Impact of Regime Shifting on Pakistan's Economy

Faiza Ghulam Nabi[1] and Mudassir Uddin[2,*]

[1]*Civil Society Resource Center-A Project of Aga Khan Foundation, D-114, Block 5, Clifton, Karachi-75600 and* [2]*Department of Statistics, University of Karachi, Karachi-75270*

Abstract: In every modern country, amongst all the preferences, economic development is the top priority. All the development and developing countries of the world, despite political and ideological differences, are commonly agreed upon to achieve the goal of economic development. Economic development is a very complex process which is integrated by not only economic but also various social and political factors. Economic development is measured through National Income, Per Capita Income, Human Development and Capability Poverty.

Pakistan, like other developing countries, is also confronted with some basic economic problems like Agrarian Economy, Under Utilization of Natural Resources, General Poverty, Dualistic Economy, Raid Population Growth, Low Level of Productivity, Unemployment, Lack of Entrepreneurial Ability, Background Technology, Export of Raw Payments, and Undeveloped Infra-Structure.

Overall Pakistan economy indicates downward trend, it has been discussed in the paper that Economy of Pakistan shows decline trend. This declination may be because of social and political reasons.

INTRODUCTION

Since independence, Pakistan can look back on 50 years of steady, sometimes spectacular economic advance. Pakistan's growth has been the fastest in south Asia, on average gross national product has increased on average by over 5 percent a year since 1947. Pakistan started behind India at the time of independence, but its income per capita income is now 75 percent higher. In spite of high population growth, per capita income has more than trebled in the past two decades.

Patterns of Economic Growth and Development

To gain a sense of how the economy got in its current predicament, the following sections trace the economic history of the country. In particular we are interested in determining the factors that appear to have been responsible for periods of high growth as well as those associated with period of the relative decline. Based on this analyses several scenarios are developed for the period up to the year 2000.

Pre Ayub Years 1947-1957

Pakistan began its economic development in an environment of:

- Pre-industrial institutions.
- Low productivity.
- Non-existence or an established manufacturing industry.
- Uneven regional development.
- High population growth.

Despite these limitations, several key developments took place like the rapid expansion of large-scale manufacturing.

Throughout this period the agricultural sector stagnated and its growth was even less than the growth in population which leads to low per capita consumption of food grains and thus had to be supplemented through imports. Because of this the per capita income did not increase during this period.

There were, however, other important achievements, which tend to be overlooked. The settlement of 7 million refugees, the setting up of the administrative machinery of government, the establishment of state bank, and other financial institutions were all achieved with considerable success during this period.

Ayub Administration (1958-1969)

This was a period of rapid economic growth averaging 5.4% annually. Given the rate of population growth this translated into an increase of per-capita incomes of 3.5%. Large-scale manufacturing grew at almost 17% annually. During this period the Green revolution provided a major stimulus to the agricultural sector.

Bhutto Administration (1972-1977)

The regime of Z. A. Bhutto was given the mandate to eradicate the class structures that economic growth has produced. Economic growth during this period was 4.5% per year. Large-scale manufacturing declined substantially

*Address correspondence to this author at the Department of Statistics, University of Karachi, Karachi-75270; E-mail: mudassir2000@hotmail.com

0250-5363/07

growing at a rate of less than 2% annually compared with growth rates that exceeded 10% in the 1960's. There was a decline in per capita agricultural production.

Industry and educational institutions were nationalized; the efficiency of industry declines, and people became disenchanted with the economy.

Zia Administration (1977-1988)

Economic growth accelerated under Zia. The average annual GDP growth rate was 6.3% during 1978-83. The manufacturing growth rate was 9%, substantially above the 3.8% average during 1972-78.

All sectors except services and construction showed improved growth performance and from 1982-88 the economy grew at an even better pace.

The average annual GDP growth rate was 6.6% and large-scale manufacturing growth rate of 16.6%.

Nawaz Sharif (1997-1999)

At the time Nawaz Sharif assumed power for the second time, Pakistan's economy had seldom before faced such a gloomy outlook.

Large-scale manufacturing contracted for the first time in over 50 years, while agriculture, which is the backbone of the economy and responsible for almost a quarter of GDP brew only 0.7%. Pakistan's worsening international trade performance is among the most visible symbols of economic malaise4. The trade deficit for the year that ended in June hit a record high of $3.37 billion up from$3.1 billion the previous year.

