

Note

Dual Sector Inflation in Pakistan

USMAN AFRIDI and ASGHAR QADIR*

1. INTRODUCTION

In this note we point out the importance of using the standard deviation, s , in economic analysis, not merely as an indicator of confidence level for prediction, but also as a basic analytical tool. It is shown that new insights into economic problems may be obtained by giving closer attention to this statistical index, in addition to the other more commonly used indices. If the standard deviation for an economic index is too high, it may be more appropriate to dispense with the one index for the entire sample and break the sample into two or more parts, each of which has a reasonable standard deviation.

It is necessary to remember that the likelihood of a given prediction coming true within certain errors is calculable for particular probability distributions. Generally, for adequately large samples the prediction will be reliable within two standard deviations ($2s$). However, for very small samples, a better estimate of the uncertainty of prediction is provided by 2Δ rather than by $2s$, Δ being $s/n-1$, where n is the number of events in the sample. For a medium-sized sample it would appear reasonable to use $s + \Delta$ instead of $2s$ (in the case of large samples) or 2Δ (in the case of small samples). Generally, samples of 5–10 are regarded as small, of 10–20 as medium and of >30 as large in size.

*Usman Afridi is a Research Economist at the P.I.D.E., Dr. Asghar Qadir is the Chairman of the Mathematics Department at the Quaid-i-Azam University, Islamabad, he is also associated with the P.I.D.E. The authors would like to thank Prof. Syed Nawab Haider Naqvi for his comments and helpful suggestions. They also gratefully acknowledge several illuminating discussions with Dr. Khwaja Sarmad, Dr. A. R. Kemal, Dr. Sarfraz Qureshi and other members of the Research Staff of the PIDE. The authors also acknowledge the valuable editorial help of Syed Hamid Hasan Naqvi.

In this note, we apply these considerations to the inflation index. Clearly this index is only an average of the inflations of all commodities. A complete description of inflation in an economy would be a tabulation of the price increase index over time (the period one is looking at). However, this tabulation in itself is of no economic use, because it cannot predict the future price of an individual commodity. By the same token, the inflation index is useful because it indicates that the price of the commodity will probably have increased by a given amount. The less the accuracy of the prediction, the less the utility of the index for purposes of analysis. On the basis of our earlier arguments the index is meaningless if the inflation rate is about the same as the standard deviation for it.

Our analysis shows that within the time period considered for the single inflation rate, the standard deviation is very close to the inflation rate. Thus, a single index for inflation is invalid for the purposes of prediction and inadequate for any economic analysis.

In the next section we discuss the rationale for our use of a two-sector model. The presentation of data and their analysis follow in the third and fourth sections. We conclude with some policy implications from our analysis in the fifth section.

2. SOME BASIC MODELS

In this section we discuss some hypothetical two-sector models to emphasize the new features that appear in a two-sector analysis, which are completely lost in a single-sector analysis. Of course, a multi-sector analysis would provide further economic insights.

Imagine an economy with two sectors with equal weights. The initial price level for the two sectors is different, but within each sector it is the same. It may seem arbitrary as to where the price level is fixed, and hence the distinction of the price level may seem irrelevant. The purpose of introducing this difference is for later reference where inflation rates changing over time will make it impossible to keep the price levels of the two sectors the same at every starting time.

- (i) Consider, first, the case where the two sectors, A and B, experience equal inflation rates over time (see Figure 1). The initial price levels for the two sectors are p_1 and p_2 respectively. Both sectors have a constant and equal inflation rate along Aa and Bb . At any later time, t , the price levels of the two sectors are $p_1(t)$ and $p_2(t)$. Here no error can result from the use of a single index to explain inflation for a single sector (with twice the weight) having an initial price level $p = (p_1 + p_2)/2$ and inflating along Cc so that the price level at t , $p(t)$, is the average $p_1(t)$ and $p_2(t)$.
- (ii) Consider, next, a varying inflation rate over time (see Figure 2). The inflation rate between the two parallel curves is the same. When they converge, in the case that they are both convex as in (Figure 2a), the difference between the average curve and the two curves reduces. Thus, there is an

increasingly better description of the economy in terms of a single sector. However, in the case that they are both concave as in (Figure 2b), they diverge. Here the aggregate description becomes increasingly poor as the difference between the two sectors and the average steadily increases. Thus the standard deviation increases and the reliability of the average description steadily deteriorates till it becomes pointless. It is very clear that here it would be more appropriate to disaggregate the economy into two sectors. Notice that if the curve is steeper than parabolic, the change in the standard deviation will increase even in terms of constant prices.

