Chapter: 9

Conclusions and Policy Inferences

Many reasons such as the limitations of market mechanism, the need for social justice and the need for resource mobilization and allocation in the context of overall development programme make economic planning an important tool of economic development and growth. In addition to these, economic planning in an infant country such as Eritrean has its unique necessity.

The nature of Eritrea is reflected in its infancy. With the achievement of its independence in May 1991, Eritrea emerged to the world as a poor infant country holding its heavy legacy of years of colonial exploitation and oppression, collapsed economy and wounded society to choose its identity, direction and means.

Today, due to the enormous technological progress, the entire world is coming together. Economics, like most other aspects of life, has acquired further dimensions and witnessed substantial theoretical, conceptual and practical changes in the last two decades. Today, with the fast moving world and the open economies, Eritrea cannot choose to remain aloof but needs to align itself with the rest of the world.

Prior to 1974, when Ethiopia was following the West, it was practicing the capitalist economic system in Eritrea. Then, after the victory of the communist revolution in Ethiopia in 1974, the then communist government imposed the socialist economic system in Eritrea. Today, after independence, Eritrea is following the market oriented economic system, as reflected in the privatization and initiatives towards foreign investment.

At this critical moment, planning for the Eritrean economy acquires its peculiar importance, and significance. The present study makes a sincere effort in aligning these peculiar characteristics of the Eritrean economy and suggests an economic development policy framework.

The specific objectives of the present study are:

i. To collect and systematically compile the data on Eritrean economy from various scattered sources,

ii. To evaluate the resource viability of the Eritrean economy by assessing its human and natural resources,

iii. To examine the economic growth of the Eritrean economy and carry out the growth estimations and forecasting,

iv. To estimate and plan for Eritrea's economic and human development,

v. To critically analyze Eritrea's macro economic structure and policies,

vi. To empirically investigate the inter-relationship between various macro economic variables and bring out the effectiveness of major fiscal, monetary and external sector policies and instruments.

Including the present concluding chapter, this research study has been divided into nine chapters. The major findings, conclusions and policy inferences drawn from this extensive research endeavor are given below:

Chapter 1: Introduction

Chapter: 1 is the introductory chapter. It includes a brief country profile, economic planning in an infant country, rationale and objectives of the study, methodology of the study, limitations of the study and thesis outline.

Chapter: 2 Assessment of Economic Resources

The study and assessment of economic resources is vital from the point of view of economic development. It is particularly important because knowledge of resources furnishes the base and platform for planning economic development. The existence or absence and size of certain human and natural resources can facilitate or delay the progress of economic development.

The objective of this chapter is to evaluate the viability of the Eritrean economy by assessing its human and natural resources. The assessment of human resources elaborates on the quality of Eritrean population by discussing population profile and growth, health status, standard of education, extent of poverty and unemployment. While the assessment of natural resources includes the study of land resources and its utilization, the availability of water resources, mineral resources, forest resources and marine resources.

2.1 Assessment of Human Resources

a. Population

i Growth of population in Eritrea has shown an upward movement till 1990 and then after it has shown a sudden fall in the nineties, co-inciding with the post–independence period.

ii. Eritrea's population increased by three and half times over a period of fifty years. The decade-wise growth rate of the population has seen erratic all through the period from 1950-2000.

iii. Sex–wise and age–wise composition of population has shown almost stagnancy over a period of time.

iv. The birth and death rates in Eritrea have clearly followed the continuous fall in consistency with the theory of demographic transition. As a result of this, the natural growth rate of population has shown a continuous rise till 1990, after which it also started falling.

v. The proportion of child population has been remarkably declining from 1970 onwards whereas; the proportion of old age population has been improving. This indicates the decline in the birth rate and improvement in life expectancy in Eritrea.

vi. Basically, Eritrea is said to be an agriculture-based country with above eighty percent of its population living in rural areas. However, the aggregate data shows a

paradigm shift. The urban population is continuously increasing. During the last decade, the urban population increased by 2.9 percent indicating the migration of the rural population towards the urban centers in search of jobs and services.

vii. The density of population in Eritrea for the year 2000 is put at 32.8 persons per square km. The density in rural areas is 26.7 person per square km, which is indeed very high if compared to the density in urban centers, which is only 6.1 people per square km. But if we consider the population density in India and Bangladesh, where the density of population is as high as 2573.8 and 847.2 person per square km respectively, or even in neighboring country Ethiopia where the population density is 44.8 person per square km; Eritrea could be considered as a country with low population density.

b. Health

i. There has been a significant decline in the rate of infant mortality, which has fallen from 181 infants per thousand live births in 1950 to 64 infants per thousand live births in the year 2000. This indicates improvement in health services particularly in prenatal care. But, in spite of this improvement, the rate of infant mortality in Eritrea remains among the lowest in the world and invites a lot of work and reformation on the health sector. Though not entirely, this poor health status among others is the result of protracted war, poverty and recurrent drought.

ii. Though the expectation of life at birth in Eritrea has significantly improved from 35.1 years in 1950 to 52 years in 2000, yet it may be noted that it is still very low in relation to the life expectancy in developed countries, where it reached the 64.7 years mark in 2000..

iii. The child malnutrition of children under five years in Eritrea is very low. It is estimated at 102 per thousands live births in the year 2000 compared to 90 per thousand live births in sub-Saharan Africa in 1999.

iv. The daily per capita calorie intake in Eritrea is estimated at about 1750, which is equivalent to 93 percent of minimum requirements; compared to 2096 for sub-Saharan Africa.

v. Like all the infrastructure bases, health and sanitation facilities in Eritrea were completely neglected by the concerned colonial authorities, besides being seriously destroyed. Only 8 percent of the population has access to safe water compared to 44 percent in Sub-Saharan countries and 71 percent in low-income countries.

vi. Having all these problems, it is indeed possible to think boldly and aim high. The government can work hard in order to achieve the targets set in the UNDP's Millennium Development Goals. For this, the government should mobilize more resources towards health sector, encouraging non-governmental organization and media to play an active role.

c. *Education*

i. In general, the educational status in Eritrea is low even by the regional standards. The prevailing adult literacy rate of 55.7 percent is very low compared to 73.7 percent in developing countries, and also in comparison to Arab states and Sub-Saharan Africa, where the literacy rate is 62 percent and 61.5 percent respectively.

ii. Further more, the situation of combined gross school enrolment ratio is even worse. The combined gross enrolment ratio in Eritrea has only been 26, compared to 62 in Arab States, 61 in developing countries and 42 in Sub-Saharan Africa.

iii. The reasons for low level of education in Eritrea are two folds. First, less number of schools to accommodate all the students seeking admissions and second, poor response of the people to education. As a mater of fact, the poor response of the people to education, which was once restricted to rural population only, today exists even in the urban centers.

d. Poverty

i. Apart from South Asia, poverty is at it's worst in sub-Saharan Africa. Describing the status of the African poor is almost like writing a literature on human misery and Eritrea's poor are among the most unpleasant part of that tragedy.

ii. Perhaps the ugliest facet of Eritrea today is the abject poverty which holds large many people in its vice grip. Today, Eritrea is considered among the poorest countries of the world. The three decades of war and recurrent droughts have deepened the roots of poverty in the society. More than half of the population lives below the poverty line. The incidence of poverty is large in rural areas and among refugee returnees. The rural areas constitute 86 percent of the poor population. The rural and refugee poor lack even the most necessities of life such as excess to food, drinking water, proper shelter and minimum health and education facilities.

e. Unemployment

i. A country's total population is divided into working population [labour force] and non-working population [dependent population]. The working population, known as labour force, is further divided into employed and unemployed population.

ii. Eritrea's labour force has significantly increased in the last one decade. The annual growth rate of labour force has shown a fluctuating tendency. On an average, annual growth rate remained 3.07 percent during the period 1992 to 2000.

iii. Labour force as a percentage of total population has also increased marginally from 49.69 percent in 1991 to 51.22 percent in 2000. On an average, it has remained at 50.15 percent for the same period.

iv. The labour market data reveals a serious unemployment problem in Eritrea. In last one decade, only 32 percent of the total number of registered job-seekers could be placed in jobs. For the remaining 68 percent, the economy failed to secure a job for them.

