; mainly the collapse of the Soviet Union, government failure, including the failure of publicly owned firms seemed everywhere glaring evident. Governments started to adopt policies designed to reduce the shape of the state's interventions in the economy. New concept of market-friendly strategies took hold in large parts of the developing world. The pendulum had swung from the state-dominated development models to the minimalist state of the 1980s, the era of Structural Adjustment began, and the state's vital functions were neglected in the name of SAP, which threats social welfare and foundations for market economy [WDR, 1997]. Hence the optimal policy design should involve a mix of these two approaches unless one of the approach in achieving the targets substantially dominates that of the other. As The World Bank asserted:

"The lesson of a half-century's thinking and shifting of the state's role in development is more nuanced. State-dominated development has failed, but so will stateless development. Development without an effective state is impossible"[WDR 1997, pp. 25].

To deal with the critical issues in the choice between basic needs (BN) centred development strategy and the traditional income raising approach (IRA), Besley and Kanbur suggest a framework. The challenge faced by the government is to determine which of the two options will be effective as a policy of poverty alleviation. They assert that though (BN) enhances the standard of living directly and is a direct input into income generation, yet its superiority over (IRA) is only a special case and is country specific and depends on 'basic needs multiplier'. Furthermore, though improved health and education ultimately give feedback on income growth yet it requires (i) social valuation of (BN) to be sufficiently high and (ii) the government to be able to sustain an adequate level of recurrent expenditure over long run. Given the enormous constraints (economic, political and social) faced by the developing countries it is not certain

whether they can achieve a sustainable, socially desirable level of welfare without growth.

Therefore to alleviate poverty effectively it is necessary to use available resources efficiently, i.e.; directing them as much possible towards those who need them most. Hence the best solution to the problem of poverty is 'targeting' rather than universal provisioning of public goods. Although perfect targeting is the best solution but it is a policy maker's dream because of high administrative and informational costs of implementation and political economy considerations [Besley and Kanbur, 1993]. In practice the policy maker has to decide somewhere between perfect targeting and no targeting at all. In terms of efficiency of the targeting mechanism there is a possibility that two 'errors of targeting', (First error is the omission of the poor from the scheme: F-mistake and second is the inclusion of the non-poor: E-mistake), may result [Cornia and Stewart, 1993]. But it is hoped that the budgetary cost of implementing 'targeting' would be less than ideal 'universal' solution.

A good way to design targeted programs is to make the benefits contingent on work or to subsidize those goods which are mainly consumed by the poor ('self targeting'). In self-targeting it is assumed that only poor participate in the programs because the wage they receive is lower than other unskilled wages or foods which are subsidised are low quality so the non-poor are uninterested in consuming them. In developing countries, where it is very difficult to measure income, policy makers also rely on other factors such as geographical area, gender for targeting, the administrative costs of doing so are usually low. While formulating policies to achieve the objective of poverty alleviation in developing countries following aspects should be given importance:

(a) Stimulating growth and providing employment opportunities to the poor.
(b) Adequate public provisioning of basic needs to the people who cannot benefit from economic growth.
(c) Providing safety nets and social protection to the most vulnerable groups.

Last but not the least, to solve the existing social and economic problems mainly the problem of widespread poverty in developing countries it is necessary to have long term investment in human resource development and short term protection of the poor. Government should and must play an important role in providing the basic needs to the

poor. Privately owned market oriented profit-making institutions and non-governmental charitable institutions will not be able to achieve the desired growth rate along with reducing the number of peoples living below the poverty line. Hence the replacement of public sector by private institutions is not the ultimate solution of these problems. What is needed is to strengthen the state's role and make the state institutions better responsive to public needs, and more responsible for their own actions, while maintaining their financial viability [Wuyts et al, 1992].

Chapter 3

Public Expenditure and Economic Growth

(3.1) Overview of Nepalese economy:

Nepal, with a very low per capita income and more than 24 million population (with the high growth rate about 2.1 per annum), is among the poorest countries of the world. Real growth of GDP has been fluctuating and is lower than most of the other Asian and South Asian countries in the past decades. Narrow-based growth with low employment intensity resulted in uneven distribution of income. Sluggish growth of income, uneven income distribution, and deteriorating terms of trade of the agriculture sector vis-à-vis other sectors have intensified poverty [Nepal HDR, 1998]. The economy is heavily dependent on subsistence agriculture that has very low productivity and is highly susceptible to climatic variations. The share of manufacturing sector in the total economy is less than 10% of GDP. The ratio of savings and investment are low and the gap between them is wide.

Nearly half of the population could be considered as poor, regardless of the measure of poverty used. Official statistics for 1996 estimate that more than 40% of the population is poor, while estimates based on a poverty line of $1 a day per person put the figure at more than 50%. Poverty is greater in the rural areas, especially in the higher altitude and less accessible regions and among lower castes and ethnic minorities. Measures of human poverty tend to mirror the traditional measures of income-poverty; income poverty has increased since the late 1970s, mostly in rural areas, so for three decades growth has bypassed the rural poor [ibid.]. Despite significant improvements in social indicators over the last few years, the country still falls lowest even among the South Asian countries. Almost one-half of the population is illiterate; about two fifths of the population does not have access to piped drinking water, average life expectancy is a mere 58 years and the infant mortality rate is 67 per thousand.

(3.2) Public expenditure and sources of financing:

The size of government has historically been low in developing countries; Nepal is not an exception. However, in comparison to other developing countries of the region the government's involvement in the economy is little higher. As a percentage of GDP, Nepal spends approximately 20 percent of its domestic resources on public expenditure, which is low, compared to developed countries, but in comparison to other developing countries in the region it is satisfactory. However the revenue side of the government budget is gloomy. Revenue as a percentage of total GDP seems to be very low. In part this is due to low per capita income (which is the cause of low ability to pay taxes) and the non-monetization of large sectors of the economy, small size of the modern economy is the other significant cause. Even allowing for these reasons, the current level of domestic resource mobilisation is significantly below the level that government could achieve. At the same time after the recent introduction of multi-party democratic system in the country, people's expectations and desires have increased significantly. On the one hand, base of taxation is low, on the other hand the concept of welfare state emerges after the 1990s, as a result, the government budget is dependent on inflow of foreign capital.

It is evident from Table (3.1) that Nepal is at a satisfactory position in comparison to other developing countries of the region regarding the size of government expenditure. Thus, according to these indices the involvement of the government in its economic activity seems to be high. However the revenue side of the public budget is not very satisfactory, which is reflected in large budget deficits, which is a common cause of the most economic problems, including the problem of inflation, which especially affects poor people.

Large budget deficits have accentuated the need to cut spending. Public spending must be consistent with the macroeconomic framework; otherwise, high or rising budget deficits will create macroeconomic imbalance (depending upon methods of financing). If financed through excessive external borrowing, they can lead to a debt crisis; excessive printing of money leads to inflation; and too much domestic borrowing leads to higher interest rates, and crowding out of private sector [Pradhan, 1996].

The expenditure and revenue both were increased during the last three decades in absolute terms and as a share of GDP. However the increase in expenditure is higher than revenue, so the budget deficit is very high. Government mostly depends on foreign aid to finance deficit, and foreign aid is overwhelmingly dominated by loan. There is no definite trend of grants and loans implying the volatile nature of foreign aid. However, one third of the total government expenditure is financed by foreign aid. Foreign loan as a source to deficit financing has been increased, which is disappointing for economy. If loans are free gift, there would be no fear of it, but on loan, interest payment and principal repayment must be made which ultimately leads the country to the debt-trap (See figure 3.1 and 3.2).

Table (3.1) Government revenue and expenditure in selected countries (1998):

(As percentage of GDP)

Country	*Expenditure*			*Revenue*			Budget Deficit(-) or surplus (+)
	Current	Capital	Total	Tax	Non-tax	Total	
Nepal *	**9.2**	**9.8**	**19.0**	**8.8**	**2.4**	**11.2**	**-7.8**
India	12.8	1.6	14.4	8.6	3.0	11.6	-6.3
Pakistan	18.8	2.5	21.3	12.6	3.3	15.9	-5.2
Sri Lanka	19.7	5.3	25.0	14.5	2.7	17.2	-8.0
Indonesia	12.2	5.7	17.9	15.6	1.2	16.8	-2.4
Malaysia	15.2	4.5	19.7	18.9	4.1	23.0	+2.9
Thailand	11.7	6.7	18.4	14.4	1.8	16.2	-3.4
U .K.	36.3	3.8	40.1	36.3	2.0	38.3	+0.6
U.S.A.	20.4	0.6	21.0	20.4	1.4	21.8	+0.9

Source: WDR (2000).
* For Nepal data are taken from economic survey of Nepal (for fiscal year 1997/98).

Figure (3.1): Budgetary situation in Nepal[10]

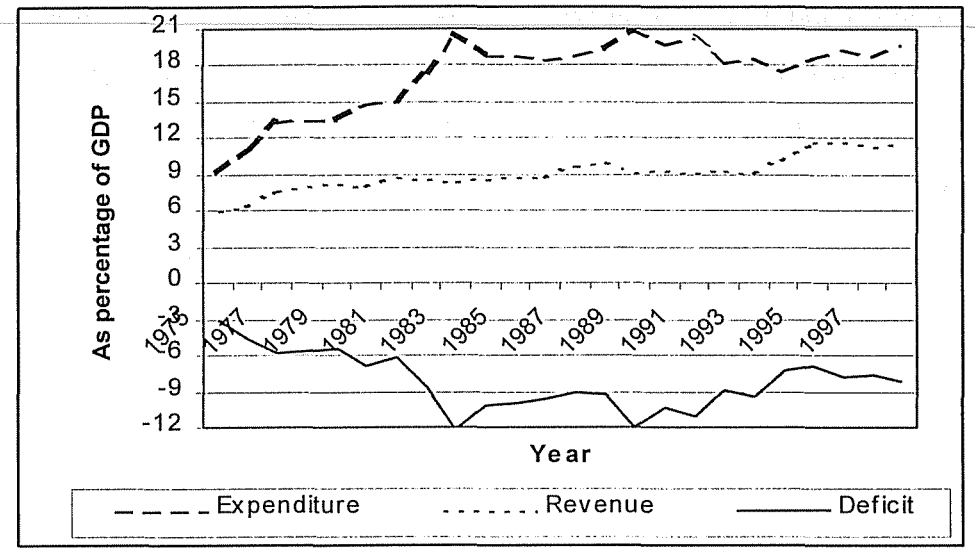
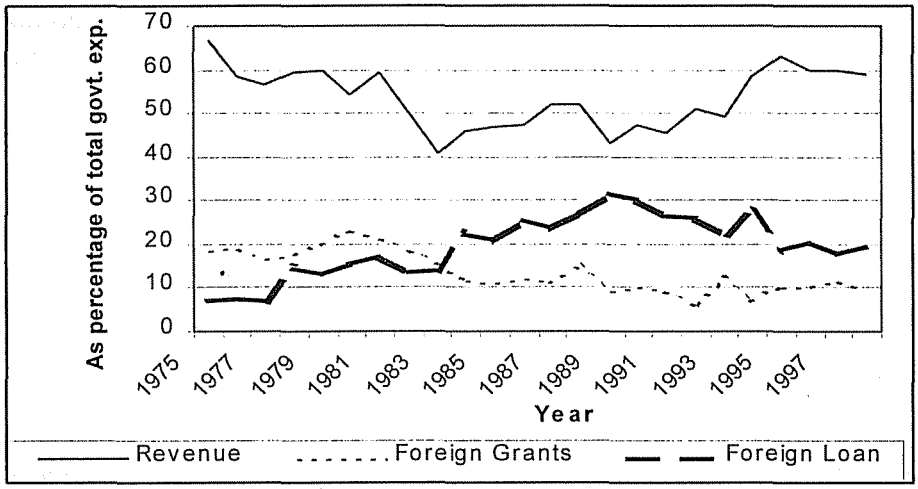