- (iii) Consider now the case (however unlikely it may seem) of equal and opposite variations over time (see Figure 3). Here the single-sector inflation rate is zero. However, one sector is inflating while the other is deflating. Thus, it is absurd to have a single index as it shows nothing. At least a two-sector framework is essential here. In Figure 3a, with both curves convex to the time axis, the difference between the average index, parallel to the time axis, and the two curves increases. Since the difference is bounded, it stabilizes. In Figure 3b with constant rates the difference is not bounded. Clearly the single-sector description is entirely irrelevant here as the prediction of a zero (or nearly zero) inflation rate becomes steadily worse with the passage of time, and only the two-sector analysis can be applicable. Notice that when the second sector deflates to a zero price it becomes a sector producing free goods. Under these conditions, there will occur a basic structural change in the economy, which could not be anticipated by a zero inflation rate. In Figure 3c, where the two curves are concave to the line representing the average (zero) inflation, the magnitude of the difference increases even faster than in the case (iii b) and becomes worse even sooner. A single index in all these three cases is not only meaningless, but even misleading for predictive purposes.
- (iv) Now consider the case where one sector is experiencing a zero inflation rate while the other has positive inflation (see Figure 4). The average inflation rate is not as bad a description in this case as in the case (iii b). In the early stages it may even give valid predictions. However, there must come a stage where the uncertainty of prediction is greater than the average rate. At this stage a two-sector analysis becomes essential.
- (v) In actual economies, if a two-sector analysis is reasonable we would expect different, positive, time-varying inflation rates. As Figure 5 suggests, the movement towards instability increases the distance between the average curve XX' and the two curves AA' and BB' . In this paper our analysis will be based on this model and we would suggest that the use of a single index for explaining inflation in Pakistan is not valid and that it would be more appropriate to present the economy as that of two sectors.

Fig. 1. Two Equally Inflating Sectors

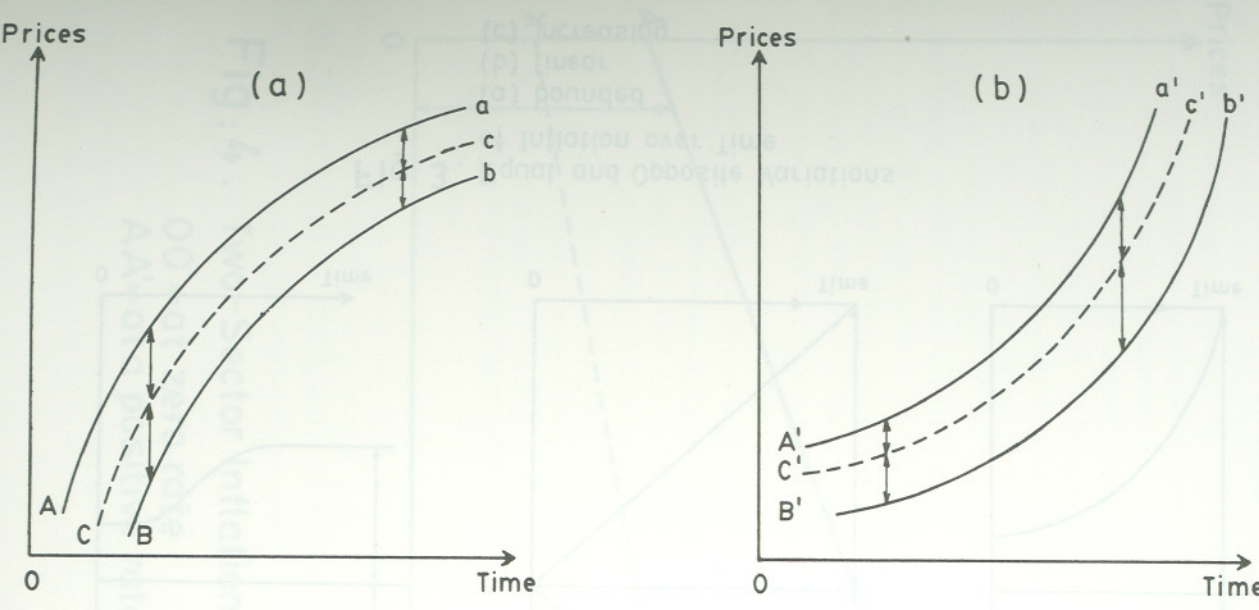
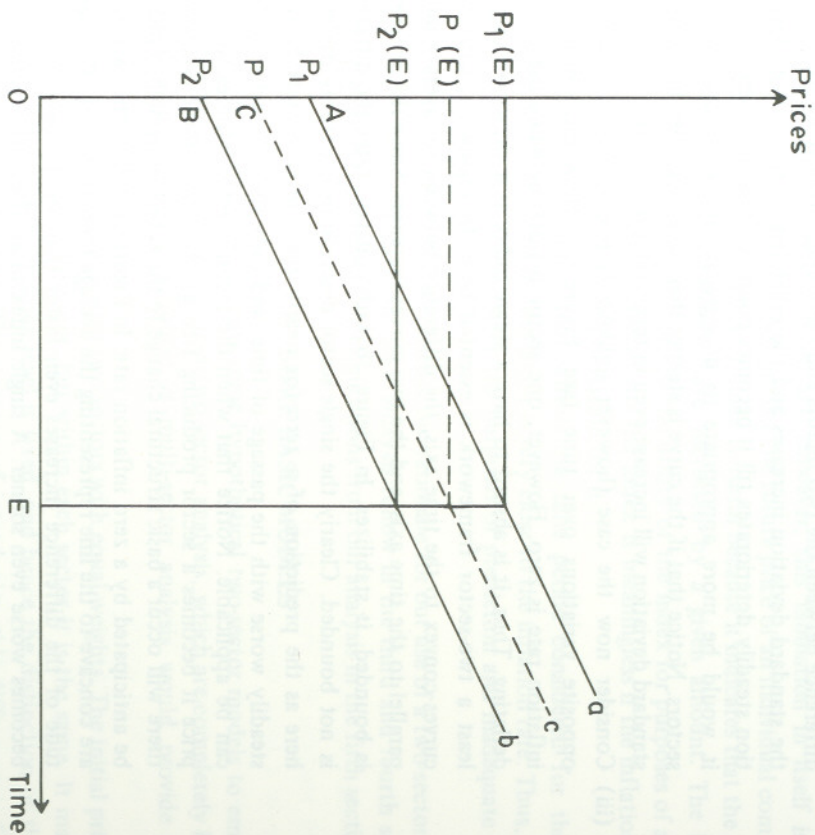