Pervaiz Musharraf (1999)

The Musharraf government faces $32 billion in external debt and has nearly completed rescheduling with Paris Club members and other bilateral creditors. Foreign loans and grants provide approximately 25% of government revenue, but debt service obligations total nearly 50% of government expenditure. The IMF has remained silent on future disbursements from its $1.56 billion bailout package initiated in 1999, and other international financial institutions are gauging the current administration's resolve to implement necessary fiscal reforms. MUSHARRAF's ambitious economic agenda includes measures to widen the tax net, privatize public sector assets, and improve its balance of trade position. Pakistan has made privatization a cornerstone of economic revival, but may have difficulty attracting new investors until it receives positive endorsement from the World Bank. The Bank has withheld its approval pending resolution of the pricing dispute between the government and independent power producers.

GDP: Purchasing power parity - $282 billion (1999 est.)

GDP - Real growth rate: 3.1% (1999 est.)

GDP - Per capita: purchasing power parity - $2,000 (1999 est.)

GDP - Composition by sector:

Agriculture: 25.2%

Industry: 26.6%

Services: 48.2% (1998 est.)

DEVELOPMENT PLANNING

Pakistan's economic development planning began in 1948. by 1950 a six-year plan had been drafted to guide government investment in developing the infrastructure but the initial effort was unsystematic, partially because of inadequate staffing.

The First Five-Year Plan (1955-60)

In practice, this plan was not implemented, however mainly because of political instability led to neglect of economic policy, but in 1958 the government renewed its commitment to planning by establishing the Planning Commission.

The Second Five-Year Plan (1960-65)

Surpassed its major goals when all sectors showed substantial growth. The plan encouraged private entrepreneur to participate in those activities in which a great deal of profit could be made, while the government acted in those sectors of the economy where private business was reluctant to operate. This mix of private enterprise and social responsibility was hailed as a model that other developing countries could follow, Pakistan's success, however, partially depended on generous infusions of foreign aid, particularly from United States. After the 1965 Indo-Pakistani war over Kashmir the level of foreign assistance declined. More resources than had been intended also were diverted to defense.

The Third Five-Year Plan (1965-70)

It was based upon the experience gained during the 15 years of planned developed in the country. Industrial inertia had been developed and proper atmosphere for a sustained for an economic growth had been created in the country. Unfortunately, the Indo-Pak War started in September 1965 which and its after effect necessitated the revision of the plan in 1967.

The Fourth Five-Year Plan (1970-75)

This period is also known as non-plan period. It was abandoned, as East Pakistan became independent Bangladesh. Under Bhutto, molly annual plans were prepared, and they were largely ignored.

The Fifth Five-year Plan (1978-83)

It was attempted to stabilize the economy and improve the standard of living of the poorest segment of the population. Increased defense expenditures and a flood of refuge to Pakistan after the Soviet invasion of Afghanistan in December 1979, as well as the sharp increase in international oil prices in 1979-80, drew resources away from planned investment. Nevertheless, some of the plan's goals were attained. Many of the controls on industry were liberalized or abolished, the balance of payment deficit was kept under control, and Pakistan became self-sufficient in all basic foodstuffs with the exception of edible oils. Yet the plan fails to stimulate private industrial investment and to raise significantly the expenditure on rural infrastructure development.

The Sixth Five-Year Plan (1983-88)

Represented a significant shift towards the private sector. It was designed to tackle some of the major problems of the economy: low investments and saving ratios; low agricultural productivity; heavy reliance on imported energy; and low spending on health and education. The economy grew at the targeted average of 6.5% during the plan period and would have exceeded the target if it had not been for severe droughts in 1986 and 1987.

The Seventh Five-Year Plan (1988-93)

It was provided for total public sector spending of Rs. 350 billion. Of this total, 38% was designated for energy, 18% for transportation and communications, 9% for water, 8% for physical infrastructure and housing, 7% for education, 5% for industry and minerals, 4% for health, and 11% for other sectors. The plan gave much greater emphasis than before to private investment in all sectors of the economy. Total planned private investment was Rs. 292 billion, and the private-to-public ratio of investment was expected to raise from 42:58 in FY 1988 to 48:52 in FY 1993. it was also intended that public-sector corporations finance most of their own investment programs through profit and borrowing.

The Eight Five-Year Plan (1993-98)

In August 1991, the government established a working group on private investment for the Eighth Five-Year Plan (1993-98). This group, which included leading industrialists, presidents of chambers of commerce, and senior civil servants, submitted its report in late 1992. However, in early 1994, the eighth plan had not yet been announced, mainly because the successive changes of government in1993 forced ministers to focus on short-term issues. Instead, economic policy for FY 1994 was being guided by an annual plan.

MACRO ECONOMIC INDICATORS

Gross Domestic Product (GDP)

The total market value of all final goods and services produced in a country in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports.