Figure (3.2) Sources of financing public expenditure



(3.3) Structure of public expenditure:

Although the Nepalese government still does not absorb a very large proportion of the nation's output, the growth of government expenditure has been phenomenal. Government expenditure was only Rs.1523.7 Million in 1974/75, and reached Rs. 56118 Million in 1997/98, thus averaging a growth rate of 22.75 % per annum. Total

[10] Source: 'Economic survey of Nepal (1998)' for all the figures presented in chapter three and four unless mentioned.

public expenditure as a percentage of GDP provides an indicator of the influence of the government over the economic activities of the country. Total public expenditure was only 9.13 % of GDP in fiscal year 1974/75, and increased to19.16 % in the year 1997/98. These numbers show that there is a twofold increase in government expenditure during the period. From this it is clear that the involvement of the government has increased in the economy. Nepalese government divides its total expenditure into two categories regular (current) and development (capital) expenditure. Both regular and development expenditures has an increasing trend as a share of GDP. But the share of these two categories in total public expenditure shows a disappointing trend. The share of regular expenditure as a percentage of total government expenditure reached to 48.10 % in the 1997/98 from 36.10 % in 1974/75. On the other hand development expenditure (which is considered as productive investment) as a percentage of total government expenditure has a declining trend, which was 63.90 % of total government expenditure in 1974/75 and declined to 51.58 percent in 1997/98 (see fig. 3.3). Similarly the composition of government expenditure is also not very satisfactory, defence expenditure which is mostly unproductive is almost as high as expenditure on health services, however the expenditure on educational sector is satisfactorily increased, especially after 1990 (see fig 3.4 and 3.5).

Figure (3.3) Development and regular expenditure (as percentage of total government expenditure)

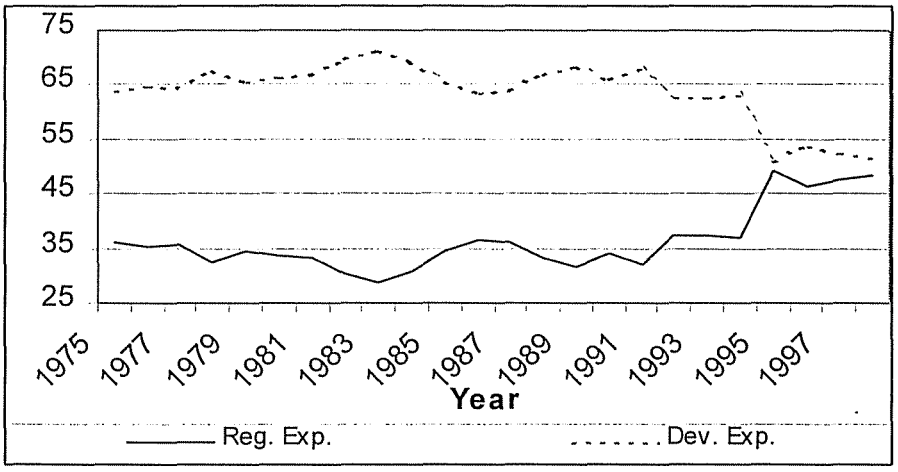


Figure (3.4) Government expenditure on various sectors (as percentage of total government expenditure)

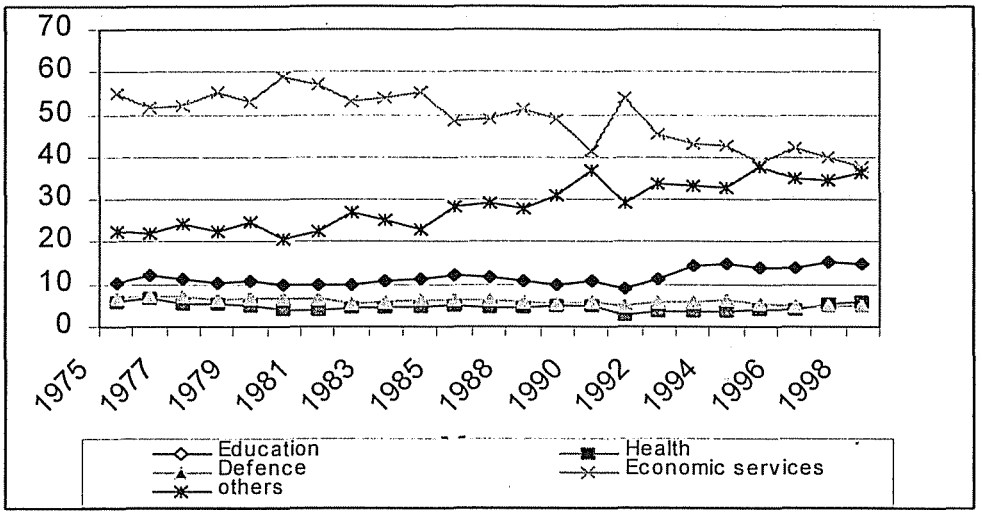
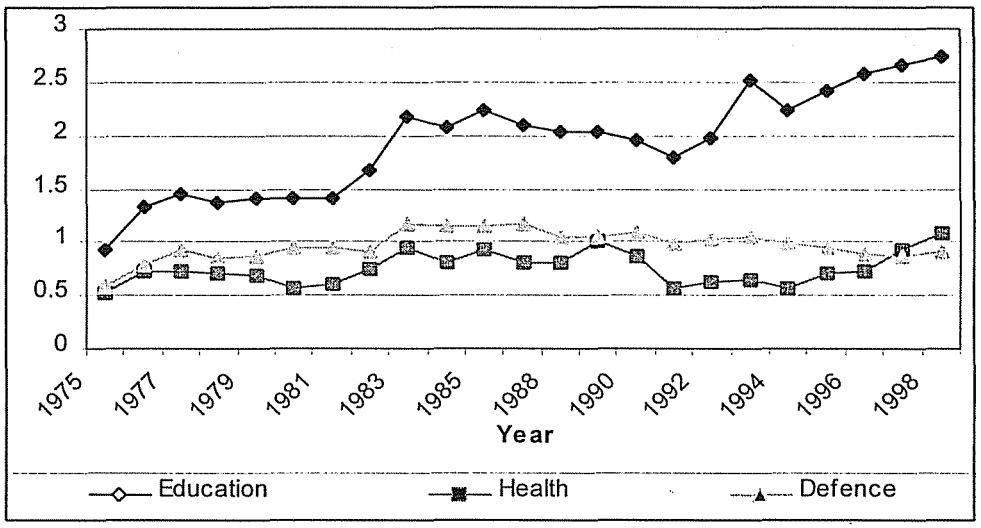


Figure (3.5) Government expenditure on various sectors (as percentage of GDP)



(3.4) Relationship between public expenditure and economic growth:

So far we have discussed the nature and extent of government expenditure. Now it is important to examine the relationship between public spending and economic growth. As stated in the objectives of the study, in this paper, the causality between two variables will be tested. Since the objective of this research paper is to investigate the role of government in economic growth and poverty alleviation, the study will be focused on the macroeconomic perspective rather than public finance approach. In other words impact of government size on economic growth will be examined in the

sections that follow. For this study economic growth is measured by the rate of increase in GDP, while the government's consumption is used as a proxy for government's efforts (or government's size) to accelerate the economic growth.

(3.4.1) Theoretical framework and the models:

Adam Smith (the founder of modern economics) argued that free market is the best route to prosperity and economic growth. His arguments have been debated not only by economists but by non-economists also during the last two centuries. Whatever economists have concluded on the issue of government's role in economy, since last fifty years, most of the developing countries seem to have opted for extensive government regulation of the private sector and for a large public sector. The study of the impact of government size on economic growth gained popularity in the last three decades. Has large government retarded or accelerated economic growth in developing countries? This question is an important issue for policy makers and economists. Government, through its fiscal policy may significantly affect the pace of economic development; all economists and policy makers accept this truth. However, its impact on economic efficiency and growth is not unique and debated by economists as well as by policy makers. Some economists argue that less government intervention and a smaller government size is better for promoting economic efficiency, while others have opposite view. In the era of structural adjustment, small and less interventionist governments were promoted by donor agencies on a global basis, regardless of the level of development of the country concerned.

Vast literature covering the investigation of the linkage between government size and economic growth and various attempts have been made by economists to examine the relationship between public expenditure and economic growth. However, there are no unique and generally accepted models of the growth process and therefore no standard analytical frameworks that are appropriate to examine the relationship between economic growth and public expenditure exists. Researchers generally use simple production function frameworks to analyse the relationship between public spending and economic growth.

Rubinson (1977) analysed the relationship with a sizeable cross-country sample and concluded that a larger government size promotes economic growth by reducing "dependency[11]", especially in the context of poorer, less developed countries. Ram (1986) has developed a two-sector production function framework to examine the relationship in a macroeconomic perspective. He hypothesised that a larger government is likely to be detrimental to efficiency and economic growth. He found global evidence of a positive externality effect of government size on economic growth in both cross-section and time-series estimates and concluded that government size exercises a statistically significant positive effect on economic performance and growth in most cases. Sattar (1993) also develops a model to test the hypothesis that government size has a positive effect on economic growth and found that public spending appears to have a significant impact on the growth performance of more than 80 percent (25 out of 31) of the low-income developing economies studied. In contrast, for the industrial market economies, public expenditures do not seem to be significant explanatory factor in their growth performance (coefficient were insignificant even at the 10 percent level for 22 out of 24 economies studied). Whereas, Landau (1986) concluded that a larger government size, proxied by the share of government consumption in GDP, depresses growth of per capita income both for developed and developing countries.

The impact of government expenditure on growth is not similar for all countries because of firstly structural differences exist between them (basically between developing and developed countries) and secondly objectives of the fiscal policy differ in countries. Historical analysis suggests no discernible connection in the developed countries between the role of government and economic growth, particularly in the twentieth century, when most, if not all, were well past the 'stages of backwardness', making state sponsorship of growth unnecessary. However for developing economies, public spending on, social and economic infrastructure, research and human capital formation, exert a strong positive influence on productivity growth. Since developing

[11] Rubinson argued that the measures of economic '***dependence***' (such as foreign aid, the structure of trade, foreign investment, and external public debt) and '***strength of state***' (which refers to the degree to which a state is able to control the activities of the population) are negatively related. He further argued that economic dependence reduces the growth while the strength of a state has a positive effect on economic growth. One indicator of 'strength of state' is the government revenue as a proportion of GNP. Since the revenue raised is presumably a function of the level of expenditure, so higher the proportion of public expenditure in GNP the higher the strength of the state.

countries suffer many of the 'backwardness' syndromes, they seem to require more of the crutches of government support than their developed counterpart [Sattar, 1993].