Fig. 2. Equal Inflation Varying over Time.
 (a) at a decreasing rate
 (b) at an increasing rate

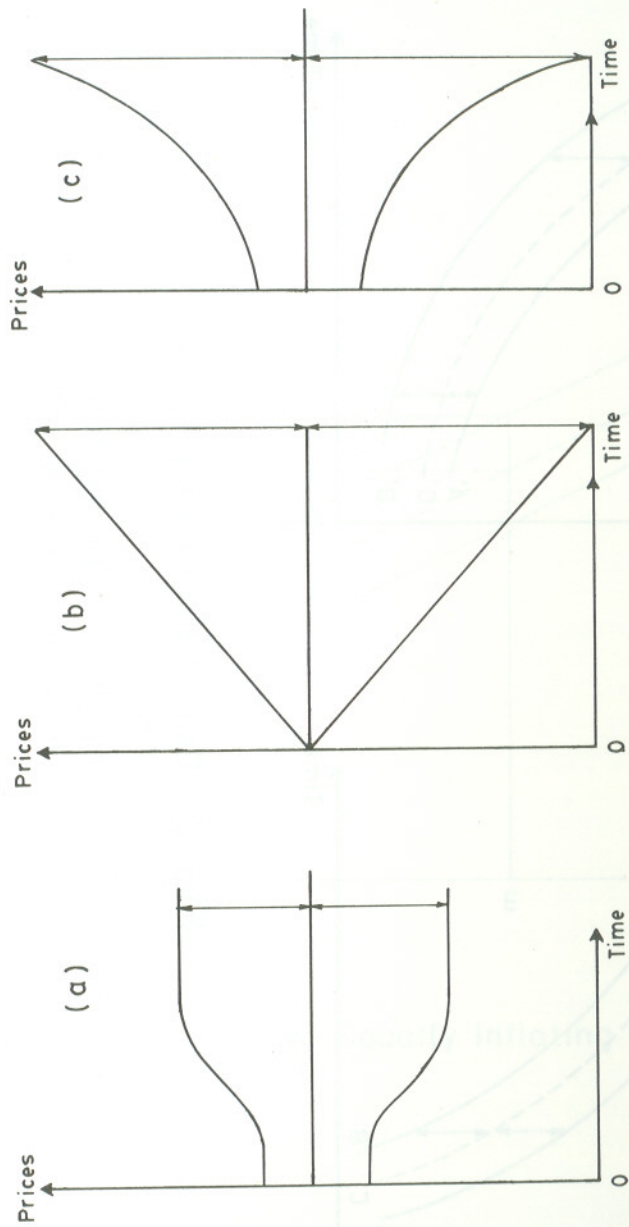


Fig. 3. Equal and Opposite Variations of Inflation over Time

- (a) bounded
- (b) linear
- (c) increasing

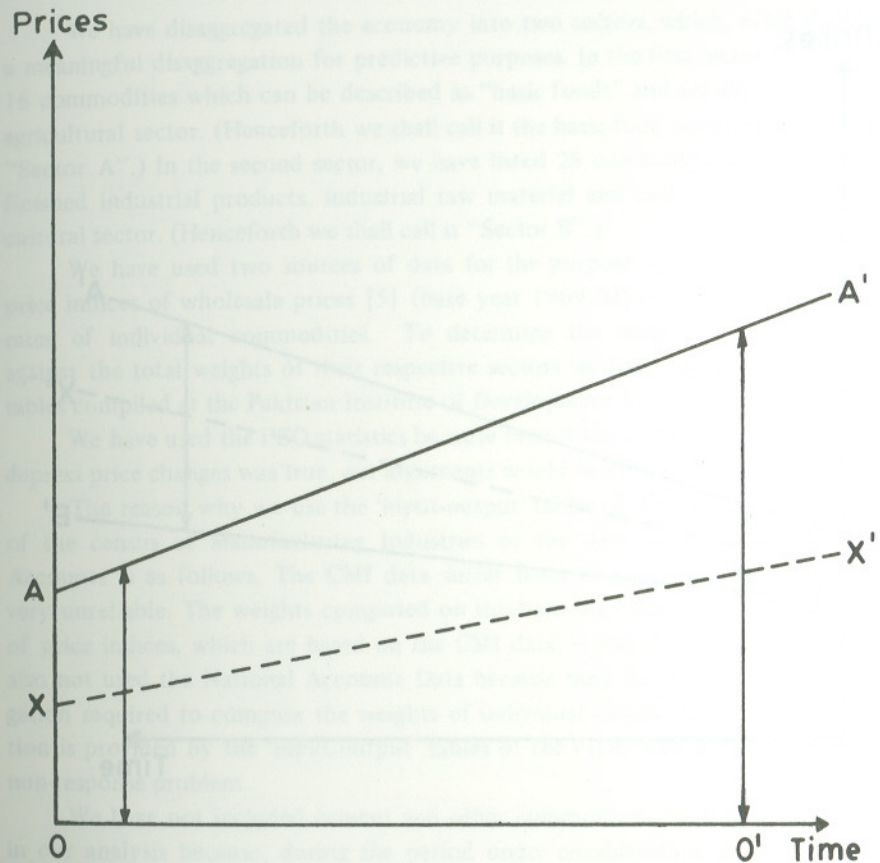


Fig. 4 . Two-Sector Inflation
 $00'$ = at zero rate
 AA' = at a positive rate

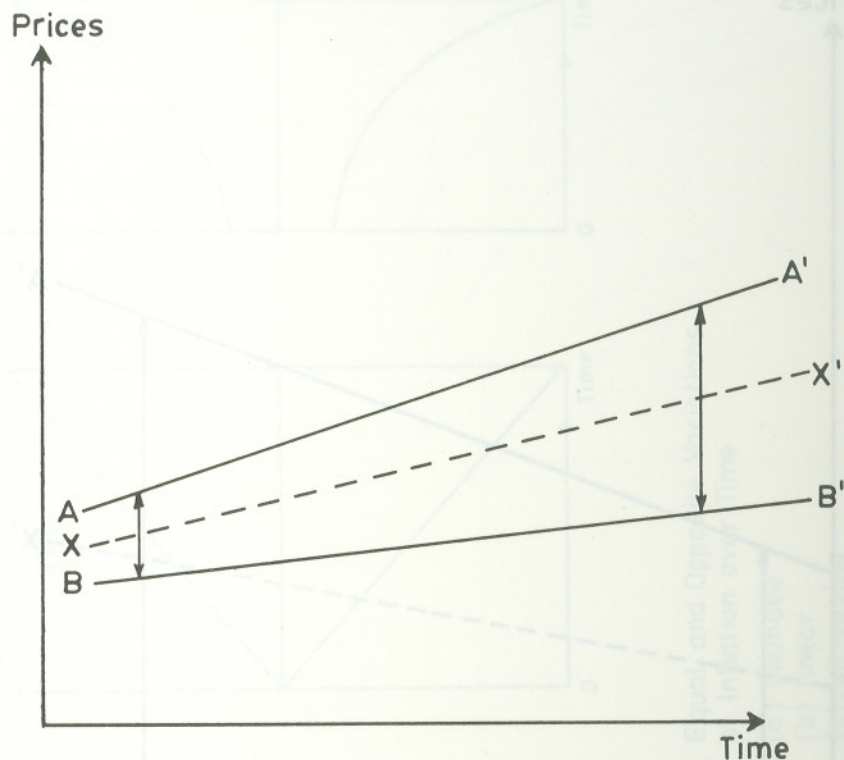


Fig. 5. Different, Positive Inflation Rates in a Two - Sector Model.

3. DATA

We have disaggregated the economy into two sectors, which, as we shall see, is a meaningful disaggregation for predictive purposes. In the first sector we have listed 16 commodities which can be described as "basic foods" and are all produced in the agricultural sector. (Henceforth we shall call it the basic-food consumption sector, or "Sector A".) In the second sector, we have listed 28 commodities which consist of finished industrial products, industrial raw material and cash crops from the agricultural sector. (Henceforth we shall call it "Sector B".)

We have used two sources of data for the purpose of our analysis. The CSO price indices of wholesale prices [5] (base year 1969-70) to determine the inflation rates of individual commodities. To determine the weights of commodities as against the total weights of their respective sectors we have used the 'input-output' tables compiled at the Pakistan Institute of Development Economics (PIDE) [2].

We have used the CSO statistics because even if the widely held belief that they depress price changes was true, our arguments would be even stronger.

The reason why we use the 'input-output' tables of the PIDE rather than those of the census of Manufacturing Industries or the data available in the National Accounts is as follows. The CMI data suffer from non-response and are therefore very unreliable. The weights computed on this basis are biased. The CSO aggregation of price indices, which are based on the CMI data, is therefore inaccurate. We have also not used the National Accounts Data because they do not provide the disaggregation required to compute the weights of individual commodities. This disaggregation is provided by the 'input-output' tables of the PIDE, which suffer less from the non-response problem.

We have not included cement and other commodities relating to construction in our analysis because, during the period under consideration, these commodities were temporarily subject to extraordinary factors which left them unsuitable for analysis.¹ We have also not included rice in our consumption sector because of the special controls governing its production and marketing. As it is primarily an export good, we have included it as a cash crop in our Sector B, and the weight assigned to it is proportionate to the quantity exported.