2.2 Assessment of Natural Resources

i. The total available land of Eritrea is utilized for agricultural [9.1 percent] and non-agricultural [90.9 percent] uses.

Non-agricultural land includes forests, browsing and grazing land and barren land. Forests occupy just 0.5 percent of the total land area. Browsing and grazing land occupy the largest share [57.2 percent] of the total land. Barren land, which includes desert area, towns, villages and unusable steep slops, occupies one third [33.2 percent] of the total available land in Eritrea.

ii. The management and utilization of land in Eritrea is not proper. In spite of quite big areas of virgin land, only 9.1 percent of the total land is utilized for agriculture. To tackle the reoccurring shortages in food and agricultural products, more area should be brought under cultivation.

iii. Primitive methods of land tilling and indiscriminate deforestation have resulted in enormous soil erosion, as a consequence of which fertility and moisture retaining capacity are declining. The amount of soil eroded each year is estimated to cover an area of 60,000 hectares with the depth of one meter. The problem of erosion is serious and it endangers life throughout the country.

iv. The problem of inadequate rainfall over most of the country is quite serious and is often compounded by the high variability of both, the total annual rainfall and its distribution.

v. Eritrea's water resources are very scarce compared to its neighbors. However, fairly good potential from ground water appear to exist for irrigation from the aquifers underlying the western lowlands, the northern section, the coastal plain, and along the banks and basins of the main rivers.

Water in Eritrea should be treated as a precious resource and hence preserved and utilized properly and efficiently. Moreover, the assessment of the water resources in Eritrea should be among the important priorities of the government and concerned parties.

vi. In the last hundred years, the forest cover in Eritrea has declined drastically from 28 percent of total land area to just 0.5 percent. Till the 1940s, forest products were having a significant importance in the Eritrean economy as a source of income and national wealth. But today, after the serious loss in the forest resources of the country, forests contribute only a little to the economy. Unless certain rules and regulations are strictly enforced to save the forest resources and tackle the present problem, forests are not expected to contribute much in the near future. Thus, deforestation and all the environmental problems facing Eritrea have to receive the serious and urgent attention from the government, the concerned authorities and the general public. The responsibility of forest protection and development should be on the shoulders of the general public, forest-based industries and the state, which are the interested parties in the forest issue.

vii. Eritrea has been known for its abundant minerals. The main mineral resources of Eritrea are: *Metallic minerals, Industrial minerals, Building minerals and Energy mineral.* In the past there have been several successful attempts in mining various mineral resources.

Beside these minerals, Eritrea has considerable oil and coal potential, though scarcely any exploitation for oil has begun until now. The geological formation of Eritrea is said to be similar to that of the Middle East countries and previous attempts of exploration along the Eritrean coast indicated the availability of gas and oil deposits in the Red Sea area.

viii. Eritrea is rich in various natural resources hence it can build a diversified modern economy. However like any developing economy, the development and growth of the Eritrean economy depends upon the proper identification and utilization of natural resources. This requires the formation of a complete knowledge of natural

resources. Mapping, systematic surveys and investigations of natural resources should be among the top priorities of Eritrea and should precede the framing of any development policy for the Eritrean economy. Moreover, the environment friendly use of natural resources is vital necessity to protect the environment and for the conservation of natural resources for future generations.

Chapter: 3 Economic Growth and Sector Identification

In order to understand the past behaviour and present status of Eritrea's economy, this chapter undertakes the analysis of trend and composition of its GDP and sub-sectors. This has been done by calculating annual average growth rates, volatility analysis and estimation of trend equations. This study has been divided into pre and post independence periods.

3.1 Overall Economic Growth

a. Pre-Independence Period [1984 – 1991]

i. The trend growth rate of nominal and real GDP in pre-independence period was very low at 1.7 and 0.2 percent respectively.

ii. The annual growth rate in nominal GDP recorded an average growth rate of 5.9 percent per annum. While the average annual growth rate in real GDP was only 0.6 percent. On an average, the real growth rate was more erratic at the volatility rate of 9.7 than the nominal growth rate with a volatility rate of 1.9.

iii. The annual rate of growth in the per capita income has shown continuous fall in Eritrea. Over the whole period of eight years [1984 –1991], the per capita income recorded a fall of –16.2 percent.

b. Post – Independence Period [1992-2000]

i. Trend growth rate in real GDP has been quite low in post-independence Eritrea at 1.8 percent. Moreover, the real GDP growth rate has shown more volatility than the nominal GDP.

ii. The annual growth rate of GDP has been highly fluctuating. The annual growth rate in real GDP fell down sharply from 9.7 percent in 1994 to –3.1 percent in 1995. Since then it fluctuated between 8.7 percent in 1996 to 2.6 percent in 1999, then recorded a second sharp fall in 2000, reaching the lowest level ever of –6.2 percent. Here, it is important to mention that during the year 2000, the second war offence of Ethiopia to Eritrea had reached to its peak.

iii. Much of the fluctuations in the economic growth has been due to the effect of the political instability and direct confrontation with Ethiopia and other neighboring countries, which the Eritrean economy depends upon.

iv. The real per capita GDP growth rate in Eritrea has been quite dismal in the post-independence era at just 0.6 percent.

v. Today, Eritrea is considered among the poorest countries in the world. Its economic performance is the lowest among the economies of the countries in the region. Though Eritrea has the smallest population size [4.1 million], a comparison among eight countries in the neighborhood ranks it the seventh in terms of GDP per capita [PPP US $] and the last in terms of GDP per capita growth.

3.2 Growth in Agricultural Sector

i. The share of agriculture sector in the total GDP was highly affected by serious droughts and thus showed a continuous fall with high fluctuations. The share of agriculture in GDP declined from 29.9 percent in 1992 to 12.8 percent by the year

2000. On an average, the agriculture sector has contributed 18.5 percent to the total GDP.

ii. The agricultural sector of Eritrea constitutes of four sub-sectors namely: *Crops, Livestocks, Forestry and Fishing.*

iii. Over three fourth of agriculture production comes from crops and livestocks. Forestry, which earlier used to contribute a very high share of 38 percent in total agriculture production, now contributes just a meager 1.4 percent. The average contribution of fishery in total agriculture has significantly increased in the post independence period to 20.3 percent, from just 2.5 percent in the pre-independence period. Which is about 8 times higher.

iv. The trend growth in agricultural production has been quite low in post-independence ranging from 1.3 percent to 2.4 percent across all the agriculture sub-sectors. The volatility in the annual average growth rates in agriculture sub-sectors has been very low.

v. The most important of all the problems of the agricultural sector in Eritrea can be specified as under:

- Problems of agro-climate, such as poor quality of soil, scarce rainfall, humidity, poor sunshine during monsoon and very low temperature during winter in highlands etc,
- Physiography such as wide variation in altitude and hilly terrain,
- Inadequate infrastructure facilities like transport, irrigation, input supply, poor post-harvest technology, poor warehousing, communication and marketing networks,
- Lack of adequate number of technically qualified personnel both at professional and para-professional levels;
- Old cultivation methods, community ownership of land, small size of operational holding, and fragmentation of holdings.