In this paper an attempt is being made to examine the relationship between government expenditure and economic growth in the case of Nepal, using the standard neo-classical 'sources of growth' approach formulated by Solow (1957) and rigorously tested by Denison (1962,1967). The 'sources of growth' approach was further developed by Feder (1983), and seems to provide an appealing set of models for investigating the relationship between government size and economic growth [Ram 1986]. Ram (1986) and Sattar (1993) forms the basis of our models. In these models *public expenditures are used as an input in the production function because of its contribution to capital accumulation and to factor productivity. The idea of using government expenditure as an input follows from the analysis of Feder who accepted the Solow-Denison approach in studying the impact of exports on economic growth. Public spending improves productivity firstly through human resources development and secondly through the development of physical infrastructure like roads, hydroelectricity, and telecommunications that ultimately accelerate the growth process thus the government expenditure is included as an input in production function.*

In an influential paper, Mankiw et al (1992) evaluated the empirical implications of Solow model and concluded that it performed very well, and the "fit" of the model could be improved even more by extending the model to include human capital. Furthermore, vast literature on the empirical linkages between growth and its determinants considers only a small number of explanatory variables in attempting to establish a statistically significant relationship between growth and a particular variable of interest. More than 50 variables have been found to be statistically correlated with growth in at least one regression, readers may be uncertain as to the confidence they should place in the findings of any one study [Levine and Renelt, 1992].[12] They suggest that, the relationship between growth and government size is robust if it remains statistically significant and of the theoretically predicted sign when the conditioning set of variables in the regression changes. Thus we follow Mankiw et al (1992) and included human capital in our model to improve and to make robust.

[12] See Levine and Renelt (1991) for a review of the empirical growth literature.

The aggregate production function can be expressed as:

$$Y_t = f(K_t, L_t, H_t, G_t) \qquad (1)$$

Where, Y = Output (GDP)
K= Capital Stock
L = Labour
H= Human Capital
G = Government Expenditure

The subscript 't' indicates that all variables are time variables.

Differentiation and manipulation of the equation (1) gives the following growth equation[13]:

$$\dot{Y} = \alpha \dot{K} + \beta \dot{L} + \lambda \dot{H} + \theta \dot{G} \qquad (2)$$

Where, $\dot{Y}$ = Growth rate of output (dY/Y)

$\dot{K}$ = Growth rate of capital stock (dK/K)

$\dot{L}$ = Growth rate of labour (dL/L)

$\dot{H}$ = Growth rate of human capital (dH/H)

$\dot{G}$ = Growth rate of Government expenditure (dG/G)

The econometric specification of equation (2) may be written as:

$$\textbf{Specification (1): } \log Y = \alpha_0 + \alpha_1 \log K + \alpha_2 \log L + \alpha_3 \log H + \alpha_4 \log G + u \qquad (3)$$

Here: α_0 = constant term
α_1 =elasticity of output w.r.t. Capital stock
α_2 = elasticity of output w.r.t. Labour
α_3 = elasticity of output w.r.t. Human capital
α_4 = elasticity of output w.r.t Government consumption
And u = stochastic component.

The coefficient of government variable α_4 in equation (3) gives an estimate of overall effect of government size on economic growth. We will test equation (3) using time-series data for the period (1975-1998) [14]. The estimating equation (3) involved the use of growth rates of the dependent and explanatory variables. The method applied was the use of the natural logarithms of the variables in question. All variables are used to calculate growth rates. Rate of increase of GDP is taken as a proxy for economic growth ($\dot{Y}$). The variable $\dot{K}$ is created by taking the natural log of gross fixed capital formation, since the data on capital stock (K) are not readily available in developing

[13] For more details about the manipulation, derivation, and the interpretation of the models and the parameters, see Feder (1983), Ram (1986) and Sattar (1993).

[14] See annex 1 for the data and explanation of variables.

countries, economists who work with developing countries mostly use the growth of total investment (or gross fixed capital formation). In our case also: dK= log (gross fixed capital formation). And as in several other studies, natural log of population is used in place of the rate increase in labour input ($\dot{L}$), because good time series data on growth of labour force are not available for the country concerned. Total number of students enrolled up-to the secondary level is used as a proxy for human capital, and total government consumption is taken as a proxy for government size or government's involvement in the economy.

(3.4.2) The results:

The regression of explanatory variables on dependent variable shows positive but insignificant coefficients for all explanatory variables except the capital (with highest and significant coefficient). R^2 =0.9839 and the computed Durwin-Watson stat is 1.5758. Since $d_U \geq d \geq d_L$, (critical d values at 0.05 level of significance are: d_L=1.013 and d_U =1.775), furthermore R^2 is high but only one coefficient has statistically significant t-statistic, thus we can't reject the null hypothesis of positive autocorrelation. To solve the problem of serial correlation we follow the ARMA scheme. AR (2) MA (1) solves the problem and gives the result presented in table (3.2), under specification 1. Although the ARMA scheme solves the problem of serial correlation, but the coefficient on the variable of interest (G) is insignificant and unexpected. Since most of the development expenditure, which is, considered as a productive investment in the economy affects productivity hence economic growth only after a lag, it may appropriate to allow lagged G terms. In other words most of the development projects of public sector takes some time to affect productivity and economic growth. Hence, G may affect economic growth only after a lag. To examine this possibility, we use the following models:

Specification (2): $\ln GDP = \alpha_0 + \alpha_1 \ln K + \alpha_2 \ln L + \alpha_3 \ln H + \alpha_4 \sum_{i=1}^{-2} \ln G$

Specification (3): $\ln GDP = \alpha_0 + \alpha_1 \ln K + \alpha_2 \ln L + \alpha_3 \ln H + \alpha_4 \ln G\ (-2)$

Table (3.2) Estimates of specification 1, 2 and 3:

Dependent variable log GDP			
Independent variables ↓	Specification 1	Specification 2	Specification 3
Constant	7.6658 (8.6653)*	7.4527 (8.1948)*	7.1063 (7.9441)*
log K	0.2290 (2.9599)*	0.1630 (2.0619)***	0.2197 (2.4363)**
log L	0.6992 (2.7113)*	0.4513 (1.9146)***	0.4340 (1.3121)****
log H	0.2291 (2.9902)*	0.31903 (3.4028)*	0.2478 (2.3418)**
log G	-0.0353 (-0.4363)****	0.06296 (0.09451)****	---
log G (-1)	---	-0.0891 (-1.3500)****	---
log G (-2)	---	0.1568 (1.92187)***	0.1201 (2.0835)**
Adj. R^2	0.9878	0.9903	0.9899
F-statistic	285.8192	277.9165	373.0461
Durbin-Watson stat	2.0335	2.3907	2.2018
No. of observations	22	20	20
Method	AR(2) MA(1)	AR(2)	AR(2)

Note: t-statistics are in parenthesis,
* Significant at 1 % level, ** Significant at 5 % level,
*** Significant at 10 % level, **** Insignificant.

After allowing lagged G term in our model its coefficient turns to significant and positive. However, the coefficients on all other explanatory variable remained almost unchanged with same sign (except variable L).[15] The results indicate that government expenditure is positively related with economic growth and further supports the argument that larger government size promotes economic growth especially in the poorer less developed countries [Rubinson, 1977, Ram, 1986 and Sattar, 1993]. But this process of government expenditure translating into the positive growth involves a time lag for Nepal. Which also shows that development expenditure has a stronger impact and takes time lag to affect the economic growth. Coefficient on the variable G in specification 3 indicates that one-percent increase in government expenditure in current year will increase GDP by 0.12 percent after a lag of two years. Higher coefficients for the variables H and K show that these variables have a higher impact on economic

[15] Sattar (1993) also found most of the estimates of the coefficients of the population growth variable (dL/L), insignificant, often with the wrong sign (minus), which contrast with the expectation of the neo-classical growth model which presupposes a positive and significant coefficient for labour variable. His argument for this discrepancy is that the population growth proxies for labour force growth may not appropriate, which is also true in our case.

growth as compared to G. Findings of present study reconfirms that the impact of government's expenditure on economic growth is stronger in lower-income countries, because 'a much larger fraction of public budget in these countries goes for 'productive' investments in physical and social infrastructure' [Sattar, 1993 pp. 31]. Now it is fair to conclude that the externality effects of the government size on the rest of the economy, and hence on economic growth, is positive in Nepalese context. However one should perhaps not conclude that increase in all government activities are beneficial for the economy, but only that the net externality effect is positive, if expansion of some activities retard growth, their effect is dominated by others that stimulates the non-government sector [Ram, 1986]. In other words we can say that, other things remaining the same, reducing public expenditure would adversely affect growth in Nepal.

Chapter 4

Public Expenditure and Poverty Alleviation

(4.1) Introduction:

So far we have discussed the impact of government policies on overall growth, and found that government expenditure is positively related with economic growth. However the ultimate goal of development now often emphasize the reduction of poverty, rather than raising average incomes per se [Anand and Ravallion 1993]. Thus the policy must be directed towards the achievement of human welfare, and poverty alleviation. One influential view argues that economic growth in itself is the most direct way to alleviate poverty (wealth must be created, before it can be spent on providing for needs). Although human welfare depends on the level and growth of income, but not solely, economic growth and the spread of market alone cannot alleviate poverty; the effects of wealth on deprivation vary greatly depending on the character of public action [Wuyts et al, 1992]. For development higher GNP and faster growth is required, the basic issue, however, was (and is) not only how to make GNP grow but also who would make it grow, the few or the many. Many developing countries that had experienced relatively high rates of economic growth by historical standards began to realise that such growth had brought little in the way of significant benefits to the poor. *In recent years the role of social services particularly basic health and education has received greater emphasis, these services have been viewed mainly as instruments for raising the income of the poor.*

In the previous chapter we have discussed the composition, and growth of public expenditure, which in major way affect economic growth as well as human resource development and poverty alleviation. In this chapter, we first present the situation of poverty in Nepal. After that an attempt will be made to evaluate some selected government expenditure programs, which are crucial to enhance the earning capacity of the poor, and realised as a most influential aspects of government policy in poverty alleviation.

(4.2) Poverty and poverty alleviation programs in Nepal:

The principal objective of public policy is considered as poverty alleviation. The government recognises that improved macroeconomic policy and economic growth are not sufficient to improve the condition of poor, and made various attempts to reduce widespread poverty but failed to succeed. Although various measures of poverty have been declined but the number of poor people are mounting day by day. Progress in poverty alleviation is uneven across regions (geographical as well as rural- urban); similarly ethnic and gender differences are also wide.

Table (4.1) Poverty and related indicators in different regions of Nepal (1996)

Region	Head count index (%)	Per capita PPP income (in US$)	Life expectancy (years)	Infant mortality rates (per 1000) *	Mean years of schooling
Rural	47	1093	53.7	102	2.013
Urban	18	2450	63.2	62	4.768
Eastern	43	1148	55.4	82	2.654
Central	34	1442	55.7	92	2.214
Western	45	1082	59.3	79	2.383
Mid-West +	59	933	51.2	119	1.765
Far-west +	65	916	52.1	121	1.813
Mountain +	63	911	52.7	180	1.479
Hill	50	1299	58.0	86	2.468
Tarai	37	1131	59.5	89	2.174
Nepal	**45**	**1186**	**55.0**	**98**	**2.254**

Source: Nepal HDR, 1998 and Nepal living Standard survey, 1996. * For 1994.
Note: + show the regions where poverty is high and all indicators of the wellbeing are comparatively low.