It is important to differentiate Gross Domestic Product from Gross National Product (GNP). GDP includes only goods and services produced within the country, regardless of the producer's nationality. GNP doesn't include goods and services produced by foreign producers, but do include goods and services produced by the country's firms operating in foreign countries.

GDP is divided into four categories, according to the final purchaser:

GDP= Consumer Spending + Investment + Government Spending – Trade Deficit

Consumer Spending

Purchase of goods and services by individuals, accounting for about 2/3 of the GDP. (News commentators like to say that "consumer spending makes up two-thirds of *the economy*.") This number includes products of both domestic and foreign origin.

Investment

On the cash flow statement and in economics, investment means spending that results in an increase in assets. This includes capital spending on plant and equipment, i.e. a real increase in the means of production; but it also includes any swelling of unsold inventory, which can indicate a problem with consumer demand.

Government Spending

Spending by the federal, state, and local governments, accounting for about 20% of the GDP.

Trade Deficit

Annual amount spent by individuals, companies, and government agencies on foreign-made products, minus the amount spent by foreign entities on Pakistani made products; accounting for about negative 2% of the GDP. Or in simple words Imports minus Exports

DATA ANALYSIS

The data set used for describing the *Economy of Pakistan from 1960 to 2003 is taken from* Pakistan Statistical Year Book [1].

Economy of Pakistan (1960-71)

Principal component analysis is a statistical technique that linearly transforms an original set of variables into a substantially smaller set of uncorrelated variables that represents most of the information in the original set of variables. Its goal is to reduce the dimensionality of the original data set. A smaller set of uncorrelated variables is much easier to understand and use in further analyses than a larger set of uncorrelated variables (see, Jolliffe, 2002) [2].

Table 1. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	2.8131	70.3	70.3
2	1.0589	26.5	96.8
3	0.0898	2.2	99.0
4	0.0382	1.0	100.0

Table 2. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.579	-0.009	0.774
Investment	-0.554	-0.326	-0.171
Government Spending	-0.580	0.087	-0.610
Trade Deficit	0.144	-0.941	-0.005

As PCA is a linear combination of variables so using Table **2** PC's can be written as:

PC1= -0.579 Consumer Spending -0.554 Investment – 0.580 Government Spending + 0.144 Trade Deficit.
PC2= -0.009 Consumer Spending -0.326 Investment + 0.087 Government Spending – 0.941 Trade Deficit.
PC3= 0.774 Consumer Spending -0.171 Investment – 0.610 Government Spending – 0.005 Trade Deficit.

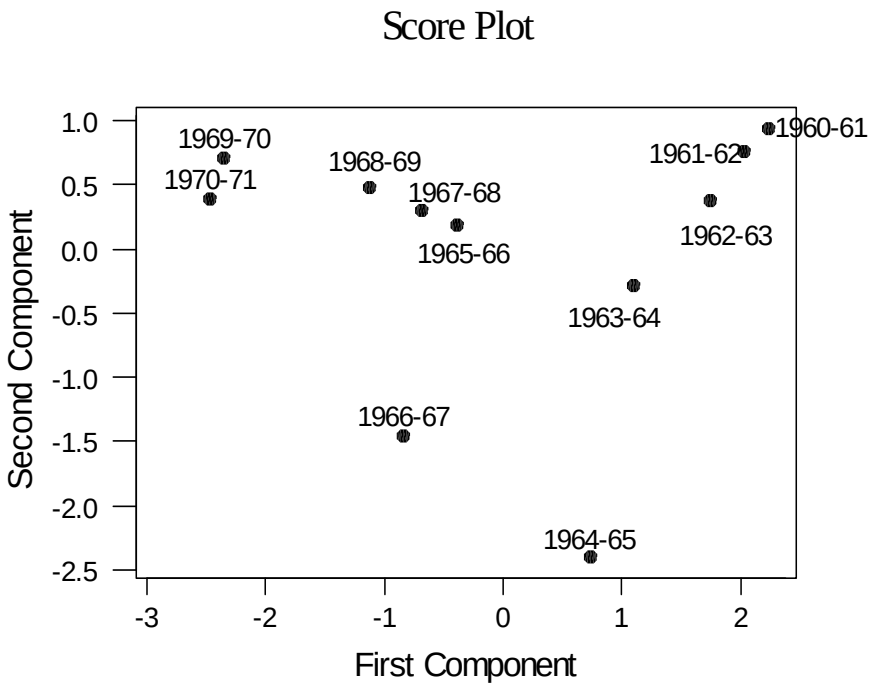

Fig. (1). Plot between first two principal components using data from 1960-61 to 1970-71.