We have selected the period 1976-77 to October 1981 for our analysis, so as to avoid the effects of the dismemberment of Pakistan in 1971, the effects of the devaluation of the rupee in the first half of the Seventies and the four-fold increase in international petroleum prices of 1973-74 (even though those figures would have

¹The Tarbela Dam repairs and the construction boom due to increasing foreign remittances resulted in creating shortages of construction commodities which raised the prices upwards. During the first half of the time period considered by us, cement was being sold at 200% of the international prices. Both these factors stabilized by the latter half of the time period considered by us and there was a glut in the cement market.

increased the uncertainties in the single-sector analysis much more than in the two-sector analysis). The period selected, though short, has been relatively stable as it experienced no natural disasters and enjoyed a more or less consistent economic policy and an apparent political stability.

4. ANALYSIS

Consider first the single-sector analysis. In Table 1 there are listed 44 commodities which are a fair representation of the economy and were worth Rs. 58,911 million in 1975-76. We took the value of production from the input-output tables mentioned earlier and computed the respective weights from them. We obtained the inflation rates of individual commodities by using the CSO prices for those commodities. We applied the weights of the commodities to their inflation rates and obtained the weighted inflation rate for the whole sector. We found it to be 11.28 percent per annum. Using the previous data we computed the standard deviation for this single index and found it to be 9.8 and Δ to be 1.5. Clearly, for this large sample the index should be more than $2s$. However, it is in fact even less than $s + \Delta$. On the basis of our previous arguments we would suggest that this single index is statistically meaningless for the purposes of prediction.

Consider now the two-sector analysis. Table 2 presents Sectors A and B as described earlier. Sector A consisting of 16 commodities is a medium-sized sample. It would be reasonable to estimate the uncertainty of the prediction by $s + \Delta$ rather than by 2Δ (which is used for a small sample). The weighted inflation rate for this sector was computed to be 16.9 percent with $s = 11.4$ and $\Delta = 2.9$. Thus $s + \Delta = 14.3$. The index, being more than the uncertainty, is fairly reliable.

Sector B, presented in Table 2, consists of 28 commodities. The weighted inflation rate for this sector was computed to be 6.2 percent with $s = 3.4$ and $\Delta = 0.6$. Thus $s + \Delta = 4.0 < 6.2$. The index, being close to $2s$ and well above $s + \Delta$, is quite reliable. Notice that in a normal random sample, disaggregation will give the components higher uncertainties than the original aggregate sample. Even if no difference had been made by disaggregating, the disaggregation could not have been random. Since the uncertainties are sharply reduced, and in fact a much smaller sample (16 elements) has nearly the same uncertainty as the total sample of 44 elements, the disaggregation must be significant.

We carried out two tests for the stability of our analysis. The first test was to split the time period considered into two. For the one sector in the first half the inflation rate was 10.7 percent and the standard deviation for it was 10.2. In the second half the inflation rate was 11.4 percent and the standard deviation for it was 9.6. In both cases, as the index was well below two standard deviations, the single-sector analysis was found not suitable for predictive purposes. For the two-sector analysis, in the consumption sector, in the first half, the inflation rate was

Table 1
Inflation and its Variance for a Single Sector

Commodities	Annual Percentage Change in Prices P	Value in Millions of Rupees	Weight Derived from Col. 3 W_1	Weighted Annual Percentage Change in Prices PW_1	Deviation from Mean d	Square of Deviation d^2	Product of Square of Deviation and Weight $d^2 W_1$
	2	3	4	5	6	7	8
Wheat	10.65	11818	.2006	2.1364	.6267	.3928	.0788
Maize	12.52	1057	.0179	.2241	1.2433	1.5458	.0277
Barley	14.15	300	.0066	.0934	2.8733	8.2559	.0545
Jowar	10.00	294	.0050	.0500	1.2767	1.6300	.0082
Bajra	11.50	748	.0127	.1461	.2233	.0499	.0006
Gram, Whole	48.55	1736	.0295	1.4322	37.2733	1389.2988	40.9843
Gram, Split	50.96	1110	.0188	.9580	39.6833	1574.7642	29.6056
Masoor	26.80	410	.0070	.1876	15.5233	240.9728	1.6868
Mash	23.86	257	.0044	.1050	12.5833	158.3394	.6967
Moong	17.61	406	.0069	.1215	6.3333	40.1107	.2768
Vegetables	16.25	3658	.0621	1.0091	4.9733	24.7337	1.5360
Fruit	15.32	3140	.0538	.8166	4.0433	16.3483	.8795
Poultry	14.25	863	.0146	.2081	2.9733	8.8405	.1291

Continued -

Table 1 – (Continued)