Some measures of poverty[16]:

(A) Capability Poverty Measure (CPM): CPM focuses on human capabilities and reflects the percentage of people who lack basic capabilities. Capability to be well nourished and healthy-represented by malnourished children; capability for healthy reproduction, proxied by the proportion of births unattended by trained health workers and capability to be educated and knowledgeable, represented by female literacy. It is the unweighted simple average of the three indicators that reflects the percentage of the population with capability shortfall in these three dimensions [HDR, 1996]. CPM for Nepal can be calculated as follows:

Birth unattended by trained health personnel (%) = 89.9
Malnourished children under age five (%) = 48.4

[16] This section is heavily based on Nepal HDR 1998.

Female illiteracy rate (%) = 78.7
CPM = [89.9+48.4+78.7]/ 3 = 73.3

(B) Human Poverty Index (HPI): HPI is the reverse image of the Human Development Index (HDI) but focuses on human deprivation instead of human achievements. The same components of HDI are used to calculate HPI, thus to calculate HPI, we need the indices of deprivation in three dimensions: deprivation in longevity (D_1), deprivation in knowledge (D_2) and deprivation in a decent standard of living (D_3). The percentage of people expected to die before age 40 represents D_1. D_2 by adult illiteracy and D_3 Jointly by the unweighted composite value of the percentage of people without access to safe water (D_{31}), percentage of people without access to health services (D_{32}) and percentage of malnourished children under five (D_{33}).

That is: $D_3 = [D_{31}+D_{32}+D_{33}] / 3$

HPI is calculated as outlined in HDR 1997 with the assumption of a generalised mean $\alpha=3$

$HPI=[1/3\{D_1^3+D_2^3+D_3^3\}]^{1/3}$

HPI for Nepal can be calculated as follows:

Deprivation in longevity (D_1) = 22.5%
Deprivation in Knowledge (D_2) = 63.3%
Percentage of people without access to safe water (D_{31}) = 33.2%
Percentage of people without access to health services (D_{32}) =58.7%
Percentage of malnourished children under age five (D_{33}) = 48.4%
$D_3 = D_{31}+ D_{32} + D_{33} = [33.2+58.7+48.4] /3 = 46.7$
$HPI = [1/3\{(22.5)^3 + (63.3)^3 + (46.7)^3\}]^{3} = 49.6$

(C) Human Deprivation Measure (HDM): HDM also focuses on the same three indicators of HDI. The methodology for calculation of HDM for Nepal with the total population of 21.12 million is illustrated below:

a) Health Deprivation Index (X_1):

Total population without access to safe water (X_{11}) = 7.01 million
Total Malnourished children under five (X_{12}) = 1.48 million
Total health deprived population ($X_{11}+X_{12}$) = 8.49 million
Health Deprivation Measure (X_1) = Total health-deprived population / total population
=8.49/21.12 = 40.2%

b) Education Deprivation Index (X_2):

Total illiterate adults (X_{21}) =7.71 million
Total number of children out of school (X_{22}) = 1.98 million
Total ($X_{21}+X_{22}$) = 9.69 million
Education Deprivation Measure (X_2) = ($X_{21}+X_{22}$) / total population
= 9.69/21.12 = 45.87%

c) Income Deprivation Index (X_3):

Total income-poor population = 9.51 million
Total income -deprived population = 9.51 million
Income deprivation measures (X_3) = Total income-deprived population / total population
= 9.51/21.12 = 45%

Following Atkinson formula[17] was used to calculate HDM:

$$HDM= 100-[1/\varepsilon (100-X_1)^{(1-\varepsilon)} + 1/\varepsilon (100-X_2)^{(1-\varepsilon)} + 1/\varepsilon (100- X_3)^{(1-\varepsilon)}]$$
$$=100-[\{1/3 (100-40.20)^{-2}\} +\{1/3 (100-45.87)^{-2}\} + \{1/3 (100-45.00)^{-2}\}]= 43.85\%$$

Now it is clear that whatever the measure of poverty we use, poverty is widespread in Nepal. All the above fact relating to the situation of poverty calls for a more effective approach to be undertaken by the government to alleviate poverty. In principle all public intervention, expressed through public expenditures, are intended to reduce poverty, but in practice, both the allocative biases and their actual outcomes influence the distribution of benefits directly or indirectly between different social groups.

Nepalese government followed a two-pronged strategy to alleviate poverty: **(a) Growth based indirect route:** which is based on the mainstream development thinking of trickle down. Realising the fact that rapid growth is necessary to alleviate poverty, the government gives due emphasis on economic growth. Indirect route places emphasis on policies and programs to realise a higher rate of economic growth, to be achieved through appropriate policy interventions to stimulate saving, investment, output and employment. **(b) Direct Policies:** The government also realises that economic growth is necessary but not sufficient, growth with redistribution and human development aspect of wellbeing must be the top priority to alleviate poverty. Provision of basic social services such as primary education, basic health care, and access to credit to improve human resources and direct income transfers to the poor are direct ways to attack poverty. The first strategy creates more employment opportunities to utilise the single asset (physical labour) which poor have while the second increases the productive capabilities of the poor. Therefore public expenditure policies of a government is a powerful instrument for both strategies.

Standing in the way of integrated poverty programs, however, is the common "two-pronged" approach; growth based and human development strategies: rarely intersect;

[17] See Nepal HDR, 1998.

economic policies are not made pro-poor, this is one legacy of SAP, which took up poverty after the fact or as a residual social issue [UNDP, 2000]. Besides the indirect route of poverty alleviation[18], which were introduced in the past, to alleviate poverty could be classified into two broad categories.

(I) ***Enhancing the earning capacity of the poor:*** which includes among others, basic education and health services, alone do not alleviate present poverty but are tools to increase their capacity to earn in the future.

(II) ***Direct income transfer to the poor:*** This category includes the most direct way of poverty alleviation such as, food for work and other social welfare programs like pension for the unemployed, old age, physically disabled people, and widows.

This paper will analyse the first category. UNDP proposed three basic indicators for long-term targeting; adult illiteracy, the proportion of children under five who are underweight and the probability of dying before age 40 as a Human Poverty Index, which are valuable because they focus on shortfalls or deprivations in basic human capabilities. Thus impact of public spending on educational and health status will be analysed.

(4.3) Analysis of programs to enhance the capacity of poor to earn:

Most development practitioners now agree that poverty is not about income alone, but is multidimensional, and the growth of national output is not sufficient to eradicate poverty. So the multidimensionality of poverty must be in the minds of policy makers while formulating the programs for poverty alleviation.

[18] (See figure 4.1 and 4.2 below). How per capita income is closely related with education and poverty is inversely related with per capita income. This shows that higher per capita income reduces poverty and higher per capita income is itself closely related with education.

Figure (4. 1) Relation between education and per capita income (in various districts of Nepal)

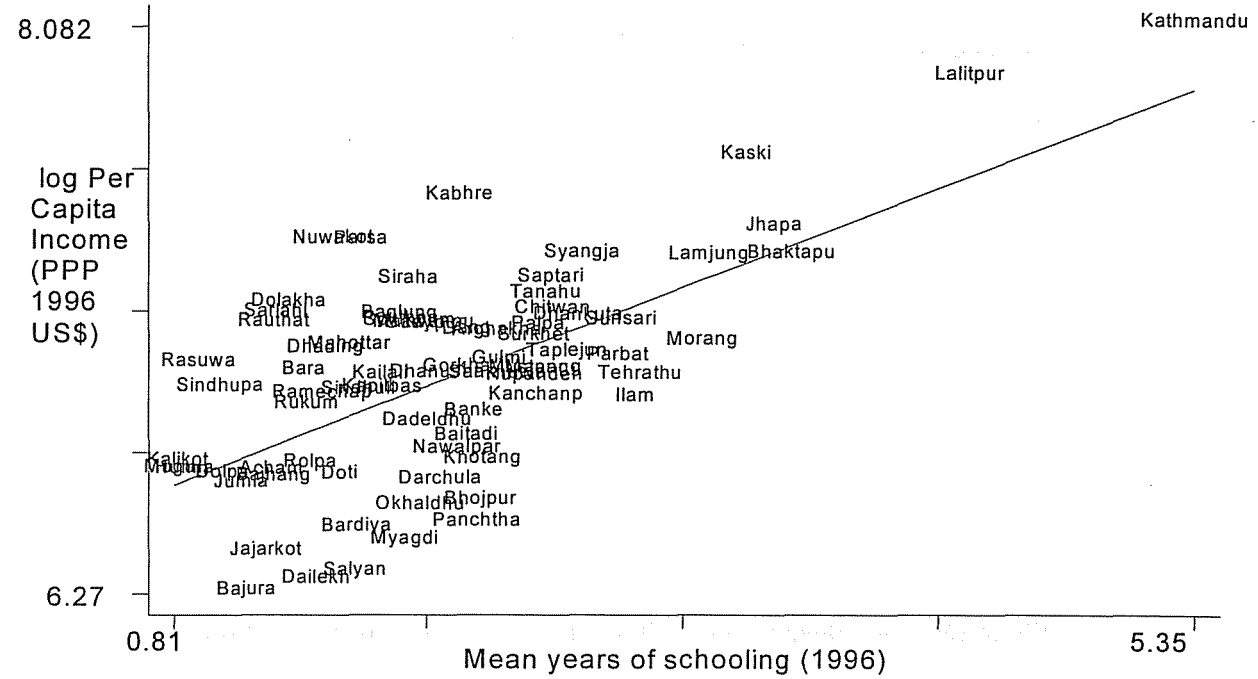
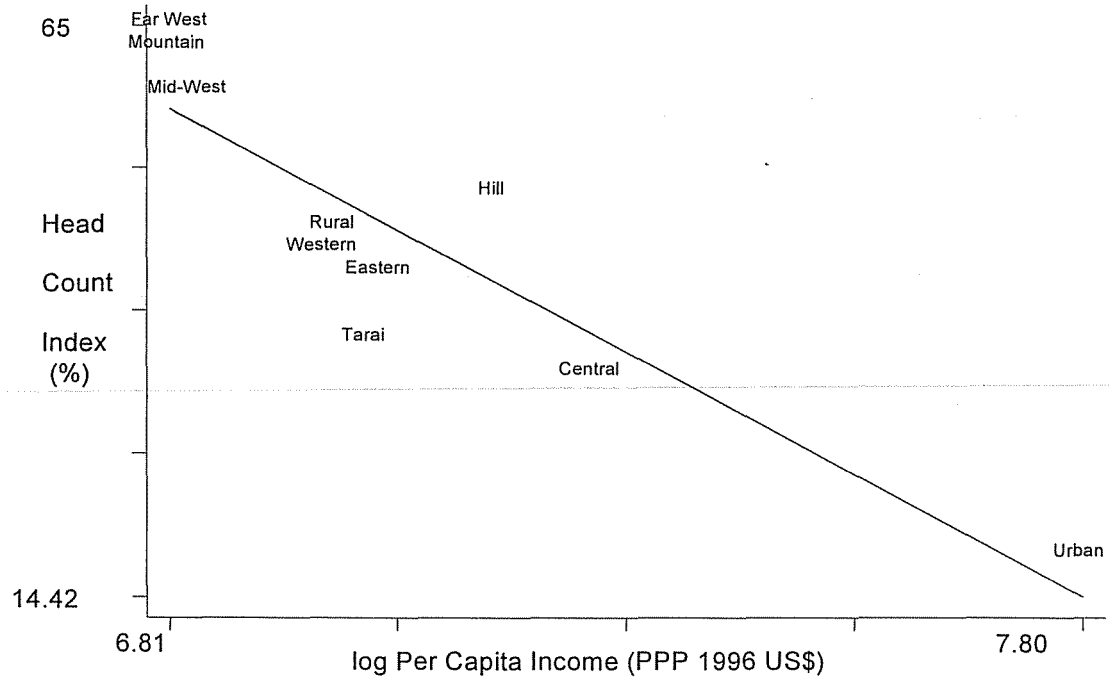


Figure (4.2) Relation between Per capita income and Poverty (in various regions of Nepal)



Source: Nepal HDR 1998 (for both figures).