Economy of Pakistan (1960-77)

Table 3. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.8073	95.2	95.2
2	0.1711	4.3	99.5
3	0.0149	0.3	99.8
4	0.0066	0.2	100.0

Table 4. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.505	0.367	0.590
Investment	-0.510	-0.005	-0.768
Government Spending	-0.503	0.427	-0.046
Trade Deficit	-0.481	-0.826	0.244

As PCA is a linear combination of variables so using Table **4** PC's can be written as:

PC1= -0.505 Consumer Spending -0.510 Investment – 0.503 Government Spending - 0.481 Trade Deficit.
PC2= 0.367 Consumer Spending -0.005 Investment + 0.427 Government Spending – 0.826 Trade Deficit.
PC3= 0.590 Consumer Spending -0.768 Investment – 0.046 Government Spending + 0.244 Trade Deficit.

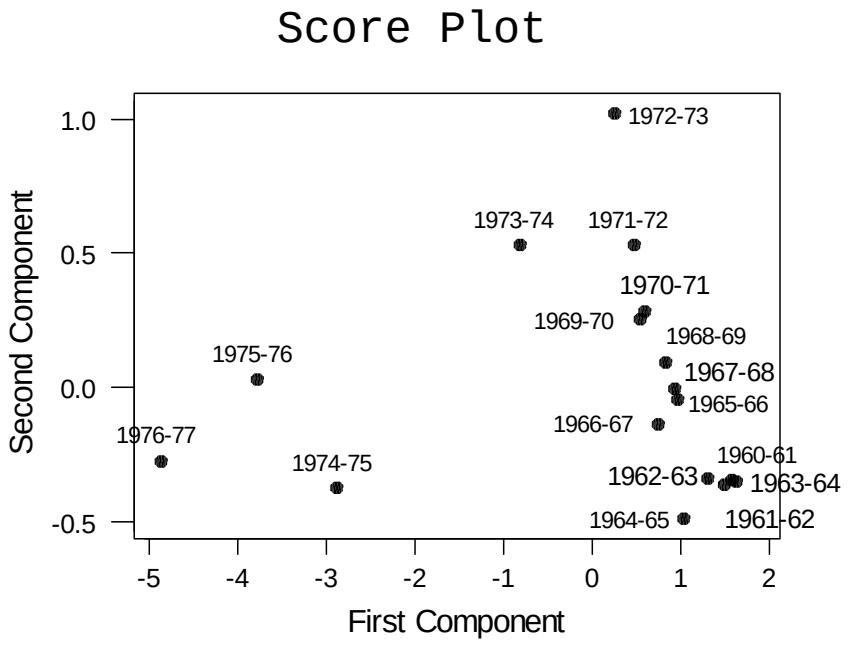

Fig. (2). Plot between first two principal components using data from 1960-61 to 1976-77.

Economy of Pakistan (1960-88)

Table 5. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.7972	94.9	94.9
2	0.1718	4.3	99.2
3	0.0292	0.7	1.00
4	0.0018	0.00	1.00

Table 6. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.512	0.112	0.110
Investment	-0.507	0.119	-0.826
Government Spending	-0.497	0.555	0.501
Trade Deficit	-0.482	-0.816	0.236

As PCA is a linear combination of variables so using Table **6** PC's can be written as:

PC1= -0.512 Consumer Spending -0.507 Investment – 0.497 Government Spending - 0.482 Trade Deficit.
PC2= 0.112 Consumer Spending +0.119 Investment + 0.555 Government Spending – 0.816 Trade Deficit.
PC3= 0.110 Consumer Spending -0.826 Investment + 0.501 Government Spending + 0.236 Trade Deficit.