	1	2	3	4	5	6	7	8
Meat (Beef)		12.85	1059	.0180	.2313	1.5733	2.4753	.0446
Condiments		10.80	121	.0021	.2277	.4767	.2272	.0005
Fish		18.42	686	.0116	.2137	7.1433	51.0267	.5919
Iron and Steel		4.20	2797	.0475	.1995	7.0767	50.0797	2.3788
Machinery		8.60	1967	.0334	.2872	2.6767	7.1647	.2393
Transport		9.20	1167	.0198	.1822	2.0767	4.3127	.0854
Chemicals		13.77	1014	.0172	.2368	2.4933	6.2165	.1069
Drugs and Medicines		7.90	911	.0155	.1225	3.3767	11.4021	.1767
Cotton Yarn		4.80	1371	.0233	.1118	6.4767	41.9476	.9774
Cotton Manufactures		5.10	1642	.0279	.1423	6.1767	36.1516	1.0086
Silk-Rayon		9.30	985	.0167	.1553	1.9767	3.9073	.0653
Jute Manufactures		6.20	462	.0078	.0484	5.0767	25.7729	.2010
Wool Textiles		3.10	214	.0036	.0112	8.1767	66.8584	.2407
Matches		13.80	57	.0010	.0138	2.5233	6.3670	.0064
Edible Oil		2.10	4708	.0799	.1678	9.1767	84.2118	6.7285
Radio – T.V.		2.40	192	.0033	.0079	8.8767	78.7958	.2600
Elect. Goods		10.26	187	.0032	.0328	1.0167	1.0337	.0033
Fertilizer		6.70	817	.0139	.0931	4.5767	20.0462	.2912
Dyeing Material		6.00	180	.0031	.0186	5.2767	27.8436	.0863
Rubber Products		8.00	212	.0036	.2288	3.2767	10.7368	.0387
Sugar		12.30	1020	.0173	.2128	1.0233	1.0471	.0181
Cigarettes		13.50	1050	.0178	.2403	2.2233	4.9431	.0880

Continued –

Table 1 – (Continued)

	1	2	3	4	5	6	7	8
Leather		11.40	210	.0036	.0410	.1233	.0152	.0001
Cotton		5.40	5439	.0923	.4984	5.8767	34.5356	3.1876
Sugarcane		10.20	990	.0168	.1714	1.0767	1.1593	.0195
Rice		6.40	2479	.0421	.2694	4.8767	23.7822	1.0012
Wool		-.30	70	.0012	-.0036	-14.2767	203.8242	.2446
Hair		-7.30	175	.0030	-.0219	-18.5767	345.0938	1.0353
Hide		-.50	368	.0062	-.0031	10.7767	116.1371	.7201
Skin		4.00	174	.0030	.002	7.2767	52.9504	.1589
Tobacco		8.50	305	.0052	.0442	2.7767	7.7101	.0401
					11.2767			96.0096

Source: [2], [5].

Average Inflation Index = 11.2767

Variance of Inflation = 96.0096

Standard Deviation of Inflation = 9.7984

Inflation and its Variance for Two Sectors

	P_i	Value	W_2	DW_2	d	d^2	d^2W_2
<i>Sector A (Comprising Basic Food Commodities)</i>							
Wheat	10.65	11818	.4258	4.5348	6.2415	38.9563	16.5876
Maize	12.52	1057	.0381	.4770	4.3715	19.1100	.7281
Barley	14.15	390	.0141	.1995	2.7415	7.5158	.1060
Jowar	10.00	294	.0106	.1060	6.8915	47.49	.5034
Bajra	11.50	748	.0270	.3105	5.3915	29.0683	.7848
Gram, Whole	48.55	1736	.0626	3.0392	31.6585	1002.2606	62.7415
Gram, Split	50.96	1110	.0400	2.0384	34.0685	1160.6626	46.4265
Masoor	26.80	410	.0148	.3966	9.0985	98.1884	1.4530
Mash	23.80	257	.0093	.2213	6.9085	47.7274	.4439
Moong	17.61	406	.0146	.2571	.7185	.5162	.0075
Vegetables	16.25	3658	.1318	2.1418	.6415	.4115	.0542
Fruit	15.32	3140	.1131	1.7327	1.5715	2.4696	.2793
Poultry	14.25	863	.0311	.4432	2.6415	6.9775	.2170
Meat (Beef)	12.85	1059	.0382	.4909	4.0415	15.3334	.6239
Condiments	10.80	121	.0044	.0475	6.0915	37.1064	.1632
Fish	18.42	686	.0247	.4550	1.5285	2.3363	.0577
				16.8915			131.0145

Source: [2], [5].

Average Inflation Index = 16.8915

Variance of Inflation = 131.0145

Standard Deviation of Inflation = 11.4462

Continued -

Table 2 - (Continued)

	(%)	Value	W_3	PW_3	d	d^2	d^2W_3
<i>Sector B (comprising Other Commodities)</i>							
Iron and Steel	4.20	2796	.08972	.3768	-2.0416	-4.1681	.3740
Machinery	8.60	1967	.06312	.5428	2.3584	5.5621	.3511
Transport	9.20	1167	.0374	.3441	2.9584	8.7521	.3273
Chemicals	13.77	1014	.0325	.4475	7.5284	56.6768	1.8420
Drugs and Medicines	7.90	911	.0292	.2306	1.6584	2.7503	0.0803
Cotton Yarn	4.80	1371	.0439	.2107	-1.4416	+2.0782	0.0912
Cotton Manufactures	5.10	1642	.0526	.2682	-1.1416	+1.3032	.0685
Silk-Rayon	9.30	985	.0316	.2939	3.0584	9.3538	.2956
Jute Manufactures	6.20	462	.0148	.0917	-0.0416	+0.0073	.0001
Wool Textiles	3.10	214	.0006	.0186	-3.1416	+9.8696	.0592
Matches	13.80	57	.001	.0138	7.5584	57.1294	.0571
Edible Oil	2.10	4708	.1510	.3171	-4.1416	+17.1528	2.5901
Radio - T.V.	2.40	192	.006	.0144	-3.8416	+14.7579	.0885
Elect. Goods	10.26	187	.006	.0615	4.0184	16.1475	.0969
Fertilizer	6.70	817	.026	.1742	0.4584	.2101	.0055
Dyeing Material	6.00	180	.006	.036	-0.2416	+0.0584	.0004
Rubber Products	8.00	212	.006	.048	1.7584	3.0920	.0186
Sugar	12.30	1020	.0327	.40221	6.0584	36.7042	1.2002
Cigarettes	13.50	1050	.0336	.4536	7.2584	52.6844	1.7702
Leather	11.40	210	.006	.0684	5.1584	26.6091	.1596