As far as public expenditure is concerned, the most important fact is that there is limited scope to increase 'human expenditure ratio'[19] so long as vigorous growth has not achieved especially in the countries like Nepal. Growth can be achieved through prudent fiscal and monetary policies which calls for market friendly development policies i.e., reducing subsidy, reduction or elimination of questionable public investment programs, setting prices for public goods and so on. But such measures adversely affects the majority of poor unless they are designed in an appropriate fashion to shield the most vulnerable group. Nepalese government recognises that the most promising approach to reduce poverty is providing the poor with the opportunities to improve the quality of their human and non-human assets. *'Human resource development', is the most convincing way to alleviate poverty, which includes the provision of education and health services.*

Realising above facts, the government emphasises on channelling resources to human resource development as an anti-poverty policy in addition to stimulating growth. This "second prong" usually advocates investing in basic social services like basic education and health care, nutrition, water and sanitation, and reproductive health. After these two prongs do their work, the poor who remain should be a small minority requiring mostly social assistance, for which targeting becomes easier. To combat with poverty, reallocation of social expenditures to basic social services is highly desirable. In addition to reallocating expenditures, efforts should concentrate on ensuring that the poor make use of the services made available to them. Supplying increased basic services does not necessarily go hand in hand with more poor people using them.

Initiatives to promote basic education and health care needs to be more integrated with national poverty programs. Mostly economic and social policies split one way or the other, some keep social concerns on the sidelines because they regard poverty as lack of income and poverty reduction as simply faster growth of income, others end up doing the same by treating poverty as a residual social issue. [Haddad et al, 1990].

[19] Human expenditure ratio refers to the percentage of national income devoted to human priority concerns (HDR, 1991).

From a human poverty perspective, *illiteracy, and ill health are closely knotted with lack of income: it is difficult to deal with one without tackling the other. So to reduce poverty government's efforts to improve the health status and level of knowledge are crucial.* The extent to which education and health of people affects their living standard will be addressed in the sections that follow. The influence of government expenditure on the health status and educational level of people will also be addressed.

(4.3.1) Public expenditure on education and poverty alleviation:

It has become widely recognised that education can play an important role in the development process and poverty alleviation. In the past, controversy prevailed on the 'chicken and egg' recognised as a foundation of development. Development in all its forms i.e., economic, social, and cultural, will depend mostly on knowledge-intensive industries. Education is a key to developing that knowledge and the sense of personal efficacy needed to adjust to rapid change.

A persuasive body of theoretical and empirical evidence suggests that investment in the formal education and training of the labour force plays a crucial role in economic growth and poverty alleviation. The empirical evidence takes five main forms[20]: (1) Growth accounting studies (2) productivity studies (3) benefit-cost studies (4) studies which estimate women's education's effect on long term economic development and quality of life (5) studies that estimate the role of education in poverty alleviation. The results of most of these studies suggest that investment on education has been one of the most important factors contributing to economic growth and poverty alleviation via enhancing the earning capacity of the poor.

(4.3.1a) Education and economic development:

Role of education in development has been recognised ever since the days of Plato, who believed that education is vital to the economic health of a good society, for education makes citizens 'reasonable men' [Tilak, 1989]. Some pioneer studies on the relationship between education and economic development focussed on the

[20] See Haddad et al (1990) for more detail.

contribution of education to economic growth [Schultz, 1961, Denison, 1962,1967]. These studies attempted to account for the unexplained "residual" growth left when only changes in labour and physical capital were included in the production function. In his research Denison found that in United States between 1930 to 1960, 23 percent of the increase in the output was due to the increased education of its labour force. Further growth accounting estimates for the US and Europe in 1950-1962 showed a wide variation for education's contribution, from a low 2% in Germany to a high of 25% in Canada. Similar estimates for developing countries also suggest a wide variation of educational contribution, from low of 1 % in Mexico to 16% in Argentina [cited from Haddad et al 1990]. There are a lot of evidences which ensures that a higher level of education of workforce result in higher output. Lockheed et al (1980), measure the relationship between farmers' education and their agricultural productivity, and concluded that if a farmer had completed four years of elementary education, his productivity was, on the average, 8.7 percent higher than a farmer without education [ibid.]. It is clear that education transforms the raw human beings into productive 'human capital' by including the skills required by both traditional sector and the modern sector of the economy [Tilak, 1989].

(4.3.1b) Education and poverty:

Education was believed to be a possible contributor to greater social and economic equality as well as an effective tool for poverty alleviation. William Petty first advocated equitable distribution of education, Horace Mann viewed the school as an effective instrument to achieve justice and equality of opportunity and remove poverty [ibid.]. Importance of education in reducing absolute poverty is clearly recognised, from the available evidence one expects that education and absolute poverty will be inversely related. In other words higher the level of education of the population, the lower would be the proportion of poor people in the total population, as education imparts knowledge and skills that are associated with higher wages. However, in and of itself, education can not eliminate poverty. There has been a growing awareness in many developing countries that the expansion of formal schooling is not always to be equated with the spread of learning. It was realised that the acquisition of school certificate and higher degrees is not necessarily associated with an improved ability to undertake productive work. Too much investment in formal schooling, especially at the

secondary and higher levels, can divert scarce resources from more socially productive activities and thus recognised as a drag on national development rather than a stimulus [Todaro, 1997]. But by developing skills that individual can use for increasing their income ultimately helps people to overcome from poverty. Moreover by contributing to better health, and by reducing fertility; education, especially when combined with investments in other factors of production, can contribute to economic growth and poverty reduction. Finally education change the perception of people on the issue of family size, it was observed by many researchers that more educated people normally prefers small family, which reduces the size of denominator in per capita calculation and helps to increase the results of per capita.

Thus while formulating expenditure policies (for education sector) these questions should be in mind:

(1) How does education influence the pace, structure, and character of economic growth?
(2) Does education system in general and the structure of educational systems in particular contribute to poverty alleviation?

Like many other developing countries, in Nepal also, formal education consumes a significant portion of public resources. Nepalese government invested huge sum of money in education. There has been a tremendous acceleration in public expenditure on education during the past three decades. The proportion of national income and national budgets spent on education has increased rapidly. The government's commitment to alleviate poverty through human development is demonstrated by its decision to increase budgetary allocation to the educational sector, with particular emphasis on primary education.

Figure (4.3) Public expenditure on education

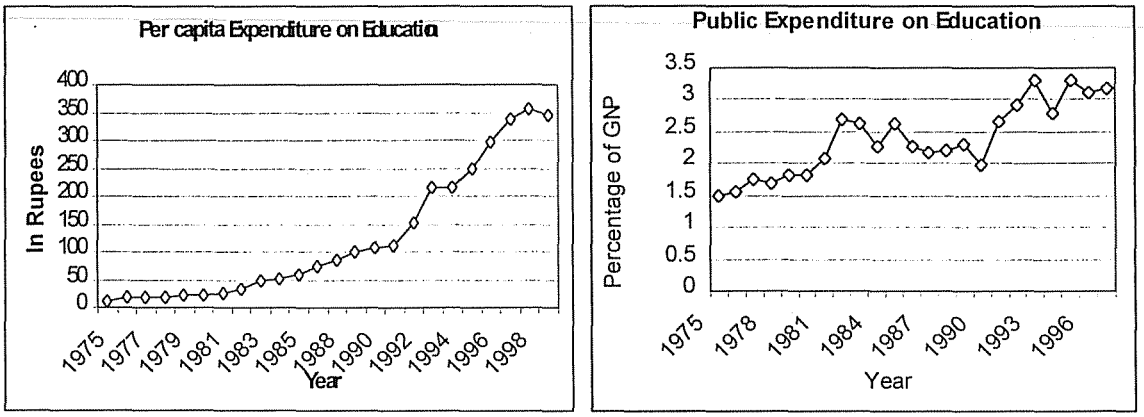
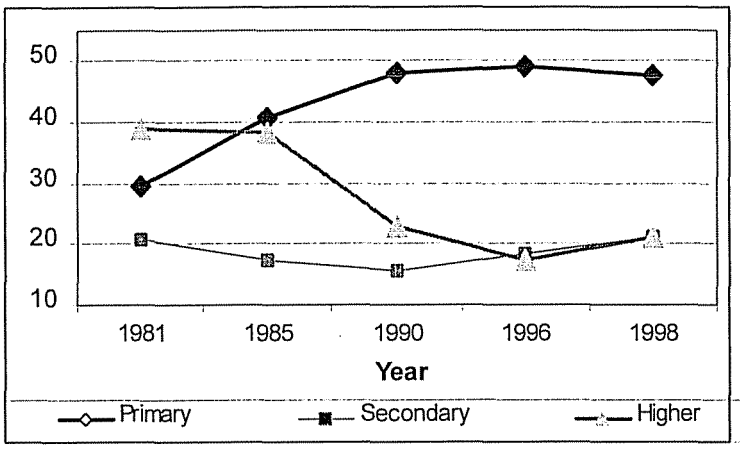


Figure (4.4) Percentage of the education budget allocated to different levels in different years:



Source: Nepal HDR, 1998.

The figures presented above shows that the expenditure on education had increased during the last three decades continuously, especially after the 1990 the share of education budget increased significantly. However, the government's expenditure on education is still far below the international norm. Most governments of the advanced countries and newly industrialised countries of the East Asia spend more than 10 percent of GDP on education, while in Nepal still it is below four percent. The share of primary education as a total educational budget also increased during the study period. In year 1981 government spends only 29.7 percent of its educational budget on primary education which increased to 47.7 percent in the year 1997-98. This shows that the government is conscious on the issue that the poor people are benefited from primary education, while the benefits of higher education accrue mainly to the non-poor. To alleviate poverty through human resource development, allocative biases in educational expenditure should be less and priority should be given to the primary education.

Expenditure on education is productive investment in the human capital of the economy, which promotes economic growth on one hand and reduces poverty on the other hand. Given the resources constraint of the poor countries the question is how improvement in human capital is due to government policy? Some studies suggest that outcome measures can be evaluated as a function of government expenditure and specific government programs. Due to the unavailability of data on specific programs on education we rely on regression technique to examine the effects of government expenditure on education. Various studies also show that the rate of returns for primary

education is much higher than that of secondary and higher education [Psacharopoulous, 1993]. And primary education expenditure is more beneficial for poor so the allocation of resources by the state to primary education is taken as a redistributive device to poor people. To assess the impact of government expenditure on educational status of people following model is used:

Model (1): log PSER= $\alpha_0 + \alpha_2$ log PCY + α_1 log PCEE + ε

Where, PSER = Total number of students enrolled in primary level.
PCY = GNP Per capita measured in terms of dollar.
PCEE = government expenditure on education (per capita Rs.).