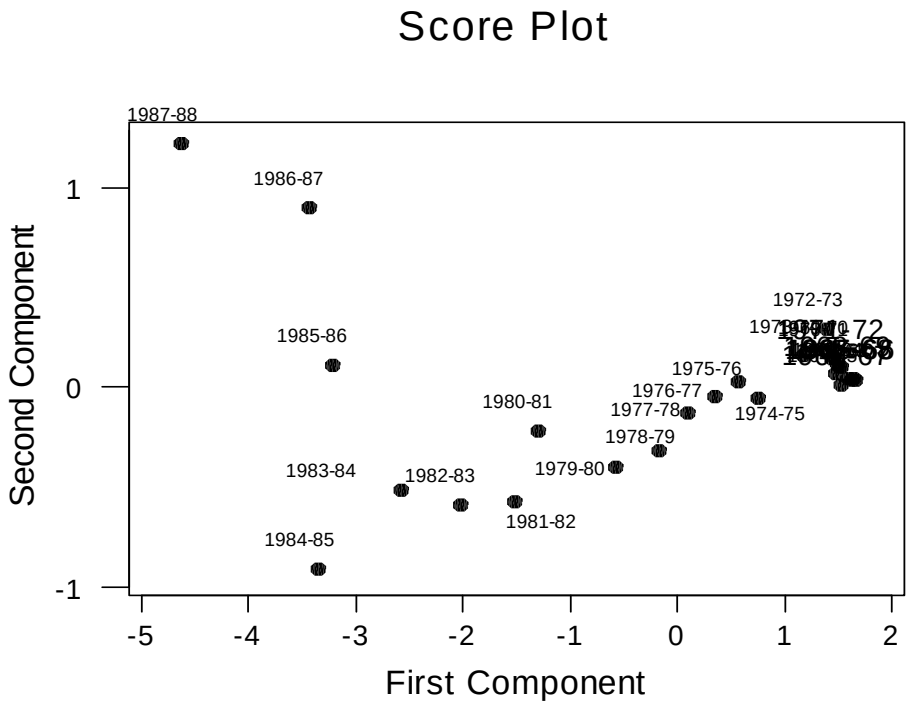

Fig. (3). Plot between first two principal components using data from 1970-71 to 1986-87.

Economy of Pakistan (1960-90)

Table 7. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.8032	95.1	95.1
2	0.1754	4.4	99.5
3	0.0181	0.4	99.9
4	0.0033	0.1	100.0

Table 8. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.512	0.118	0.020
Investment	-0.509	0.145	-0.791
Government Spending	-0.498	0.529	0.568
Trade Deficit	-0.481	-0.828	0.228

As PCA is a linear combination of variables so using Table **8** PC's can be written as:

PC1= -0.512 Consumer Spending -0.509 Investment – 0.498 Government Spending - 0.481 Trade Deficit.
PC2= 0.118 Consumer Spending +0.145 Investment + 0.529 Government Spending – 0.828 Trade Deficit.
PC3= 0.020 Consumer Spending -0.791 Investment + 0.568 Government Spending + 0.228 Trade Deficit.

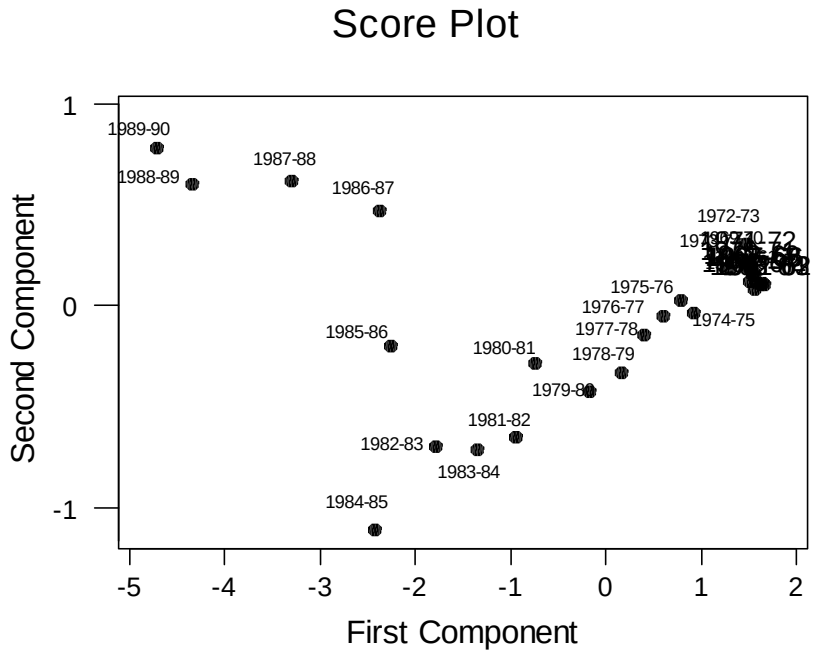

Fig. (4). Plot between first two principal components using data from 1970-71 to 1989-90.

Economy of Pakistan (1960-93)

Table 9. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.7071	92.7	92.7
2	0.2722	6.8	99.5
3	0.0185	0.5	99.9
4	0.0022	0.1	100.0

Table 10. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.516	0.191	-0.074
Investment	-0.512	0.250	-0.696
Government Spending	-0.508	0.354	0.711
Trade Deficit	-0.461	-0.881	0.073

As PCA is a linear combination of variables so using Table **10** PC's can be written as:

PC1= -0.516 Consumer Spending -0.512 Investment – 0.508 Government Spending – 0.461 Trade Deficit.
PC2= 0.191 Consumer Spending +0.250 Investment + 0.354 Government Spending – 0.881 Trade Deficit.
PC3= -0.074 Consumer Spending -0.696 Investment + 0.711 Government Spending + 0.073 Trade Deficit.