Continued -

	(%)	Value	W_3	PW_3	d	d^2	$d^2 W_3$
Cotton	5.40	5439	.1745	.9423	-0.8416	+0.7083	.1236
Sugarcane	10.20	990	.0317	.3233	3.9584	15.6689	.4967
Rice	6.40	2479	.0795	.5088	0.1584	0.0251	.0020
Wool	-3.00	70	.002	-.0060	9.2416	85.407	.1708
Hair	-7.30	175	.005	-.0365	13.5416	183.3749	.9169
Hide	-.50	368	.0118	-.0059	6.2421	38.9638	.4598
Skin	4.00	174	.005	-.02005	-2.2416	5.0248	.0251
Tobacco	8.50	305	.0097	.08245	2.2584	5.1004	.0495
				6.2416			11.5208

Source: [2], [5].

Average Inflation Index = 6.2416

Variance of Inflation = 11.5208

Standard Deviation of Inflation = 3.3942

15.7 percent $> s + \Delta = 9.6$, in the second half the inflation rate was 18 percent $> s + \Delta = 13.1$. For Sector B, the inflation rate in the first half was 4.6 percent $> s + \Delta = 2.6$, in the second half the inflation rate was 7.3 percent $> s + \Delta = 3.9$. In all cases, we found the two-sector analysis as significant for predictive purposes as in the previous analysis. As such, the analysis was found to be stable. The apparent increase in the inter-sector difference over time may not be significant, but it suggests that the curves for the two sectors are concave to the time axis, with Sector A increasing more steeply than Sector B.

In the second test we substituted sugar for fish in the consumption sector and vice versa for the production sector. In the food sector we found the inflation rate falling by 0.1 percent but with no change in the standard deviation for it. In Sector B, the inflation rate rose by 0.2 percent but again there was no change in the standard deviation for it. This test again established the stability of our analysis, such that it is not affected by minor substitutions of commodities.

To summarize, we found that the single index was inadequate for predictive purposes but the two-sector indices were fairly reliable and meaningful.

We have taken wheat prices as they are without considering the 35 percent subsidy on it. However, the recent IMF and World Bank recommendations for the withdrawal of subsidies would make it important to consider the cost as it would be without Government intervention. It is significant to note that if we perform the above calculations with the subsidy removed the single inflation rate will increase by 0.7-12.0 percent and s will increase by 0.07-9.8. In the consumption sector, however, the inflation rate will increase by 1.6 percent to be 18.5 percent and s will decrease by 0.7 to be 10.7. Thus we would find a much better fit to the two-sector model than to the single-sector model. Presumably this was the economic reason for this subsidy in the first place.² It would be very harmful, then, to remove this subsidy as suggested by the IMF, as it would increase the divergence between the two sectors. It may be argued that the other suggestions in the IMF package (as reported in the daily press) could alter our conclusion. However, a glance at the suggestions shows that they all tend in the same direction. It may be hoped that in the long run the situation may tend to improve by following the IMF package. We feel that this is a forlorn hope unless the package has been prepared with an eye on this problem - which we have no reason to believe is the case.

5. SOME POLICY IMPLICATIONS

The PIDE has constructed an econometric model for Pakistan's economy (1959-60 to 1978-79) with 103 variables [4]. The model has derived systematic and

²It is interesting to note that if we were to replace the 35-percent subsidy mentioned above by 100 percent, the standard deviation in the two-sector model would decrease considerably.

empirical relationships for the economy. The model suggests that inflation in Pakistan has mostly been a domestic phenomenon, rather than an imported one as popularly believed. Our analysis is in keeping with the findings of the econometric model, because, if inflation was due to external factors, then Sector B (being associated with exports and imports) would have been inflating at a higher rate than Sector A. Our findings, being to the contrary, would suggest that if external factors affect the economy at all the effect is, at most, less inflationary than that due to the domestic factors. Admittedly there could be other explanations for our findings.

Our analysis supports the results of the econometric model inasmuch as it identifies the factors responsible for the higher rate of inflation in our economy. We find Sector A inflating at about 17 percent, nearly 3 times the rate of Sector B which is inflating at about 6 percent. Thus it is Sector A which is responsible for the double-digit inflation rate within the economy. Notice that this identification has only been possible through a two-sector analysis, and has been ignored up to now because of a single-index analysis which was inadequate for statistical prediction, or a multisector-index analysis which was without any predictive significance.