3.3 Growth in Industrial Sector

i. The share of the industrial sector in total GDP has continued to rise. It increased from 14.3 percent in 1992 to 21.4 percent in the year 2000. On an average, industrial sector contributed 18.2 percent to the total GDP. For a country such as Eritrea, in its initial stages of development, this share is rather quite promising.

ii. The industrial sector of Eritrea consists of the following four sub-sectors: *Mining and Quarry, Manufacturing and Refinery, Small Scale Industry and Handcrafts, Construction and Building.*

iii. Within the industrial sector, in post-independence, fastest growing sector has been construction [11.2 percent] followed by small industries [6.5 percent], manufacturing [4.1 percent] and mining [2.2 percent] in that order. The growth rates in these industrial sub-sectors have not been very volatile which is a good sign from policy planning perspective.

iv. In order to accelerate industrialisation rapidly, the industrial sector in Eritrea would need the following necessary requirements:

- Securing enough capital for the industrial sector from domestic and foreign sources and allocating them properly and efficiently.
- Securing all the required power and energy, capable of carrying out production at the full production capacity.
- Improving the domestic market and exploring regional and international markets for the Eritrean products.
- Adoption of modern technology and techniques in transforming basic raw material and intermediate goods into manufactured goods.
- Application of modern management techniques.
- Decentralization of the industries with the objective of economic development and maintaining regional balanced growth.

3.4 Growth in Services Sector

i. The services sector has always been dominating the Eritrean economy. The share of the service sector in total GDP has shown rising signs. It increased from 38.9 percent in 1992 to 42.4 percent in the year 2000. On an average, it contributes 41.5 percent of the total GDP, which is the highest among all the sectors. This reflects the administration priority in the post–independence era.

ii. The services sector in Eritrea consists of four sub-sectors namely: *Distribution Services, Public Administration, Domestic Services and Others.*

iii. Income from all the sub-sectors of the services sector in Eritrea have grown almost at the same rate of around 5 percent per annum, with very minor volatility in the annual growth rates.

iv. Within the services sector in the post-independence period, on an average, income from distribution services contributed the most [55.1 percent], followed by public administration [30.8 percent], domestic services [9.2 percent] and others [4.8 percent] to the total services sector GDP.

3.5 Growth in Infrastructure

i. Eritrea's infrastructure sector has increased from 16.9 percent in 1992 to 23.5 percent in the year 2000. On an average, infrastructure sector secured 21.7 percent of total GDP share. This is mainly due to the huge tasks of reconstruction and rehabilitation undertaken by the government to rebuild the war devastated infrastructure sector.

ii. The income from infrastructure sector in Eritrea may be classified into four sub-sectors these are *Transportation and Communication; Health and Education; Banking, Finance and Insurance; Energy and Water.*

iii. Infrastructure sector has witnessed quite a moderate growth rate in the post-independence period with a very negligible volatility. However, there is a lot more to achieve in this section.

iv. Due to war and negligence, the majority of the urban centres suffer chronic shortages, if not completely lacking, the basic infrastructure and social services such as water supply, power supply, sanitation, roads, telecommunication, public transport, fire service and welfare. In general, Eritrea's population growth and economic growth will further expose the inadequacies of the present infrastructure capacity. This deficiency and inadequacy of the infrastructure capacity constitutes a major constraint to the economic growth.

v. Poor road conditions and lack of rural road have constrained the development of rural markets and reduced linkage between regions.

vi. Access to safe water supply and sanitation is very limited in Eritrea. There is also an extreme shortage of housing in the urban cites.

vii. The ports of the country too are not in a better position. They have been substantially damaged specially during the liberation war.

viii. The communication system in Eritrea is undeveloped in its all departments, and need a substantial reformation. Access to the communication services is limited to the main cities, while the rest of the country lacks even the basic communication services.

ix. Over 80 percent of total energy demand and over 96 percent of household energy demand are met by fuel wood and biomass. This has contributed to a drastic loss in vegetative cover due to the cutting of trees for fuel. Moreover, the heavy use of animal dung for fuel in rural areas has contributed to a reduction in soil quality.

x. Eritrea suffers from chronic electricity shortages. The impact on the commercial and industrial sectors has been very high. The lost production due to electricity shortages alone is estimated to be as high as 30 to 50 percent of the GDP.

Chapter: 4 Growth Estimations and Forecasting

Good strategic planning focuses on successfully managing the future. To manage the future, we need to estimate what is likely to occur in the future. Statistical methods can be used to accomplish this goal. This chapter begins the empirical analysis of the Eritrean economy with the estimation and forecasting of Eritrea's economic growth for the period 2001 to 2005.

For this task, the study has adopted three important forecast methods, namely: Time Trend Method, Lucas's Supply Side Growth Model and Holt – Winters Exponential Smoothing Method.

The summary of methodological steps involved and results are as follows:

i. In the first part of the chapter, Time Trend Equations and Lucas Supply Side Growth Model have been estimated. In order to decide what type of trend line to fit, seven alternative functional forms have been established. Lucas's supply side model involves current level of GDP and includes lagged GDP terms to allow for any tendency for the economy to return to the trend rate of growth. The OLS method of regression has been used to establish the trend equations as well as Lucas model. The time period taken for the study is 1992 – 2000.

ii. On the basis of the test statistics and model selection criterion, Lucas model turned out to be the best fitted and was accordingly used for the forecasting purposes. Following the same criterion, the Lucas growth model was selected for forecasting sector-wise GDP for agriculture, industry and services.

iii. In the second part of this chapter, the study undertakes the estimation of Eritrea's GDP and sectoral component using the Holt-Winters Exponential Smoothing method, using the post-independence data for the years 1992-2000.

iv. After estimating the GDP forecast from all these methods, the question which arises is to which method should be used for forecasting the Eritrea's GDP? Any method which gives the estimated values closest to the actual one in the *ex-post* forecasting analysis is always preferable. For this purpose this study used two indicators – the Mean Absolute Percent Error [MAPE] and the Mean Squared Error [MSE] to compare the forecasting performance of estimated models.

v. The results based on MAPE and MSE turned out to be a bit conflicting. For GDP estimation Lucas model outperformed Smoothing method, where as for sectoral GDP, estimation results were largely in favor of Exponential Smoothing method. However, overall, the estimated *ex-post* results were quite nearer to their actual values.

vi. For the purpose of final forecasts, this study adopted two alternative approaches: Forecasting GDP using Lucas model and forecasting sector-wise GDP, using Holt-Winters Exponential Smoothing model.

vii. The whole exercise suggests that in the next five years [2001 – 2005], the growth rate of GDP at factor cost in Eritrea would be on an average 10.1 percent per year. The average sectoral growth during the same period is expected to be 1.2 percent in agriculture, 6.7 percent in industry and 6.4 percent in services sector.

Chapter: 5 Planning for Human Development

This chapter attempts to address the problems of human development in Eritrea in relation to economic development. First, it constructs the human development index [HDI] for all the years of post-independence. It takes this issue a step further by estimating the likely future HDI scenario of Eritrea for the period upto 2015. In the second phase, this chapter investigates the role of the government in human development and social sector. Finally, the chapter explores the existence and extent of causal relationship between various parameters of economic growth and human development.