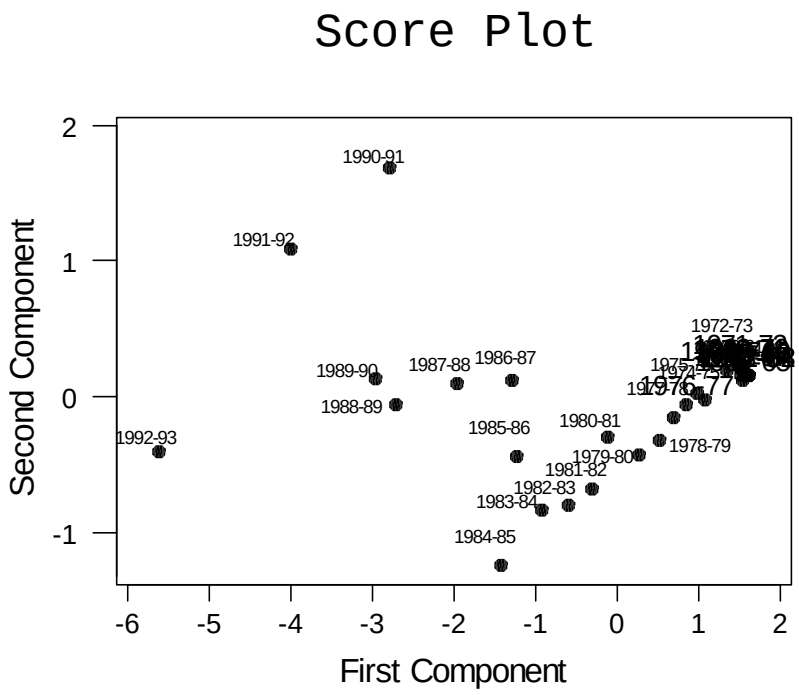

Fig. (5). Plot between first two principal components using data from 1970-71 to 1992-93.

Economy of Pakistan (1960-97)

Table 11. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.7517	93.8	93.8
2	0.2381	6.0	99.7
3	0.0085	0.2	100.0
4	0.0017	0.0	100.0

Table 12. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.514	0.167	0.148
Investment	-0.509	0.311	0.634
Government Spending	-0.508	0.325	-0.759
Trade Deficit	-0.467	-0.877	-0.028

As PCA is a linear combination of variables so using Table **12** PC's can be written as:

PC1= -0.514 Consumer Spending -0.509 Investment – 0.508 Government Spending - 0.467 Trade Deficit.
PC2= 0.167 Consumer Spending +0.311 Investment + 0.325 Government Spending – 0.877 Trade Deficit.
PC3= 0.148 Consumer Spending +0.634 Investment – 0.759 Government Spending – 0.028 Trade Deficit.

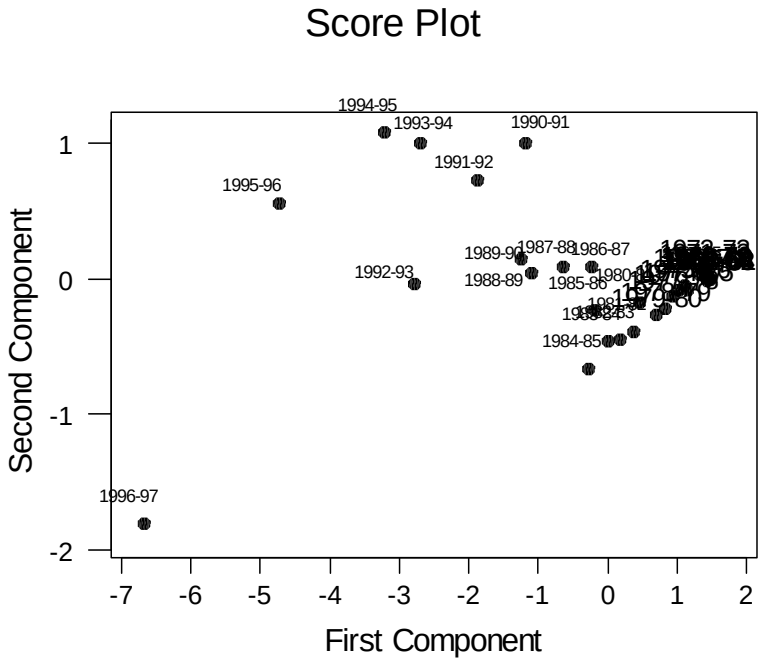

Fig. (6). Plot between first two principal components using data from 1960-61 to 1996-97.