The number of students enrolled in primary level, as an outcome variable is not very attractive because it is highly correlated with demographic changes over time. Similarly, the overall per capita government expenditure instead of per capita expenditure on primary education is also not attractive, but as the data on educational expenditure on different levels are not readily available we rely on per capita expenditure on education as an input variable.

Per capita income as an explanatory variable is included in the model because of the firstly, poor people consider children as a source of income, and they believe that sending a child to school reduces their opportunities to earn income. Secondly as the average income increases the population has greater command over the relevant goods and services including the basic education [Anand and Ravallion, 1993]. Thus per capita income is a strong determinant of school enrolment. The government mostly runs primary schools (especially in rural areas, where poverty is high), thus government expenditure on education is included in the model as a proxy for the government's effort to increase the educational status of the people. We concentrated on primary education because, almost 90% people live in rural areas (where poverty is widespread) and the poor people enjoys more benefit from expenditure on primary education. Results of regression are presented in Table 4.2 below.

Table (4.2) Estimates of model (1)

Exogenous variables ↓	Endogenous variable (log PSER)
Constant	1.7806 (1.8042)**
log PCY	0.9260 (4.4692)*
log PCEE	0.2527 (6.2461) *
R^2	0.9948
Adj. R^2	0.9940
F-statistics	1209.933
Durbin-Watson stat	2.0339
Number of observations	23
Method	AR (1)

Note: t-statistics are in parentheses
* Significant at 1% level, ** Significant at 10% level

Above results indicates that public expenditure on education is a significant factor in increasing the primary school enrolment rate. The coefficient on variable PCEE suggest that one percent increase in per capita public expenditure on education will increase the total number of student enrolment in primary level by 0.25 percent. Again higher coefficient for the per capita income indicates that it has a greater impact on the enrolment rate as compared to government expenditure. The R^2 is 0.9940, which indicates that about 99 percent change in primary school enrolment is explained by the two explanatory variables included in the model.

(4.3.2) Public expenditure on health services and poverty alleviation:

Good health is basic to human welfare and a fundamental objective of social and economic development. Nepal lags far behind other developing countries, infant mortality is 67 per thousand and life expectancy is only 58 years. Rapid population growth and poverty manifest themselves in malnutrition, which affect almost half of the total population. The interaction of poverty and malnutrition results in high infant and maternal mortality rates. Therefore the government's policy should be directed towards the eradication of communicable and non-communicable diseases through curative and preventive interventions because no poverty alleviation program would be successful without a concerted effort at improving the provision of basic health services. Government's commitment to improve the health status of people is reflected in the rapid expansion of the infrastructure for health services over the last decades.

Figure (4.5) Government Expenditure on Health

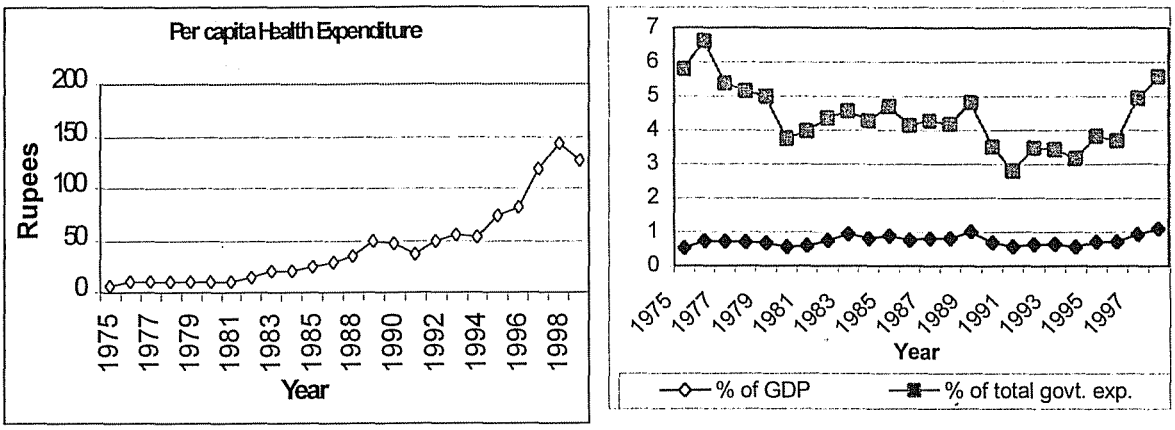


Table (4.3) Extension of Health Services in Nepal

Description	Year					
	1975	1980	1985	1990	1995 *	1998 *
Extension of Services	529	821	981	1098	3722	4396
Hospital Beds	2018	2586	3742	4570	3604	4124
Skilled Manpower	N.A.	N.A.	13076	30195	30520	77623

Note: * Data only for Government Sector, N.A.= not available, Source: Economic Survey (1998/99).

The set of figures (4.5) and tables (4.3, above and 4.4, below) presented show that the health expenditure per capita has increased during past decades, but as a percentage of GDP and total government expenditure it has a fluctuating trend. During the era of structural adjustment the share of health expenditure in total government expenditure declined sharply, however after the introduction of new political system in 1990 the share of health expenditure has increased continuously and again reached to the previous level of around five percent. But still the share of health expenditure in GDP is far below the level of industrialised countries, even less than the other developing countries in the region.

Table (4.4) Comparisons of health expenditure between Nepal and other Asian countries (mid-1980s and 1997):

	TOTAL HEALTH EXPENDITURE PER CAPITA ($) (% NATIONAL INCOME)		PUBLIC HEALTH EXPENDITURE PER CAPITA ($) (% TOTAL HEALTH EXPENDITURE)		PRIVATE HEALTH EXPENDITURE PER CAPITA ($) (% TOTAL HEALTH EXPENDITURE)	
	1980s	1997 [a]	1980s	1997	1980s	1997 [b]
Korea	148.37 (5.1)	862 (6.7)	17.87 (12)	325 (37.7)	130.49 (88)	371 (43)
Malaysia	58.51 (3.5)	202 (2.4)	44.97 (77)	116 (57.4)	13.53 (23)	85 (42.1)
Thailand	32.79 (3.8)	327 (5.7)	9.94 (30)	108 (33.0)	22.88 (70)	214 (65.4)
Philippines	14.09 (2.4)	100 (3.4)	3.76 (27)	48 (48.0)	10.33 (73)	49 (49.0)
Indonesia	10.42 (2.4)	56 (1.7)	3.90 (37)	21 (37.5)	6.52 (63)	26 (46.4)
Sri Lanka	9.18 (2.3)	77 (3.0)	5.32 (58)	35 (45.5)	3.85 (42)	40 (51.9)
China	11.04 (4.0)	74 (2.7)	2.13 (19)	18 (24.3)	8.91 (81)	55 (74.3)
India	12.51 (4.3)	84 (5.2)	4.63 (37)	11 (13.1)	7.87 (63)	71 (84.5)
Burma [c]	6.41 (3.2)	78 (2.6)	2.29 (36)	10 (12.8)	4.12 (64)	69 (87.4)
Bangladesh	3.80 (1.7)	70 (4.9)	1.12 (40)	32 (45.7)	2.68 (60)	38 (54.3)
Nepal	**2.11 (1.4)**	**41 (3.7)**	**1.28 (61)**	**11 (26.8)**	**0.83 (39)**	**30 (73.2)**

Source: 1) For 1980s: Griffin, C., "Health care in Asia: A Comparative Study of Cost and Financing, The World Bank, 1992. Appendix Table A. 9, A 11.

2) For 1997: The World Health Report 2000, Annex Table 8, pp.192-195.

Note: [a] % of GDP,

[b] Voluntary health insurance and other private expenditures are not included,

[c] Now Myanmar.

To determine the effect of government expenditure on health status of individual as well as the society two simpler models are used:

Model (2): log IMR = $\alpha_0 + \alpha_1$ log PCY + α_2 log PCHE

Model (3): log LE=$\beta_0 + \beta_1$log PCY + β_2 log PCHE

Here: IMR = Infant Mortality Rate (per 1000)
PCHE = government's expenditure on health per capita (Rs.)
PCY = Per capita income ($)
LE = Life Expectancy at Birth.

Infant mortality rate and life expectancy at birth are taken as the indicators of wellbeing. It is presumed here that any improvements in these two indicators will enhance the productivity and earning capacity of the people, hence reduces the poverty. These two indicators are chosen as an indicator of wellbeing because these are outcome variables for safe drinking water, immunisation, maternal care etc., which are mostly provided by the government in Nepal. Public provision of essential goods and services leads to improved social outcomes thus government expenditure on health per capita is included in the models as a proxy for the government's effort to increase the health status of the people. Per capita income included in the models as explanatory variable because it expands capabilities. As income increases, the population has greater command over the relevant goods and services- food, health care, medical services, and so on- which in turn leads to improved health and nutrition, hence lower infant mortality rates and higher life expectancy [Anand and Ravallion, 1993]. Attempt was also being made to include other explanatory variables such as extension of health services, primary school enrolment rate, per capita expenditure on drinking water, and population per doctor but as they turned out insignificant, are dropped from the models. Given the time -series data[21] for year 1975-1998 estimation is done by using different econometric methods (see table 4.5, below).

[21] See annex 2 for data used to estimate models 1,2 and 3 and their sources.

Table (4.5) Estimates of models 2 and 3:

Independent variables ↓	*Dependent variables*		
	log IMR		***log LE***
	(Specification a)	*(Specification b)*	
Constant	5.4347 (9.10409) *	5.4879 (26.4791) *	2.5980 (10.2066) *
log PCY	-0.13123 (-1.09867) ****	-0.1294 (-3.0645) *	0.2017 (3.6339) *
log PCHE	-0.03689 (-1.69613) ***	---	0.0794 (7.1011) *
log PCHE (-1)	---	-0.0518 (-8.5275) *	---
R^2	0.9707	0.9858	0.9719
Adj. R^2	0.9661	0.9822	0.9666
F-statistic	209.7502	277.0899	184.3169
Method	AR (1)	AR(2) MA(2)	AR (1)
Durbin-Watson stat	2.0768	2.1621	1.9396
Number of observations	23	21	20

Note: t-statistics are in parentheses, * Significant at 1% level, ** Significant at 5% level, *** Significant at 10% level, **** insignificant.

The result of first model shows very high R2 but the coefficient on PCY is insignificant and PCHE is significant only at 10% level, thus it may be appropriate to allow lagged PCHE in the models22. The results after inclusion of lagged PCHE show that the government's expenditure on health improves the wellbeing of the people significantly. In the first and second results IMR is negatively related with the government expenditure. The coefficient on PCHE in second model (specification b) shows that 1 percent increase in per capita public health expenditure will reduce the infant mortality rate by 0.05 percent after a lag of one year. Similarly third result shows that life expectancy is positively related with per capita public health spending, the coefficient shows that 1 percent increase in PCHE will leads 0.08 percent increase in life expectancy. Furthermore, higher coefficient for the PCY in all the results indicates that it has a higher impact on the dependent variables as compared to PCHE. All the results

[22]To allow the possibility that public expenditure on health may have lagged effects we included the lagged value of PCHE in the model. Adding lagged value of the public health spending had little effect on the results (unchanged sign and negligible change in the magnitude of the coefficients), however improves the level of significance, which shows that lagged PCHE is more appropriate for the model.

of regression assures that the increment in government expenditure on health will increases life expectancy and reduces the infant mortality rate, thus it is fair to conclude that increment in public spending on health improves the wellbeing of the people hence reduces the poverty.