The following conclusions have been derived from this exercise:

5.1 Human Development

i. There has been a meager improvement in Eritrea's HDI value from 0.383 in 1992 to 0.421 in 2000. In terms of human development, Eritrea ranks among the lowest countries of the world. In fact, in terms of HDI rank, Eritrea occupied the 157th position out of 173 countries in the year 2000.

ii. Health, education and income levels influence the human development level. The assessment of the pattern of human development in Eritrea from 1992 to 2000 shows a very poor performance in terms of human development index [HDI]. This poor performance reflects the poor status of life expectancy, adult literacy rate, gross enrolment ratio and per capita GDP in Eritrea.

iii. Though the life expectancy at birth in Eritrea has improved from 49.8 years in 1992 to 52 years in 2000, the value of the life expectancy index has been very low at 0.45 in the year 2000.

iv. Adult literacy rate improved significantly from 48.3 percent in 1992 to 55.7 percent in 2000. However, the performance of gross enrolment ratio has been extremely poor. It increased from 25 percent in 1992 to 29 percent in 1995 and ended up declining to 26 percent in the year 2000. Perhaps this resulted in the poor value of education index throughout 1992 to 2000.

v. The per capita GDP reflects the standard of living in Eritrea. Though the per capita GDP has increased from US $ PPP 726 in 1992 to US $ PPP 837 in 2000, in terms of standard of living, Eritrea is among the poorest nations. In terms of GDP index value, Eritrea remained almost stagnant in the range 0.32 to 0.35 throughout the period of study from 1992 to 2000.

vi. Eritrea's HDI value of 0.421 lies slightly below the HDI value in least developed countries, which is 0.445. It is far below the HDI values in Sub-Saharan countries, developing countries and medium human development countries, which have HDI values of 0.471, 0.654 and 0.691 respectively.

vii. The improvement of human development is a long process, which cannot be achieved overnight. The UNDP, in its millennium agenda for human development, indicated certain targets to be achieved by all developing countries by the year 2015. On the basis of Eritrea's past performance in human development and considering its potentiality and limitations, the important questions raised are: *What level of human development Eritrea would be able to achieve by the year 2015? Will Eritrea be able to match the UNDP millennium targets for life expectancy, adult literacy rate and gross enrolment ratio? Will Eritrea be able to catch up with the standard of developing countries in terms of human development index?*

To estimate the expected growth in the HDI indicators, we applied a realistic minor shock to each indicator on the basis of its past performance. After pegging up the values of human development indicators by giving these shocks, the HDI was estimated for the years 2005, 2010 and 2015 respectively. The results suggest that Eritrea would achieve the HDI of 0.460 in 2005, 0.513 in 2010 and 0.59 in 2015.

viii. Considering Eritrea's economic problems and opportunities, particularly related to human development, within a span of ten years Eritrea was able to improve its HDI from 0.383 in 1992 to 0.421 in 2000, in spite of difficult conditions of political instabilities, war and huge setbacks in economic and social developments.

Moreover, if one sees the viability of the Eritrean economy in terms of unutilized and promising vast natural resources in relation to the small population of the country, there is potential optimism in the improvement of human development in near future.

ix. But, it is important to mention that with this trend, Eritrea will not be able to achieve much by the year 2015, unless the human development process is properly planned. The achievement of human development cannot be attained merely by setting future human development targets. In fact, it depends upon the support and participation of both, the public and the government. Hence, it is necessary to create the enabling environment, and also to establish the required political, social, economical and institutional goals.

5.2 Social Expenditure and Human Development

i. The issues pertaining to human development have been receiving increasing attention from academicians as well as policy makers in recent times. This is largely due to the realization that economic growth does not automatically translate itself into better human development unless specific measures are taken in that direction. In response to a greater recognition of human development, debate has witnessed repeated calls for restructuring of public expenditure in favor of social sector.

The World Bank, in its expenditure reviews, has more often argued that governments should restructure their spending patterns in favor of the social sectors and more specifically in favor of basic social services [BSS]. The BSS includes basic health, education, water and sanitation, nutrition and reproductive health and population programs. During the 1990s, restructuring public expenditure towards BSS has increasingly been seen as a necessary first step for raising the levels of social indicators. The financing of basic social services, given their characteristics of being merit goods, must be guaranteed by the state.

ii. In Eritrea, in the post-independence period, social expenditure as a percentage of total expenditure has shown fluctuating trend. On an average, the share of social expenditure in total expenditure has remained very little at 7 percent. However, social expenditure has been getting an increasing share of the development expenditure, averaging at 22 percent for the entire post independence period.

iii. The social expenditure consists mainly of education, health, social affairs and others. Of which, education and health together make Expenditure on Human Priority [HPE]. In the recent years, the expenditure on human priorities - education as well as health, has been quite dismal, showing no signs of noticeable improvements. For Eritrea to improve its status on human development, it should put the education and health on the priority of its development agenda.

iv. The UNDP'S Human Development Report [HDR] of 1991 introduced four expenditure ratios which were considered necessary to analyze how public spending on human development can be designed and monitored. The HDR provides norms for various expenditure ratios, the fulfillment of which is expected to lead to higher levels of human development.

v. The public expenditure ratio [PER], defined as ratio of public expenditure to national income, increased in Eritrea from 36.7 in 1992 to 71.2 in 2000. It is well above the UNDP target of 25 percent.

vi. The social allocation ratio [SAR], defined as ratio of social expenditure to public expenditure, though witnessed a fluctuating increase from 1.6 in 1992 to 11.6 in 2000, is still far below the UNDP prescribed norm of 40 percent.

vii. The social priority ratio [SPR], which explains the share of human priority expenditure in the total public expenditure far exceeded the UNDP requirements in the years 1993, 1995 and 1996 before stabilizing at around 50 percent in the last three years, and hence just meeting the UNDP requirement.

viii. The human expenditure ratio [HER], indicating the ratio of expenditure on human priority to national income, though showing increasing trend, has remained far short of the UNDP targeted requirement of 5.0 throughout the period of analysis.

ix. To improve the poor state of human development, Eritrea should direct more and more funds towards the human priority sectors.

5.3 Interrelationship between Economic Growth and Human Development

i. The issue pertaining to growth and development in Eritrea invites certain important questions to be addressed. These questions are: *Can we aim for economic growth and expect human development to occur automatically? Is there any link between economic growth and human development in Eritrea? Is it economic growth that leads to human development or the other way round? Are there conflicts between economic growth and human development?* This section of the present study attempts to address these important questions by aiming to explore the links and relationship between human development [HD] and economic growth [EG] in Eritrea.

The indicators used to measure the economic growth are Gross Domestic Product [GDP], Per Capita Gross Domestic Product [PCGDP] and Non-Agriculture Gross Domestic Product [NAGDP]. The human development indicators are Human Development Index [HDI], Health and Education.

ii. The positive and high correlation of Non-Agriculture Income in GDP [NAGDP] with Per Capita GDP [PSGDP] and Human Development Index [HDI] signifies the fact that a higher proportion of NAGDP leads to higher PCGDP and HDI.

iii. A high correlation of economic development indicators [GDP, PCGDP and NAGDP] with the indicators of health and education signify the fact that a higher economic development does have a positive impact on the literacy and health level of Eritrean population.

iv. The HDI at time t gets affected most by PCGDP at time t-1, indicating that it takes one year for per capita GDP to have its maximum positive impact on HDI. The transmission lag from PCGDP to HDI is one year.

v. Another important finding is related to the growth elasticity of human development. The elasticity for the selected equation is 0.132, indicating that a one percentage increase in PCGDP improves the HDI by 0.132 percentage after a gap of one year.

vi. PCGDP at time t gets affected by HDI at time t-2. Hence, it can be concluded from this result that PCGDP does get influenced by a change in HDI after a time lag of two years. Improved HDI gets transmitted into higher economic development after a lag of two years. The transmission lag from HDI to PCGDP is two years.

vii. The value of the elasticity of PCGDP with respect to HDI in the selected equation is 4.278, indicating that a one percentage increase in HDI improves the PCGDP by 4.278 percentage after a gap of two years.