Economy of Pakistan (1960-99)

Table 13. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.5561	88.9	88.9
2	0.4274	10.7	99.6
3	0.0112	0.3	99.9
4	0.0054	0.1	100.0

Table 14. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.521	0.253	0.803
Investment	-0.523	0.240	-0.279
Government Spending	-0.522	0.248	-0.527
Trade Deficit	-0.428	-0.904	0.006

As PCA is a linear combination of variables so using Table **14** PC's can be written as:

PC1= -0.521 Consumer Spending -0.523 Investment – 0.522 Government Spending – 0.428 Trade Deficit.
PC2= 0.253 Consumer Spending +0.240 Investment + 0.248 Government Spending – 0.904 Trade Deficit.
PC3= 0.803 Consumer Spending -0.279 Investment – 0.527 Government Spending + 0.006 Trade Deficit.

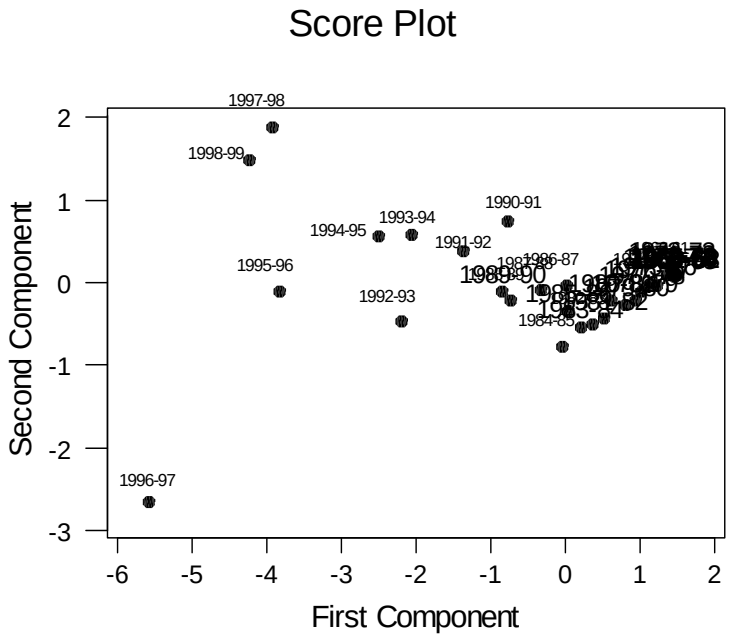

Fig. (7). Plot between first two principal components using data from 1960-61 to 1998-99.

Economy of Pakistan (1960-2003)

Table 15. Eigenvalues and Accounted-for "Variance" Based on Correlation Matrix Input

Factor	Eigenvalue	Accounted-for "Variance"	Cumulative Percentage of Total "Variance"
1	3.0096	75.2	75.2
2	0.9776	24.4	99.7
3	0.0083	0.2	99.9
4	0.0045	0.1	100.0

Table 16. Component Loadings Based on Correlation Matrix Input

	Component 1	Component 2	Component 3
Consumer Spending	-0.575	-0.024	-0.704
Investment	-0.573	-0.079	0.709
Government Spending	-0.573	-0.088	-0.011
Trade Deficit	0.110	-0.993	-0.038

As PCA is a linear combination of variables so using Table **16** PC's can be written as:

PC1= -0.575 Consumer Spending -0.573 Investment – 0.573 Government Spending + 0.110 Trade Deficit.
PC2= -0.024 Consumer Spending -0.079 Investment - 0.088 Government Spending – 0.993 Trade Deficit.
PC3= -0.704 Consumer Spending +0.709 Investment – 0.011 Government Spending – 0.038 Trade Deficit.