Chapter 5
Conclusions and Recommendations

This paper has a two-fold objective:

i) To test empirically the impact of public expenditure on economic growth; and

ii) To examine the impact of public expenditure on the wellbeing and poverty.

The relationship between public expenditure and long run economic growth depends on the extent to which: (a) government expenditure is directed towards increasing the stock of physical and human capital, (b) public spending harmonises the private sector activity and (c) public investment crowds in or out private investment. However this study concentrated on the first aspect only. Relationship between public spending and economic growth is accomplished by making an extensive, but not necessarily an exhaustive, survey of the growing research in the area and with the empirical test of the models. The survey concentrated on contribution of public expenditure to economic growth. Methodologies developed by researchers on the basis of simple production function framework were used. A fresh empirical analysis is attempted on the relationship between public spending and economic growth, using the time series data (1975-1998) for Nepal. The results of growth equations developed in chapter three were examined and found that the following hypothesis is true:

Public expenditure has a significant and positive impact on economic growth, which supports earlier findings of researchers who argued that larger government size has a positive contribution to economic growth especially in the case of less developed poorer countries [Rubinson, 1977, Ram, 1987 and Sattar, 1993].

The results indicate that the reduction in public expenditure may cause a reduction in national output. Similarly our findings also suggest that public expenditure may produce a significant effect on economic growth only after a lag. Overall, on the relationship between public spending and economic growth, findings of this research paper suggest that lagged government expenditure have positive and significant impact on economic growth in Nepal. However, it may be claimed that all types of government expenditure may not necessarily produce desirable effects. Productive investment

especially the investments on human priority sector (like education and health) and physical infrastructure enhances the productive capacity of the people and significantly contributes to the production capacity of the country.[23]

An important caveat of the present study may also be noted: The relationship between public expenditure and economic growth is quite complex, having two way effects. However since our objective is to examine the effect of public expenditure on economic growth, we concentrated on the one way relationship and examined the impact of public expenditure on economic growth (macroeconomic perspective) only.

The effect of economic growth on poverty may be direct and indirect in nature; similarly the education and health status of people may also be seen as a cause and result of economic growth. In other words education and health status of the population not only influences development, it itself is influenced by development [Tilak, 1989]. Because of this two-way relationship, 'the relative importance of the two simultaneous effect are yet to be demonstrated satisfactorily' [Fields 1980, pp. 276].

Despite these important limitations, the present evidence reconfirms some of the well-established theses on the role of human resource in improving the productivity and reasserts that human resource development is an important policy instrument that can be looked upon with hope towards reducing poverty.

The models used in this paper proved that public expenditure policy is a major policy tool in the hands of government to alleviate poverty. This study suggests that increase in the expenditure on human priority sector have a positive and significant effect on the wellbeing of people and also on the economic performance of the country.

It was established by literature and further confirmed by the empirical analysis that a healthy and educated population contributes to the reduction of poverty. However, the

[23] It is fair to conclude that the effect of the government size on economic growth is positive. However one should perhaps not conclude that increase in every government activity is beneficial for the rest of the economy, but only that the net externality effect is positive [Ram 1987].

relationship between these outcome variables, and economic growth and poverty also has two way relationships. It was further revealed that historically, government had played an important role in the provisioning of basic services. One of the powerful tools available for government in this regard is the expenditure policy in its general fiscal policy.

Broadly speaking, the study revealed that the relationship between government expenditure, economic growth and poverty alleviation is positive and strong. Furthermore we can conclude that increase in government expenditure in human capital formation enhances the growth process and reduces the poverty as well as increases the pace of development.

Recommendations:

(a) Recognising the fact that government expenditure is positively related with economic growth and reduction in government expenditure may retard economic growth. Government should continue with development expenditure to promote economic growth.

(b) Recognising that investment in human capital and socio-economic infrastructure is essential to increase productivity, the government must continue to increase its allocation to these sectors.

(c) The two-pronged strategy of poverty alleviation: indirect (growth based-trickle down strategy) and direct (human resource development strategy) should be integrated, because there are limited chances to eradicate poverty without proper balance of these two strategies.

Lastly, rapid growth is necessary to make poverty alleviation program sustainable. The government, therefore, must adopt sound economic policies, which create essential socio-economic environment that promotes growth. However all necessary precautions must be taken so that policy of promotion growth does not come into conflict with the objective of poverty alleviation. Realising the fact that economic growth, human resource development and poverty are closely interlocked, government can not deal one

separately in isolation of others. Thus both growth-based and human resources development strategies should be given equal importance. A well-balanced public expenditure policy, which promotes growth with human resources development, is most desirable to achieve the ultimate goal of poverty alleviation.

References:

Abizadek, S. and Gray, J. (1985), ***"Wagner's Law: A Pooled Time-Series, Cross Section Comparison"***, National Tax Journal, Vol. 38, No. 2.

Alcock Pete (1997), ***"Understanding Poverty"***, (2-nd ed.), Basingstoke: Macmillan.

Anand, S. and Ravallion, M. (1993), ***"Human development in poor countries: on the role of private incomes and public services"***, Journal of Economic Perspectives, 7 (winter), pp.133-150.

Atkinson, A.B. (1987), ***"On the Measurement of Poverty"***, Econometrica, vol. 55 pp.749-764.

Barro Robert J and Xavior Sala-I-Martin (1992), ***"Public Finance in Models of Economic Growth"***, Review of Economic Studies Vol. 59, P. 645-661.

Besley, T. and Kanbur, R. (1988), ***"Food Subsidies and Poverty Reduction"***, Economic Journal, vol. 98, Pp.701-719.

Besley, T. and Kanbur, R. (1993), ***"Principles of Targeting"***, Ch. 3 In Lipton M. and Jacque van der Gaag (eds.), Including the Poor, Proceedings of a Symposium Organised by the World Bank and the International Food Policy Research Institute, Washington, D. C. the World Bank.

Bhagwati, J. N. (1988), ***"Poverty and Public Policy"***, World Development, Vol.16, No.5.

Chelliah R.J. (1971), ***"Fiscal Policy in Underdeveloped Countries"***, George Allen & Unwin.

Chenery H.B. et al (1974), ***"Redistribution With Growth"***, Oxford University Press.

Cornia, G.A., Jolly R. and Stewart F. (ed.) (1987), ***"Adjustment with a Human Face"***, Vol.1, Claredon Press, Oxford.

Cornia, G.A. and Stewart, F. (1993), ***"Two Errors of Targeting"***, Journal of International Development, Vol. 5, No. 5.

Denison, E.F. (1962), ***"Sources of Economic Growth in the United States and the Alternatives Before Us,"*** Supplementary paper No. 13, Committee for Economic Development, New York.

Denison, E.F. (1967), ***"Sources of postwar growth in nine western countries,"*** American Journal of Development Economics, No. 57.

Desai, Meghnad (2000), ***"Poverty and Governance"***, MDGD Bureau for Development Policy, UNDP, Washington D.C.

Devarajan, S., V. Swaroop and H. Zou. (1996), ***"The Composition of Public Expenditure and Economic Growth"***, Journal of Monetary Economics 37 (2): pp. 313-344.

Diamond Jack (1990), ***"Government Expenditure and Growth"***, Finance and Development, Vol. 27, No. 4, IMF, Washington D.C.

Diamond Lord (1975), ***"Public Expenditure in Practice"***, George Allen & Unwin Ltd., London.

Emran, M.S. (1995), ***"Public Expenditure Reform in Developing Countries: An Analytical Framework With Evidence From Selected Countries"***, Discussion Paper, World Bank, Washington D.C.

Eshag, E. (1983), ***"Fiscal and Monetary Policies and problems in Developing Countries"***, Cambridge University Press.

Feder, G. (1983), ***"On Export and economic growth"***, Journal of Development Economics, 12, pp. 59-73.

Fields, G. S. (1980), ***"Education and Income Distribution in Developing Countries"; A Review of Literature"***, in King, T. (ed.), "Education and Income", Staff Working Paper No. 402, The World Bank, Washington D.C.

Foster, J., Greer, J. and Thorbeck, E. (1984), ***"A class of decomposable poverty measures"***, Econometrica, 52, pp.761-765.

Gillis, M. (ed.) (1992), ***"Economics of Development"***, W.W. Norton & Company, New York.

Griffin, C. (1992), ***"Health Care in Asia: A Comparative Study of Cost and Financing"***, The World Bank, Washington D.C.

Guru-Gharana, Kishore K. (1996), ***"Development Strategy for Nepal"***, NEFAS, Kathmandu.

Haddad Wadi D. et al (1990), "***Education and Development: Evidence for new Priorities"***, The World Bank, Washington, D.C.

Hemming R (1991a), ***"Public Expenditure and Resources Allocation"***, In Ke-Young Chu and Richard Hemming (ed.), Public Expenditure Handbook: A Guide to Public Policy Issues in Developing Countries, IMF Washington D. C.

Hemming, R. (1991b), ***"Public Expenditure, Stabilisation, and Structural Adjustment"***, In Ke-Young Chu and Richard Hemming (ed.), Public Expenditure Handbook: A Guide to Public Policy Issues in Developing Countries, IMF Washington D. C.

Hemming, R. and Mackenzie, G.A. (1991), ***"Public Expenditure and sustainable Fiscal Policy"***, In Ke-Young Chu and Richard Hemming (ed.), Public Expenditure Handbook: A Guide to Public Policy Issues in Developing Countries, IMF Washington D. C.

HMG Nepal (1997), ***"Nepal Living Standard Survey Report 1996"***, HMG, CBS: National Planning Commission Secretariat, Nepal.

HMG Nepal (1998), ***"The Ninth Plan 1997-2002"***, HMG, National Planning Commission Nepal.

HMG Nepal (1998), ***"Annual Report: 1997-98"***, HMG, Ministry of Health, Department Of Health Services, Nepal.

HMG Nepal (1999), ***"Economic Survey: 1998-99"***, HMG, Ministry of Finance Nepal.

HMG Nepal (Dec 2000), ***" Country Presentation for Nepal"***, A Report Prepared for the Third United Nations Conference on the Least Developed Countries held in the Brussels on May 13-20 (2000), by National Planning Commission of Nepal.

Kanbur, R. (1987), ***"Measurement and Alleviation of Poverty with an Application to the Effect of Macroeconomic Adjustment"***, IMF Staff Papers, Vol. 34, No. 1.

Ke-Young Chu and R. Hemming (ed.) (1991),***"Public Expenditure Handbook: A Guide to Public Policy Issues in Developing Countries***", International Monetary Fund, Washington, D.C.

Landau, D. (1986), ***"Government and Economic Growth in the Less-Developed Countries: An Empirical Study for 1960-80"***, Economic Development and Cultural Change, Vol. 35, NO. 1.

Levine, R. and Renelt, David (1991), ***"Cross-Country Studies of Growth and Policy: Some Methodological, Conceptual, and Statistical Problems,"*** World Bank working Paper Series No. 608.

Levine, R. and Renelt, David (1992), ***"A Sensitivity Analysis of Cross-Country Growth Regressions,"*** American Economic Review, September 1992, pp. 942-963.

Lipton M. and Ravallion, M. (1995), ***"Poverty and Policy"***, Ch. 4 in Handbook of Development Economics, vol. B, Elsevier, Amsterdam.

Mankiw, N. G., Romer, David and Weil, David (1992), ***"A contribution to the Empirics of Economic Growth,"*** Quarterly Journal of Economics, May 1992, 152, pp.407-437.