Chapter: 6 Fiscal System: Structural and Empirical Analysis

This chapter is the first macro economic analytical work in the thesis. It has been divided into two parts: structural analysis and empirical analysis of Eritrea's fiscal system.

The structural analysis deals with an in-depth analysis of Eritrea's fiscal system, where the growth, trend and composition of all the important constituents and variables of the Eritrean fiscal sector have been examined.

The study of fiscal system leads to certain pertinent questions: *How responsive are the fiscal variables to the macro economic changes in the Eritrean economy? How sensitive are the tax revenues to national income? Is the role of the government increasing with the growth of the economy?* The proper fiscal planning and policy formulations require the answers to these questions. The second part of this chapter attempts to answer these questions by empirically analyzing and modeling Eritrea's fiscal system.

The following conclusions can be made from this chapter:

6.1 Structural Analysis

a. Public Revenue

i. The Eritrean budget may be classified into two parts: revenue budget and expenditure budget. The revenue budget deals with the government current receipts from taxation and non-tax sources, and the capital receipts of the government. While the expenditure budget deals with the expenditures on current account and capital account.

ii. The growth of total public revenue as well as its components has been highly erratic in the post–independence Eritrea. Moreover, the various revenues as percent to GDP have also shown very fluctuating trends. On an average, total expenditure as a percentage to GDP was 32.1. In case of current and capital expenditure, it was 29.1 percent and 2.9 percent respectively.

iii. The current revenue dominates a big share of the total public revenue. As percentage of total revenue, it varied from 82 percent to 100 percent throughout 1994 to 2000, leaving a marginal role for the capital revenue in the total revenue receipts of the government.

iv. Though current public revenues are derived from a variety of tax and non-tax sources, tax revenues are the most important sources of income for almost all governments. In fact, the size of the government's development program in a developing country depends largely on the economic and administrative capacity of its tax system to marshal the necessary resources. For this reason, governments in many developing countries are trying to increase the proportion of national income collected in taxes from 10-15 percent to 30-40 percent levels, as reached in developed countries like USA, UK, Austria, France, Germany, Netherlands, etc.

v. As percentage of total GDP, tax revenues have shown some stability in Eritrea. In 1992 it recorded 13.3 percent and then reached its highest rate of 19.4 percent in 1997, after which it has started falling marginally reaching to 16.7 percent by 2000. Throughout 1992-2000, it has been in the range of 13.0–19.4 percent, which is far bellow the required target range of 30–40 percent.

Non-Tax revenue as percentage of total GDP has shown slight fluctuations. In 1992, it recorded 8.6 percent and then reached its highest rate of 17.2 percent in 1995, and then got back to 8.6 percent in 2000.

vi. The Tax revenue is divided into direct and indirect taxes. The share of direct taxes in total tax collections, which was very less at the time of independence, has been continuously increasing in Eritrea at the cost of indirect taxes. It rose from 21.0 percent in 1992 to 50.3 percent in 2000.

vii. As percentage of total GDP, direct tax revenue remained below 10 percent throughout 1992 – 2000. It has also shown some fluctuations. In 1992, direct tax was 2.8 percent of GDP, then reaching its highest rate of 9.3 percent in 1997, after which resting at 8.4 percent in 1999 and 2000

viii. As percentage of total GDP, indirect tax revenue has shown some fluctuations. In 1993, it reached its highest rate of 11.8 percent and recorded its lowest rate of 8.3 percent in year 2000.

ix. Like all the components of Public revenue, the direct and indirect taxes have shown very volatile tax collections, as evident from erratic annual growth rates.

b. Public Expenditure

i. The expenditure of the Government of Eritrea is classified in two ways. First, total expenditure is divided into two broad categories: current expenditure and capital expenditure. Current expenditure is further classified as interest payments and non-interest payments. The non-interest expenditure is made of personal services,

material and supplies, purchase of motor vehicles and military constructions and equipments. The expenditure on capital account consists of loans, grants, and capital outlay.

Second, total expenditure is also classified into developmental and non-development expenditures. The developmental expenditure may further be classified into economic, social and general services expenditures.

ii. In Eritrea, total expenditure has increased by six times in a span of eight years of post–independence, though with high fluctuations in annual growth rates.

As percentage of total GDP, total expenditure has shown great fluctuations. In 1992, total public expenditure was 32.9 percent of GDP, reaching its highest rate of 83.0 percent in 1999 and then finally settling down at 64.2 percent in 2000.

iii. Overall, the composition of public expenditure is undergoing a change, where the share of current expenditure is falling and that of capital expenditure increasing.

iv. Both, current and capital expenditure as a percentage to GDP have shown quite volatile behavior.

v. The share of interest as well as non-interest expenditure in total public expenditure have been falling in the recent years, where as the share of capital expenditure is consistently increasing.

vi. It is evident that except for the last two years, the non-development expenditure has always been higher than the development expenditure all throughout the post-independence period. On an average, the development and non-development expenditures as percentage to total expenditure were 37.5 percent and 62.5 percent for the period 1992 to 2000, respectively.

vii. Within the three components of development expenditure, the government spends maximum on economic expenditure [18.1 percent], followed by general services

[12.3 percent]. The average social expenditure as percentage to total expenditure is quite low at 7 percent.

c. *Fiscal Deficits*

i. There has been a continuous revenue deficit except for the year 1997. The revenue deficit has been highly fluctuating as percentage of GDP. It ranged from as high as 13.7 percent in 1995 to as low as 1.3 percent in 2000. The annual change in revenue deficit has also been fluctuating and showed highest increase of 229.5 percent in 1995 while its maximum fall was –310.7 percent in 1998.

ii. As well, on capital account, there has always been a deficit during the same period. The capital deficit has also shown the same tendencies as witnessed in revenue deficit. It is also noticed that the gap between current deficit and capital deficit continued to grow during this period.

iii. Fiscal deficit continued to rise with highly fluctuating annual growth rate. As percentage of GDP, fiscal deficit has been in the range of 10.3 percent and 48.8 percent during 1992–2000.

d. *Deficit Finance and Public Debt*

i. The government of Eritrea finances its deficits from three sources, namely: domestic loans, external loans and external grants. Domestic and external loans form the public debt of the Government of Eritrea.

The contribution of domestic loans in financing the public deficit has fluctuated between 9.9 percent of total deficit to 69.3 percent. As percentage of GDP, deficit finance through domestic loans has increased from 3.2 percent in 1992 to 12.0 percent in 2000, recording its highest level of 21.1 percent in 1998.

ii. The share of external loans has fluctuated in the range of 0.2 to 40.1 percent of total deficit. While as percent of GDP, it increased from 0 percent in 1993 to 13.5 percent in 2000, reaching its highest level of 17.8 percent in 1999.

iii. Eritrean Government has heavily resorted to external assistance to take care of its deficits. The share of external grants has fluctuated in the range of 21.7 to 73.7 percent of total deficit. As percent of GDP, external grants have shown a rising trend, increasing from 9.1 percent in 1992 to 17.8 percent in 2000.

iv In general, Eritrea's public debt is in a continuous rise since 1992. It has increased from 64.6 million Nak'fa in 1992 to 1,555.7 million Nak'fa in 2000. Of which, domestic debt increased from 64.6 million of Nak'fa in 1992 to 730.4 million Nak'fa in 2000. While External debt rose from 1.1 million Nak'fa in 1992 to 825.3 million Nak'fa in 2000.

v. The Debt - GDP ratio may be a more accurate measure of the "true" size of the public debt. As percentage of GDP, total public debt has increased from 3.2 percent in 1992 to 25.5 percent in 2000, reaching its highest level of 36.3 percent in 1999. The domestic debt rose from 3.2 percent in 1992 to 12.0 percent in 2000, recording its highest level of 21.1 percent in 1998. As for the external debt, it increased from 0 percent in 1993 to 13.5 percent in 2000.

