

AN APPROACH OF LINEAR EQUATION AND CO-EFFICIENT
CORRELATION OF CONSUMER PRICE INDICES ON THE GROWTH
ECONOMY OF PAKISTAN

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ABSTRACT

It is very important to study the growth pattern of CPI for determination of economic condition of our country. For this purpose we have taken into account the annual consumer price indices with different base years. The resultant trend is that there is a continuous and gradual growth of economy from 1956 to 1985 except the period from 1969-73 which shows a low trend. In this way CPI with 1969-70 as a base year, constructed by FBS does not really represent the growth of economy as a base year but belongs to the period of disturbance and turmoil.¹

INTRODUCTION

The Federal Bureau of Statistics, formerly known as Central Statistical Office concentrated on collection of price statistics and preparation of related indicators (Hussain, 1985). It started the work with 1956 as a base year. Therefore, several series of CPI with a different base year were prepared and more consumer items were included from time to time. The weightage to different commodities also varied on the basis of quarterly survey of socio-economic conditions of the people. In the beginning, CPI limited its activity to a few selected centres but with the passage of time the number of centres increased. CPI is generally constructed on the basis of commodity groups, income groups and employment groups. CPI is worked

out on weekly monthly and yearly basis. Sensitive price indices on weekly basis are also recorded. These indices are computed using base year weights by Laspeyres method (1968). The present deals with the study of Growth Economy of different series of annual CPI as there are indicators of Growth of Pakistan Economy. For such analyses, we rely on general CPI with base years of 1956, 1959-60, 1961, 1969-70, 1975-76 and 1980-81.²

DATA

Most of the series with the exception of 1980-81 extend upto 15 years. The series of 1980-81 is extended upto 1984-85. The main problem for researchers is that these series are generally overlapping, in many cases not equidistant. The study of past 34 years as shown in the following table reveals that only for one time in 1958-59, the CPI was calculated as 106 as against 110.96 in 1957-58. The other series shows consistent upward trend in growth. Although the base years have been revised, but unfortunately there have not been systematically time spaced.³

TABLE-1

BASE	ENDING	LAST CPI	TOTAL GROWTH L=LAST CPI-BASE	GROWTH RATE PER YEAR
1956=100	1970-71	159.20	59.20	4.08
1959-60=100	1972-73	184.20	84.20	6.48
1961-100	1973-74	173.29	73.29	6.37
1969-70=100	1982-83	416.47	316.47	24.34
1975-76=100	1984-85	213.87	113.87	12.65
1980-81=100	1985-86	131.34	31.34	7.84

The first three series of CPI reflect consistent growth rate but the fourth series reflects deficit enormous

increase. Such an abnormal rise in growth rate is due to breaking away of East Pakistan i.e. Bangladesh and devaluation of Pakistani rupee during the period. Nevertheless, the latter indices show the upward tendency which indicates the stability of the economy.

GRAPHIC REPRESENTATION

The Graph is drawn to show the pattern of growth of our economy. In this graph CPI is given in the shape of tree branches. With that same scale, each CPI's base is taken at the corresponding value of preceding CPI. The CPI with base year 1959-60 is drawn towards higher values which all the CPI's are drawn lower then the preceding CPI. This shows that every new series of CPI deminishes its value. In the same graph, the extended series of the CPI is plotted with 1956 as a base year. From 1971-72 the CPI worked out on other base years are converted through classical methods (1968). The resultant series is also higher than all other indices.⁴

It indicates the individual growth patterns of different CPI. In this graph, arithmetic scale is taken on the both sides inspecting the growth patterns, it is seen that in the case of CPI with base years 1956, 1975-76, 1980-81, the pattern is linear. The CPI with base years 1959-60 and 1961 behave linearly upto 1969-70. After wards, they rise very high due to breaking away of Bangladesh. Similarly CPI with 1969-70 base year behaves linearly with sharp turn from 1973-74 and then rising very high without showing any slackening, which appears to be very un-natural.

TABLE - 2
SHOWING PARAMETERS OF LINEAR FIT TO CPI

CPI Base/Origin	b	b	r
1956	96.1006	4.1787	0.9272
1959-60	96.1627	4.6898	0.9687
1961	94.5797	4.7793	0.9739
1975-76	95.9355	12.7948	0.9922
1980-81	100.9020	7.6100	0.9903

The growth rates "b" obtained through methods of least squares can be compared favourable with those estimated in Table.1. The rate of growth has been rising steadily till it reaches the highest value of 12.7948 and lastly it makes downward movement. The linear lines are good fit as indicated from graph.5

We can observe an interesting phenomenon when we reflected the CPI's 1956, 1959-60 and 1961 base years alongwith the 1975-76 and 1980-81 base years. The CPI of early periods meets the CPI of later periods base as shown in Table 3 around 1984-85 in case of 1975-76 base CPI whereas for 1980-81 base CPI, it meets CPI around 2012-2014.

Table-3

BASE YEARS	1975-76	1980-81
1956	1985-86= 224.00 (Graph)	2014=350 (Graph)
1959-60	1984-85= 213.41 (Graph)	2012=344.42 (Equation)
1961	1984=204.69 (Graph)	2014=350 (Graph)

The 1975-76 and 1980-81 here CPI will never meet as they show a divergent trend line. However, no final opinion can be made as the time sequence is too small for such an observation. In short it may be concluded that the Economy of Pakistan as indicated by CPI has grown consistently except the period between 1969-73 which was the period of disturbances and turmoil in the Country.6

REFERENCES:

1. Croxton, F.E, Coden, D.J. Klein S, (1968): Applied General Statistics, Sir Issac Pitman & Sons Ltd. London, pp.301-304.
2. Federal Bureau of Statistics (1967-1985) Pakistan Key Economic Indicators, Monthly F.B.S. Statistics Division, Karachi, pp.17-21.
3. Federal Bureau of Statistics (1960-1985) Monthly Statistical Bulletins, for various months, F.B.S. Statistics Division, Karachi, pp.1,13,15,18.
4. Hussain, S.Safdar (1983), "Price Indices Computed by Federal Bureau of Statistics" Research Riview, F.B.S., Statistics Division, Karachi Vol.2 No.1, pp.12-15.
5. Khurshid A, et al: (1968) A Note on Pakistan's CPI Forecasting, pp.13-14.
6. Zumwaylif, F.H. (1970) "General Applied Statistics" Addition - Wesley pub. Co. Reading, Massachusetts, USA, pp.47-49.