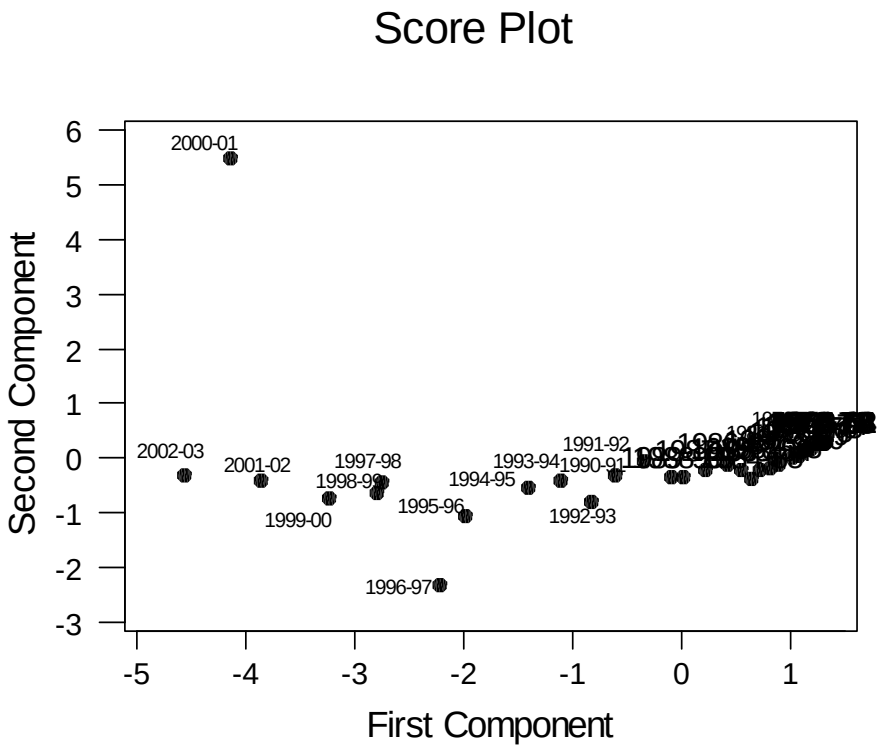

Fig. (8). Plot between first two principal components using data from 1960-61 to 2002-2003.

CONCLUSION

Let us illustrate the concept of PCA with the data set. The data set involve four major economic indicators namely Consumer Spending, Investment, Government Spending and Trade Deficit.

The correlations among the variables are all high and we might suspect that a few principal components would explain most of the variation in the original four economic indicators.

As we suspected, the first principal component had a large variation of 2.8131, which accounted for 70.3% of the variance of four variables. The second and succeeding components accounted for considerably less variance ranging from 26.5% for the second principal component to 1% for the fourth (smallest) principal component.

Table **1** presents the Eigen values and the accounted-for cumulative percentage of total "variance". Retaining those components having Eigen values greater than one, we find that two components accounts for almost 97% of the total accounted-for "variance".

Component loadings for the first three factors are displayed in Table **2**. Each variable's highest (absolute) loading is underlined in the table. Interpretations will be based on those variables loading highest on the given factor.

Consumer Spending, Investment and Government Spending dominate the variable loading on component 1. All three of them have some relation with the GDP indicates a declining trend.

The negative value of government spending shows that the government has spent less as was allocated in Five year plan eventually which has an adverse effect on the economy of the country there by decreasing the GDP in the precise year. The negative investment figure exhibits unstable economic condition of the country and there is disincentive to invest, which has resulted in decrease in consumer spending.

In PC2 trade deficit have a large contribution but in opposite direction which explains that the import of the country is much higher than the export which is mainly because of low savings tends to low investment causes less export and high import and finally low GDP in the economy.

If we look at other tables (Tables **3-16**) more or less they depict the same gloomy picture of our economy. The GDP of our country is badly exaggerated by these major economic indicators.

Consider the score plot of first two components. All the scatter plots consist of different clusters showing different patterns of our economy because of change of government and their policies (Fig. **1-8**). As the government changes trend of the scatter plot also changes. The values within each cluster indicate that for these particular years the behavior of economy was same. The variation between clusters shows change in economic pattern and so far our economy has faced different trends. Figure (**8**) shows an outlier in the year 200-2001. Economic activity slowed in 2001 as a result of an unprecedented drought, a weakening external environment and higher oil prices; GDP grew at about 3.3 percent during the calendar year as compared to nearly four percent during calendar year 2000.

Foreign demand for Pakistani products dropped significantly after it became clear there was going to be a war between the United States and the neighboring Taliban regime in Afghanistan; export orders were canceled as buyers, shippers and insurance companies became reluctant to risk normal economic activities in Pakistan. However, inflation rates have remained below five percent as energy prices have stabilized and the rupee benefited from increased demand in the aftermath of the war of terrorism.

ACKNOWLEDGEMENT

The authors would like to thank Mr. Haseeb for stimulating discussions they had with him.

REFERENCES

[1] Federal Bureau of Statistics, Pakistan Statistical Year Book 2003.

[2] Jolliffe, I. T. (2002) Principal component analysis, second edition, New York: Springer-Verlag.