Marcelo Selowsky (1979), ***"Who Benefits From Public Expenditure? A Case Study of Colombia"***, The World Bank Oxford University Press.

Meerman, Jacob (1979), ***"Public Expenditure in Malaysia: Who Benefits and Why"***, The World Bank, Oxford University Press New York.

Musgrave, R. (1969***), "Fiscal System"***, Yale University Press, New Heaven and London.

Musgrave, R. and P. B. Musgrave (1989), ***"Public Finance in Theory and Practice"***, New York: McGraw Hill Book Company.

NSAC (1998), ***"Nepal Human Development Report 1998"***, Nepal South Asia Centre, Kathmandu, Nepal.

OECD Economic Studies (1985), ***"The Role of the Public Sector: Causes and Consequences of the Growth of Government,*** OECD Paris.

Pandey D. R., Khanal D.R. and Pande S.R. (1988), ***"Financing Public Sector Development Expenditure In Selected Countries: Nepal"***, Asian Development Bank, Manila.

Paolo Mauro (1998), ***"Corruption and the composition of government expenditure"***, Journal of Public Economics, 69, pp. 263-279.

Pfeffermann, G.P., (1987), ***"Public Expenditure in Latin America: Effects on Poverty"***, World Bank Discussion Paper, No. 5, The World Bank, Washington D. C.

Pradhan, S., (1996),*" Evaluating Public Spending A Framework for Public Expenditure Reviews",* World Bank Discussion Papers #323, World Bank, Washington, D.C.

Pyatt, G. (1992), ***"Balanced Development: An Approach to Social Action in Pakistan"***, Report prepared For UNDP, UNDP Islamabad.

Ram Rati (1986), ***"Government Size and Economic Growth: A New Framework and Some Evidence From Cross-Section and Time-Series Data"***, The American Economic Review, Vol. 76, No.1.

Ram Rati (1987), ***"Wagner's Hypothesis in Time-Series and Cross-Section Perspectives: Evidence from "Real" Data for 115 Countries"***, Review of Economics and Statistics No. 69, pp.194-204.

Ravallion, M. (1993), ***" Poverty Comparisons"***, Fundamentals of Pure and Applied Economics Vol. 56, Harwood Academic Press, Chur, Switzerland.

Rubinson, R. (1977***), "Dependency, Government Revenue and Economic Growth: 1955-70"***, Studies in Comparative International Development, Vol. 12, No. 1.

Sahni Balbir Singh (ed.) (1972), ***"Public Expenditure Analysis: Selected Readings"***, Rotterdam University Press, Rotterdam.

Sahani Balbir S. and Singh Balbir (1985), ***"Causality Between Public Expenditure and National Income"***, Review of Economics and Statistics, 46, pp. 149-164.

Schultz T.W. (1961), ***"Investment in Human Capital"***, American Economic Review, Vol. LI No.1, pp.1 17.

Scully, G.W. (1989), "***The Size of the State, Economic Growth, and the Efficient Utilisation of National Resources"***, Public Choice, Vol. 63, No.1.

Sattar, Z. (1993), ***"Public Expenditure and Economic Performance: A Comparison of Developed and Low-Income Developing Economies"***, Journal of International Development, Vol. 5, No.1 pp 27-49.

Solow, R. M. (1956), ***"A contribution to the theory of economic growth"***, Quarterly Journal of Economics, 70, pp. 65-76.

Solow, R. M. (1957***), "Technical change and the aggregate production function***", Review of Economics and Statistics, 39, pp. 312-320.

Tanzi, V. (1991),"***Public Finance in developing Countries"***, Edward Elgar, Hants.

Tilak Jandhyala B.G. (1989), ***" Education and Its Relation to Economic Growth, poverty, and Income Distribution: Past Evidence and Further Analysis"***, The World Bank, Washington, D.C.

Timilsina, P.P. and Mahato B.P. (2000) ***"Economic Development and Foreign Investment in Nepal: Issues and Perspectives"***, NESOAE, Kathmandu.

Todaro, M.P. (1997), ***"Economic Development (sixth ed.)"***, Longman, New York.

UNDP (1990-2000: annual), **"Human Development Report"**, UNDP, Washington D.C.

Van de Walle, D. and K. Nead, ed. (1995), ***"Public Spending and the Poor: Theory and Evidence"***, Baltimore: Johns Hopkins University Press.

Wolfson, Dirk J. (1979), "***Public Finance and Development Strategy,"*** The Johns Hopkins University Press, Baltimore and London.

World Bank (1978-2000: annual), ***"World Development Report "***, Oxford University Press, Washington D.C.

World Bank (1993a), ***"The East Asian Miracle: Economic Growth and Public Policy"***, The World Bank, Washington D.C.

World Bank (1993b), ***"Poverty Reduction Handbook"***, The World Bank, Washington D.C.

World Bank (1996), ***"Poverty Reduction and the World Bank: Progress and challenges in the 1990s"***, The World Bank, Washington D.C.

World Bank (1997), ***"Nepal- 1997 Economic Update: The Challenge of Accelerating Economic Growth"***, Poverty Reduction and Economic Management Division, South Asia Region.

World Health Organisation (1999), ***"World Health Report 1999: Making a Difference"***, World Health Organisation.

Wuyts, M. (1992), ***"Deprivation and Public Needs"*** In Wuyts et al (1992).

Wuyts, M., Mackintosh, M. and Hewitt, T. (ed.) (1992), ***"Development Policy and Public Action"***,Oxford University Press.

Annexes

Annex (1)

Year	GDP mkt. Prices (current)	GDPdef. (1995=100)	GDP at mkt. prices (constant)	CPI (1995=100)	Govt. Consumption (G) (current)	G (constant)	Gross fixed capital formation (K) (current)	K (constant)	Population (L)	Students (H)	ln GDP*	ln K*	ln G*	ln L	ln H
1975	16571	16.6	99825.30	16.54	1257	7599.76	2223	13440.15	12.59	0.70	11.51	9.51	8.94	2.53	-0.357
1976	17394	16.7	104155.69	16.03	1294	8072.36	2443	15240.17	12.86	0.91	11.55	9.63	9.00	2.55	-0.098
1977	17280	16.1	107329.19	17.62	1260	7150.96	2580	14642.45	13.14	1.08	11.58	9.59	8.88	2.58	0.075
1978	19732	17.6	112113.64	18.91	1471	7778.95	3294	17419.35	13.42	1.25	11.63	9.77	8.96	2.60	0.220
1979	22215	19.3	115103.63	19.58	1889	9647.60	3263	16664.96	13.71	1.46	11.65	9.72	9.17	2.62	0.380
1980	23351	20.8	112264.42	22.46	1565	6967.94	3681	16389.14	14.01	1.58	11.63	9.70	8.85	2.64	0.457
1981	27307	22.5	121364.44	24.96	1922	7700.32	4299	17223.56	15.02	1.70	11.71	9.75	8.95	2.71	0.532
1982	30988	24.6	125967.48	27.88	2638	9461.98	5465	19601.87	15.42	1.84	11.74	9.88	9.16	2.74	0.612
1983	33761	27.6	122322.46	31.33	3416	10903.29	6576	20989.47	15.83	2.04	11.71	9.95	9.30	2.76	0.715
1984	39390	29.4	133979.59	32.23	3644	11306.24	6907	21430.34	16.25	2.20	11.81	9.97	9.33	2.79	0.790
1985	46587	32.7	142467.89	34.82	4371	12553.13	9386	26955.77	16.69	2.31	11.87	10.20	9.44	2.81	0.836
1986	55734	37.4	149021.39	41.44	5065	12222.49	9431	22758.20	17.13	2.40	11.91	10.03	9.41	2.84	0.875
1987	63864	42.2	151336.49	45.89	5797	12632.38	11825	25768.14	17.56	2.53	11.93	10.16	9.44	2.87	0.929
1988	76906	47.1	163282.38	50.01	6895	13787.24	13414	26822.64	17.37	2.72	12.00	10.20	9.53	2.85	1.001
1989	89269	52.5	170036.19	54.44	8947	16434.61	16392	30110.21	17.74	3.19	12.04	10.31	9.71	2.88	1.160
1990	103416	58.1	177996.56	58.93	8959	15202.78	17002	28851.18	18.11	3.50	12.09	10.27	9.63	2.90	1.252
1991	120371	63.5	189560.63	68.09	11085	16279.92	22780	33455.72	18.49	3.66	12.15	10.42	9.70	2.92	1.297
1992	149487	75.8	197212.4	79.77	11908	14927.92	29276	36700.51	18.94	3.89	12.19	10.51	9.61	2.94	1.358
1993	171474	84.1	203892.98	85.76	14900	17374.07	37278	43467.82	19.39	4.00	12.23	10.68	9.76	2.96	1.387
1994	199272	91.2	218500	92.92	15987	17205.12	42032	45234.61	19.86	4.14	12.29	10.72	9.75	2.99	1.419
1995	219175	100	219175	100	15987	20267.00	48370	48370.00	20.34	4.28	12.30	10.79	9.92	3.01	1.454
1996	248913	107.4	231762.57	109.22	15987	21074.89	56081	51346.82	20.83	4.57	12.35	10.85	9.96	3.04	1.519
1997	280513	115.6	242658.3	113.6	15987	21995.60	60794	53515.85	21.33	4.65	12.40	10.89	10.00	3.06	1.537
1998	300801	118.9	252986.54	125	15987	21984.80	66568	53254.40	21.84	4.99	12.44	10.88	10.00	3.08	1.608

Note: GDP, K, G figures are in millions of Nepalese Rupees, and L, H (=number of students enrolled up-to secondary level) figures are in millions.

* of constant prices

Sources: (1) Economic survey of Nepal (1998-1999), HMG Nepal,

(2) International Financial Statistics, 2000 (IMF).

Annex (2): Public expenditure and some indicators of wellbeing (1975-1998):

Year	Infant mortality rate (per 1000)	Life expectancy (years)	Number of students enrolled in primary level (1000)	Per capita income (US $)	Per capita public health expenditure (Rs.)	Per capita public expenditure on education (Rs.)
1975	171	NA	459	120	6.98	12.25
1976	152	NA	644	120	9.84	17.84
1977	148	NA	769	120	9.52	19.29
1978	144	43	875	120	10.27	20.14
1979	125	44	1013	130	10.99	23.00
1980	118	44	1068	140	9.27	23.60
1981	117	45	1388	160	10.85	25.58
1982	113	46	1475	160	15.13	33.66
1983	110	46	1626	150	20.13	46.37
1984	110	47	1748	150	19.60	50.36
1985	107	47	1812	160	23.62	48.27
1986	107	47	1858	160	23.70	63.46
1987	105	51	1953	170	28.00	72.82
1988	103	51	2110	180	33.93	85.74
1989	102	52	2526	200	48.88	98.18
1990	102	52	2789	210	38.12	99.36
1991	100	53	2884	210	35.73	112.62
1992	100	54	3035	210	48.47	151.42
1993	99	54	3092	200	54.72	214.04
1994	99	54	3191	190	53.66	229.81
1995	98	55	3263	200	73.53	249.05
1996	98	57	3448	210	82.31	295.26
1997	97	58	3461	210	117.52	337.70
1998	93	58	3725	210	143.09	357.32

Sources: 1) Economic Survey of Nepal 1998,
2) HDR: 1990-2000 (annual),
3) WDR: 1978-2000 (annual).
4) WB, World Development Indicators (2001).