A significantly rising inflation would indicate, in very basic economic terms, a shortage in supply and an excess in demand. On the other hand, very moderate inflation would suggest that the forces governing demand and supply of goods can be characterized as normal. From our analysis we infer that Sector B, with a relatively low inflation rate, has experienced only a moderate excess demand. Sector A, with a very high inflation rate, on the other hand, suffers from an acute excess demand. This fact is in contradiction of the popular belief that Pakistan has achieved self-sufficiency in the production of basic food commodities.

The phenomenon of 'stagflation' (stagnation of the economy coupled with high inflation) present in Pakistan's economy was identified by Naqvi [3]. On the basis of our analysis we would suggest that it is Sector B which is stagnating and Sector A is responsible for the high rate of inflation in the economy. Again, this insight has been possible only through a two-sector analysis. Other things being equal, low-income groups spend a higher proportion of their incomes on basic foods than the higher-income groups. Thus if the basic-food sector is inflating at a rate higher than that of Sector B, the lower-income groups would be relatively worse off. The greater the disparity, the worse off the lower income groups. It is interesting to note that Irfan [1] who has worked out Gini indices for both rural and urban populations, finds that inequalities worsened in the '70s as against earlier decades. Our analysis would concur with his findings.

In Figure 6 we portray a hypothetical situation depicting the inflation experienced by the consumer. In general, his expenditure and income will vary differently over time. Consider the case where his income increases along with Sector B. If his income (at a) is greater than the cost of his essential consumption commodities (at

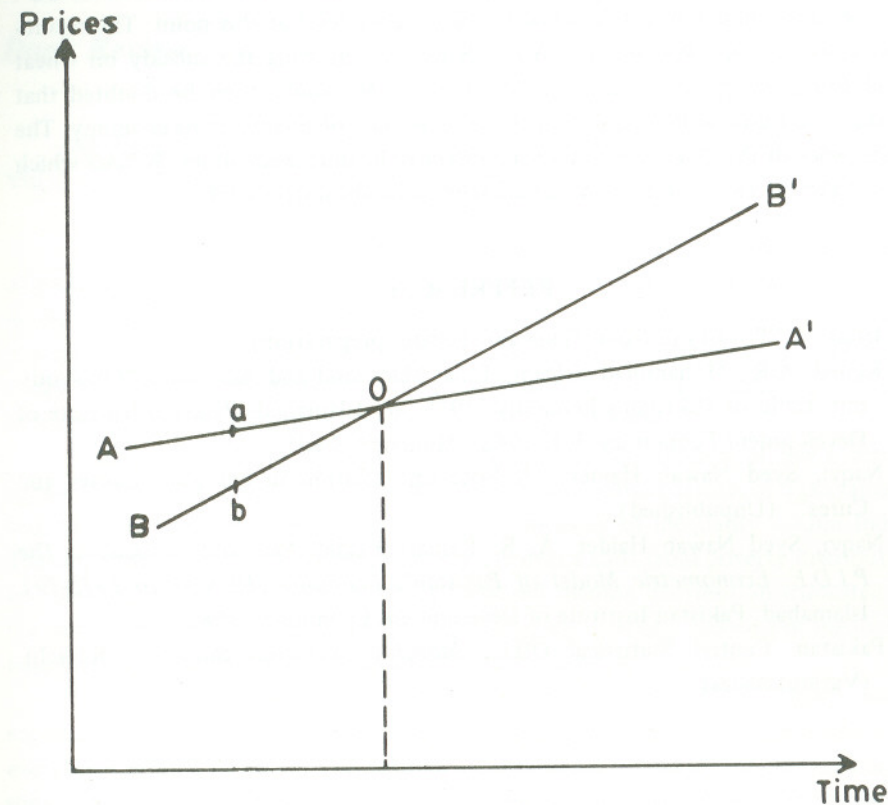


Fig:6. Dual Inflationary Aspects of a Low-Income Earner.

AA' = Earnings
 BB' = Expenditure

b), he will be above his subsistence level. His income here is inflating along the curve AA' and for his consumption he faces an inflation rate along the curve BB' . Now if BB' is inflating at a rate higher than AA' , at some point O , AA' will fall below BB' . The consumer should thus fall below his subsistence level at this point. The recommendations of the IMF and the World Bank for removing the subsidy on wheat would bring the point O much earlier in time. It cannot then be doubted that Pakistan must give serious attention to the existence of duality in its economy. The consequence of this duality is to increase *effective* income inequalities. Policies which try to make the two sectors converge are seen to be absolutely vital.

REFERENCES

1. Irfan, M. "Poverty in Rural Pakistan". (Under preparation)
2. Kemal, A.R., Mohammad Saleem, Tallat Mahmood and Associates. "Input-output Table of Pakistan's Economy: 1975-76". Islamabad: Pakistan Institute of Development Economics; July 1982. (Mimeographed)
3. Naqvi, Syed Nawab Haider. "A Note on Inflation in Pakistan: Causes and Cures". (Unpublished)
4. Naqvi, Syed Nawab Haider, A. R. Kemal, Rashid Aziz and Associates. *The P.I.D.E. Econometric Model of Pakistan's Economy (1959-60 to 1978-79)*. Islamabad: Pakistan Institute of Development Economics. 1982.
5. Pakistan. Central Statistical Office. *Monthly Statistical Bulletin*. Karachi. (Various issues)