6.2 Empirical Analysis of Eritrea's Fiscal System

a. Responsiveness of Fiscal Variables

The economic growth and rate of inflation are two important macro variables, which affect the variations in almost all the other economic variables, including the fiscal variables. In this section of the study on the fiscal sector modeling, we empirically examine the responsiveness of fiscal variables to economic growth and the price level. This analysis would give us the income and price elasticities of respective fiscal variables

The transmission channel starting with the determination of fiscal deficit [budget constraint] and ending with its eventual financing constitutes the central theme of the fiscal sector model. Such models focus on the income and price channels of the transmission.

i. The empirical results on the responsiveness of various fiscal variables to two important macro variables – economic growth and price level are statistically quite significant.

ii. Economic growth has turned out to be comparatively more important explanatory variable in the change of fiscal variables than the price level.

iii. In fact, price variable has either appeared to be statistically a weak variable or listed with very low elasticity values.

iv. Income elasticity is lower in tax revenue than in non–tax revenue, implying thereby that non-tax revenue is more sensitive to the economic growth than the tax revenue.

v. Public expenditure in Eritrea is found to be highly sensitive to the growth of the economy, as indicated by the high values of the income elasticity with respect to the expenditures.

b. Estimation of Tax Buoyancy

i. It was observed in the earlier section of this chapter that the individual tax revenues had a fluctuating trend during almost the entire period of study. In view of this, it is important to empirically find out the responsiveness of these tax revenues to their respective sources. A quantitative measure of responsiveness of tax revenue is useful for having a better understanding of the tax structure and its behavior in the country. It may, perhaps, prove to be a useful tool for framing appropriate tax policy.

Tax buoyancy is one such tool which measures the responsiveness of tax revenue. Here, in this section, the extent of tax buoyancy in Eritrea has been estimated.

ii This study estimates the size of tax buoyancy for both, aggregate tax revenue as well as individual tax revenues. The aggregate tax revenue has been related with GDP. As for the individual tax revenues, their respective income sources have been identified, and then related accordingly.

iii. The equation used to estimate the tax buoyancy is:

$$Log\ T = log\ a\ +\ b\ log\ Y$$

Where T refers to respective tax revenue and Y refers to corresponding income. The co-efficient of Y [b] is the measure of tax buoyancy. The OLS method of regression has been used to estimate the above equation for Eritrea's post-independence [1992-2000] annual data.

iv. In Eritrea, as empirical results point out, the tax revenue is highly buoyant in the case of business income tax [1.163], indirect taxes [1.243], sales and excise tax [1.364] and import tax [1.270]. The tax revenue is moderately buoyant in the case of direct taxes [0.488] and personal income tax [0.794]. Agriculture tax [0.017] and rental tax [0.127] show almost no buoyancy. The total tax buoyancy is moderate at 0.830.

c. *Wagner's Law of Increasing State Activities*

i. *Is the role of the Government increasing with growth of the Eritrean economy?* The answer to this question requires to test for the validity of Wagner's law of increasing state activities. Among the several interpretations, the most popular interpretation of the Law states that the increases in economic activities cause an increase in government activities, which in turn raises public expenditure.

ii. There are at least six versions of Wagner's law which have been empirically investigated. However, there is no objective criterion or convincing test to decide which of the six versions is the most appropriate. Six versions of the hypotheses on Wagner's Law are: *Peacock-Wiseman Traditional Version [1968], Pryor Version*

[1969], Goffman Version [1968], Musgrave [1969], Gupta/Miches Version [1967], "Modified" Peacock-Wiseman Share Version as suggested by Mann [1980].

iii. The difference in the above versions basically lies in the definition of dependent variable, i.e. the role of government as defined in terms of government expenditure. The dependent variables used are total expenditure, consumption expenditure, per capita total expenditure and ratio of expenditure to GDP. The growth variables used in the above models are total GDP and per capita GDP.

iv. All the above functions have been estimated in log form, where the slope co-efficient gives the elasticity of government expenditure with respect to growth. *If the elasticity is greater than one, then it would mean that the government expenditure increases faster than the economic growth, implying thereby that there is increasing role of the government in the economy.* And, in that case, Wagner's hypothesis holds true.

v. All the six versions of Wagner's law have been tested for Eritrea. As mentioned earlier, the precise formulation of Wagner's hypothesis is subject to disagreement among researches. There is no objective criterion or convincing test to decide which of the six versions is the most appropriate. This study uses the advanced model selection tests for making-up the best-suited version in Eritrea's case.

. All the six versions of Wagner's Law have given statistically quite significant results with high t-values and R Square. The advanced model selection statistics are also very low in values [suggesting high level of model significance] in all the equations.

vi. Among all the versions, the Peacock-Wiserman traditional version has given comparatively the best results, closely followed by Goffman version.

. The Peacock-Wiserman traditional version describes the total expenditure as a function of GDP whereas Goffman version describes total expenditure as a function of per capita income.

vii. The co-efficient of the dependent variable, the growth elasticity of public expenditure, is more than one in the Peacock-Wiserman traditional version equation [1.66] as well as in Goffman version equation [2.07].

viii. These findings suggest that in the case of Eritrea, we accept the Peacock-Wiserman and Goffman hypotheses of Wagner's Law and conclude that there is increasing role of the state activity in Eritrea.

Chapter: 7 Monetary System: Evaluation and Empirical Analysis

This chapter is an attempt to look for the answers to certain important questions, which arise when one deals with the study of monetary system of any country. In relation to Eritrea's monetary system and policy, the questions raised are: *To what extent has Eritrea been able to achieve the objectives of monetary policy? How effective have the various policy measures been in the working of the Eritrean monetary system? How stable are the demand for and supply of money functions in Eritrea?* This chapter makes an attempt to answer these questions.

The chapter has been divided into two sections. The first section deals with an overall evaluation and analysis of various aspects of Eritrea's monetary system; such as the financial institutional structure, rates of interest, inflation, foreign exchange and the supply of money with the purpose to examine their consistency under the framework of monetary policy objectives.

Section two deals with the empirical analysis of Eritrea's monetary system. There are three most important behavioral issues, which influence the working of the monetary system of a country. These are: Demand for Money, Velocity of Money and the Determination of Money Multiplier. The importance of these monetary issues lies not only because of their influence on the overall working of the monetary system but also because these factors are not fully under the command of the monetary authorities. These issues are empirically examined in section two of this chapter.

The following conclusions have been derived from this exercise:

7.1 Evaluation of Eritrea's Monetary System

i. Eritrea's central bank, the Bank of Eritrea [BE], was established in 1993. Prior to the introduction of the national currency, the Nak'fa, in November 1997, Eritrea was in a de facto currency union with Ethiopia – using the Ethiopian Bir as the legal tender. In march 1997, the BE proclamation was enacted. The Proclamation was intended to provide for an independent central bank, with extended powers to issue a legal tender and conduct monetary policy with a broad set of instruments, as well as to license, regulate and supervise financial institutions.

ii. Eritrea's financial sector is small and relatively under-developed, with only a limited range of financial services to offer to the public. The financial sector is dominated by three commercial banks, of which only two accept deposits. The weak structure of the financial sector has resulted in a lack of competition – a situation further under-mined by the fact that its institutions are not always guided by commercial criteria.

iii. There are no foreign banks in Eritrea and it appears unlikely that a foreign bank will establish a presence in the near future considering the country's precarious economic situation. Under such circumstances, the authorities have no other alternative but to strengthen the existing banks by restructuring and consolidations.

iv. In Eritrea, there is only one saving rate of interest and a variety of lending rates. The saving rate in the post-independence period has been continuously falling and with the rising inflation rate, the real rate of saving is turning negative. The average lending rate has almost remained stable with minor fluctuations throughout. Consequently, the spread between saving and lending rates is widening in Eritrea.

v. Eritrea has adopted two concepts of inflation – Wholesale Price Index [WPI] and GDP Deflator. The WPI inflation remained almost stable throughout the post

independence period at around 8 percent and then suddenly jumped to an alarming rate of 17.7 percent in the year 2000, perhaps due to the war with Ethiopia. GDP deflator has been very erratic in behavior fluctuating in the range of 29 percent to 2.7 percent in a span of just 9 years.

vi. The Bank of Eritrea allows banks to set their own exchange rates, thereby establishing a mechanism for market determination of the foreign exchange rate, under the Foreign Exchange Regulation Act, which came into force in 1998.

vii. The broad money supply has increased faster than the narrow money supply in the post independence period in Eritrea. The narrow money stock as a percent to GDP has remained almost stagnant whereas broad money stock as a percent to GDP has shown marginal fluctuations. On an average, the average annual growth rates were 14.8 percent and 19.9 percent for narrow and broad money respectively, in the post-independence period.

viii. The annual growth rates of the components of narrow money – currency and demand deposits – have been quite fluctuating all throughout post-independence period, indicating unstable liquidity conditions and preferences in the Eritrean economy. The time deposit, a component of broad money, showed a substantial rise – an increase of six times in just nine years

7.2 Empirical Analysis of Eritrea's Monetary System

a. Demand for Money

i. The demand for money is a crucial factor which affects and determines the level of aggregate economic activity in an economy. A stable demand function for money has been recognized as an essential prerequisite for any meaningful conduct of monetary policy and hence, the importance and interest in the research on the subject. A proper understanding and estimation of the demand for money equation is essential for the critical evaluation of past monetary policies and also for the formulation of future policies.

ii. The study of demand for money refers to the examination of the inter-relationship between money, output and prices. Accordingly, the estimable equation used in the present study is:

$$\log M = a + b \log Y + c\ R + d\ P$$

The above demand for money equation has been estimated for two measures of money stock- narrow money [M1] and broad money [M3] and also; for the components of money stock- currency held by public [C], demand deposits [DD] and time deposits [TD]. It is hypothesized here that income [Y] is positively related to the demand for money [M], whereas the rate of interest [R] and price level [P] are negatively related to the demand for money. The time period taken for the study is 1992-2000. The ordinary Least Square [OLS] method of regression analysis has been used for the estimation of all the specified demand for money equations.

iii. The income elasticity of demand for narrow money [0.908] is close to unitary, implying the proportionate change in income and demand for narrow money in Eritrea. On the other hand, income elasticity of demand for broad money is quite high at 1.571, meaning thereby that the demand for broad money in Eritrea is sensitive to the economic growth as measured by GDP.

iv. The income elasticity of demand for time deposits is very high at 2.54, compared to the other components of money stock- currency [0.76] and demand deposits [0.958].

v. Rate of interest [R] as an explanatory variable is not listed significantly in the demand for money equation. The interest elasticities have very low values in our estimations [0.07 and below], indicating that the demand for money is interest inelastic.

vi. The above finding on rate of interest supports Friedman's argument in the case of Eritrea. Friedman argues that the rate of interest is not an important determinant of demand for money as suggested by Keynes.

vii. Price level [inflation] as a determinant of demand for money is significantly listed in all the equations except currency. The semi-elasticity of price, like interest, is very low [0.04 and below] in all the demand for money equations, implying that the demand for money is price insensitive.

b. Velocity of Money

i. Monetary authorities all over the world strives to control the money supply not for its own sake, but for regulating the flow of spending in economy with a view to containing inflationary pressures. The flow of spending, however, depends upon not only on the total stock of money but also on its rate of turnover- the velocity of money. Velocity of money does not come under the direct control of the monetary authorities. Any given stock of money might be spent faster or more slowly, i.e. velocity of money might rise or fall. Accordingly, a wide range of potential spending levels could conceivably flow from the same stock of money. An expansionary monetary policy may be neutralized by a falling velocity of money. And that is a dilemma various monetary authorities have been facing the world over.

ii. The velocity of money is defined as the ratio of nominal income to the stock of money. Nominal income in our study refers to the current GDP at factor cost. As Eritrea uses two measures of money stock- narrow money stock and broad money stock, we have defined the velocity of money with respect to both these measures.

iii. The velocity of narrow money is estimated to be, on an average, twice the velocity of broad money in Eritrea.

iv. The tight monetary policy aimed at controlling inflationary pressures would fail to achieve its objective if the contradictory monetary policy instrument is neutralized

by a simultaneous rise in the velocity of money. This monetary puzzle [the trade-off] is not applicable in the case of Eritrea as the velocity of money has been quite stable in that country.

v. The velocity of money generally follows a U-shaped pattern, with an initially declining segment, an intermediate flat segment, followed finally by a rising segment. This long-run behavior is influenced by the institutional factors. The monetization process which is dominant at the early stage of development is deemed to be responsible for the declining segment, whereas financial sophistication achieved as the economy matures is said to be instrumental in bringing about the rising segment.

The behavior of velocity of money in the low-income countries confirms to the declining segment while that of the high-income countries corresponds to the rising segment. For the middle-income countries, velocity of money is rising while that of broad money is falling.

vi. A careful study of the velocity of money trends in Eritrea indicates a flat but very marginally declining trend. This finding suggests that Eritrea is in an early stage of monetary development and falls under the category of low-income country.

vii. The velocity of money function estimated in this study is:

$$log\ V = a1 + b1\ log\ Y + c1\ R + d\ Vt\text{-}1$$

The above equation has been estimated for both narrow [V1] as well as broad money [V3], using the data for years 1992 to 2000. Both, the real as well as the nominal values of the variables have been used in the estimation of the velocity of money equations.

viii. The income elasticity of money velocity is negative and less than one throughout, implying that an increase in income as measured in GDP reduces the velocity of broad money, however less than proportionately. This finding further emphasizes that the economic growth suppress the velocity of money in Eritrea.

ix. The interest elasticity of money velocity is also negative and very low in value [0.028]. This implies that velocity of broad money is interest inelastic.

x. The lag dependent variable [V3 t-1] is listed significantly in all the equations wherever it has been included with almost the same values of the co-efficients. An important inference which can be drawn from the significant listing of V3 t-1 is that the past behavior definitely influences the present behavior of velocity of broad money in Eritrea.

7.3 Determination of Money Supply

i. There are two approaches to the determination of money supply: the money multiplier approach and the balance-sheet or structural approach. The money multiplier approach relates the money supply to the reserve money. The balance-sheet approach deals with the individual items in the balance-sheet of the monetary sector in explaining the change in the money supply. This study adopts the money multiplier approach to the determination of money supply, as due to the lack of detailed central bank balance-sheet data; the later approach can not be used.

ii. The value of narrow money multiplier [m1] has varied from 0.493 to 1.014 in the post-independence period 1992 to 2000. The average value of m1 in the said period was 0.769. The value of broad money multiplier [m3] has moved from 1.152 to 2.352 during the post-independence period. The average value of m3 was 1.651 for the same period.

iii. The values of narrow as well as broad money multipliers have been quite stable, as indicated by the low volatility values at 0.216 and 0.269 respectively. However, The incremental values of m1 and m3 have shown falling but volatile behavior all throughout.

iv. An increase in c-ratio [C/DD] brings a rise in money supply. It is so because an increase in c-ratio brings a shift from deposits to currency, and as deposits undergo

multiple expansion while currency not, the net result is contraction of money multiplier and the stock of money.

In the case of Eritrea, the c-ratio has almost remained stable with very low volatility. It indicates that the change in money supply in Eritrea is neutral to the c-ratio.

v. The t-ratio [TD/DD] in Eritrea has been steadily increasing. This ratio has doubled in the last nine years, moving from 0.927 to 1.875 in the post independence period.

An increase in t-ratio indicates a shift of deposits toward the time deposits [TD] from the demand deposits [DD]. Usually, the required reserve ratio on time deposits is lower than the demand deposits. Hence, an increase in t-ratio leaves more excess reserves with banks and consequently, this kind of structural change brings monetary expansion.

The above discussion implies that an increasing t-ratio in Eritrea is detrimental to the rising broad money supply.

vi. The r-ratio, the legal reserve requirement, has been continuously falling in Eritrea. A fall in r-ratio leaves excess reserves with the banking system, and thereby, leads to expansion of monetary expansion.

The falling r-ratio implies that this ratio is being used by the central bank to control the expansion of broad money stock, which is possibly being caused by rising t-ratio; as the c-ratio is quite stable in Eritrea.

Chapter: 8 External Sector: Balance of Payments and Foreign Trade

International trade is a must for the development of under development economies. It is more necessary during the initial stages of development. After undertaking an in-depth analysis of various aspects of Eritrea's domestic economy, at the end, this last analytical chapter is devoted to Eritrea's external sector.

This chapter analyses the growth, changing structure, strength and weaknesses of Eritrea's balance of payments and foreign trade. Some important foreign trade estimates and elasticities have also been calculated in this chapter. At the end the chapter outlines the strategies for Eritrea's external sector.

The major findings and conclusions of this chapter are as follows:

i. Since its independence, Eritrea has been facing pressures on its balance of payments from time to time. Except for the years 1993, 1994 and 1997 when the overall balance was in surplus; Eritrea's BOP has seen a continuous deficit.

   As percentage of GDP, the overall BOP deficit has fallen from 30.1 percent in 1992 to 12.9 percent in the year 2000. The annual percentage change in the overall balance has shown high fluctuations within short intervals.

ii. The overall deficit has been mainly caused by the deficits on current account. In 1993 and 1994, Eritrea enjoyed a surplus in current account, whereas, the rest of the years have seen a continuous deficit on the current account. As a percentage of GDP, the deficit on current account increased from 5.6 percent in 1992 to 22.8 percent in the year 2000.

iii. The capital account of the BOP has exhibited a continuous surplus throughout 1992 to 2000. As percentage of GDP, it increased from 3.7 percent to 9.9 percent during the same period.

iv. Net official transfers have significantly increased in the post independence period in Eritrea. As percentage of GDP, it has remained in the range 7.7 percent to 14.5 percent throughout 1992 to 2000.

v. The size of errors and omissions has been very high. In general, it has shown a rising trend with a steep falls in frequent intervals. Huge errors and omissions indicate the inefficiency and neglect of the concerned authority in preparing the BOP accounts.

vi. Indeed it is a usual phenomenon for Eritrea to have serious difficulties in its balance of payments during the initial stages of development. Almost all countries had passed through this experience during their initial stages of development. This is because; in the initial stages of development the conversion of a predominantly agrarian economy into industrialized economy requires heavy developmental imports such as machinery and equipment, which cannot be produced at home. During this stage, it is also necessary to import technical know-how, maintenance imports such as raw materials and intermediate goods, and essential consumer goods. All these imports are necessary in order to expand an existing productive capacity or to create a new productive capacity in the economy to utilize efficiently the created capacity and to meet consumers' demand for essential goods. Thus due to this heavy imports, the import bill rapidly increases up from year to year.

vii. Foreign trade occupies an important place in the Eritrean economy. Trade balance is an important component of Eritrea's BOP, representing imports and exports of visible goods. Eritrea has exhibited a continuous trade deficit since its independence. The trade deficit as percentage of GDP shot up from 18.1 percent in 1992 to 58.6 percent in 2000. The annual percentage change in trade deficit has seen high fluctuations.

Eritrea is in its initial stages of development, thus, the continuous rise in trade deficit at this stage is a natural phenomenon. The problem lies in the high fluctuations in the annual percent change, which would imply the lack of planning in foreign trade and/or high effects of externalities on foreign trade.

viii. Since independence, the size or volume of Eritrea's foreign trade, i.e. the sum of exports and imports, has continued to grow significantly. As a percentage of GDP, the volume of trade has increased from 27.2 percent to 116.4 percent indicating over-dependence on external sector.

ix. Exports have been improving gradually in Eritrea. As percentage of GDP, exports have increased from 4.5 percent to 28.9 percent.

x. Imports have been the major cause of Eritrea's deficit trade. As percentage of GDP, imports increased substantially from 22.6 percent in 1992 to 87.5 percent by the end of 2000.

xi. The annual average trend growth rates of exports and imports are 13.8 and 10.4 percent respectively. The exports are increasing at a faster rate than the imports in Eritrea.

xii. The elasticity of exports with respect to income, known as income elasticity of exports, is very high in Eritrea at 2.40, implying thereby that Eritrea's exports are very closely related to its GDP growth.

The elasticity of import with respect to income, known as income elasticity of imports, is also very high at 1.97, implying thereby that the demand for imports in Eritrea is quite sensitive to the overall economic growth.

However, as the income elasticity of exports is higher than the income elasticity of imports, any given increase in GDP would increase the exports faster than the imports and thereby bridge the deficits in trade.

xiii. *Are increasing imports desirable in Eritrea? Do imports contribute to the economic growth of Eritrea?* To answer these questions, the study has estimated the import intensity of economic growth in Eritrea. The value of this elasticity is 0.466, suggesting that one percent increase in imports in Eritrea contributes 0.446 percent to its GDP. Hence, Eritrea's imports are growth intensive.

xiv. The Eritrean domestic trade consists mainly in the handling of imported goods in addition to small volume of local products. The main constraints of the domestic trade are the low levels of surplus production, the small size of local market, poor communications and low effective demand, which is a direct reflection of the low per capita income and the small size of population. Now or even in the near future, the size of the local market, which is highly determined by the size of the Eritrean population, is not expected to provide a scope for the domestic trade to play an

important role in the overall economy of the country. Thus an alternative effort should be directed to develop exports and to secure foreign markets.

xv. The historical, geographical and social inter-relations between the countries of the Horn of Africa: Eritrea, Sudan, Ethiopia, Somalia and Djibouti can provide a natural base and suitable environment for a wider regional integration that can include Yemen, Saudi Arabia and Egypt. In the past, regional trade between Eritrea and its neighbors had been of great importance to the economies of these countries. As well, even today, if the concerned authorities in these countries desire to benefit from these natural factors, in view of economic interests, free regional trade could bring a significant economic changes and a substantial increase in the standard of living in these countries. Today, after long years of wars, distress and misery, the nations in the region are in need of peace and economic integration more than any time passed. In this concern, Eritrea could largely benefit from its geographical location and export potential.

xvi. In today's economic globalization, Eritrea could significantly benefit from its strategic location, if it declares one of its seaports [Port Massawa or Port Asseb] a "Free Trade Zone". This will attract the exchange of imports and exports between the countries in the region, the Middle East, Asian countries and other countries of the world. Thus Eritrea could easily become the passage to the hinterland of Africa where many countries are badly in need for an access to the Red Sea.

Moreover, this tendency towards the establishment of a "Free Trade Zone" would greatly help Eritrea in harvesting the maximum benefits of foreign trade. Also this will definitely allow Eritrea to play an important and leading role in any kind of regional trade blocks that might be established for the benefits and interests of the nations in the region.