INFLATION TREND IN ALBANIA DURING THE PREVIOUS DECADE: AN EMPIRICAL OUTLOOK

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Keywords
- Time series - Consumer Price Index - Inflation forecast - Inflation indicators -

1. TIME SERIES AND THE IMPORTANCE OF THEIR STUDY

Creating time series or otherwise known as data basis comprises the first step in time series complexity. The majority of time series already has a longer than an 8-year history (beginning from year 1992), comprising a rather good basis for the analysis and conclusions to be drawn from these analysis.

As it will be noticed in the following, the time series of inflation and of other indicators (on a monthly basis), having their early origin in 1993, have at present about 93-94 terms, an adequate number to come to right conclusions. The main scope is that these data are available for analysis and forecast of the economic and the financial phenomenon taken under study.

One of the most important indicators for which the Bank of Albania is very interested to have as more realistic and compatible forecasts as possible is inflation. Recently the central bank has focused the final scope of performing studies on inflation forecasting, on attaining the application of Inflation Targeting Regime or "inflation target". As indicated from other countries'

experience and frequent recommendations left over by the IMF missions, the adoption of such a regime is carried out through time series and conclusions drawn from these analyses.

2. INFLATION PERFORMANCE

To create a clearer idea on the time behaviour of inflation figures from the visual viewpoint, the graphical presentations 1 and 2, where the applicable data have a quarterly frequency, would be very useful. The graphical presentation 1 takes into account the time duration for the sample of consumer price index series over the first quarter 1993 - the fourth quarter 2000.

A second presentation helps us evidence the evolution of the quarterly changes of price index or quarterly inflation (p_cpi) stated in percent.

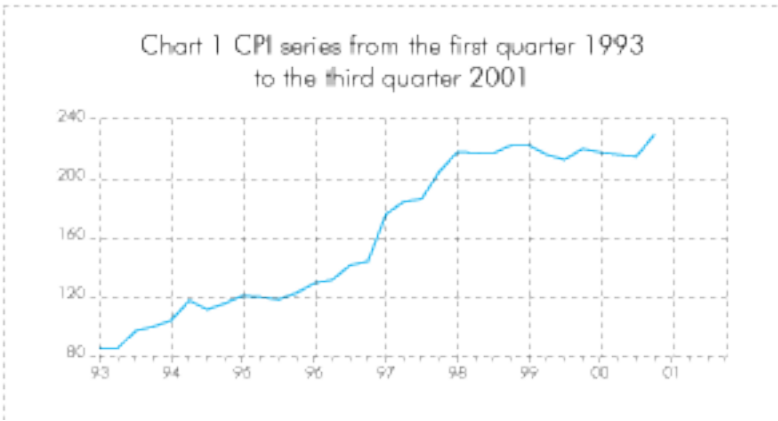
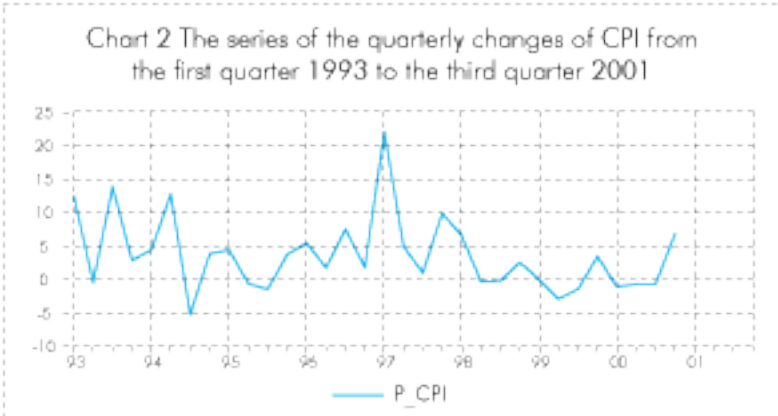


Chart 2 helps us recognize in the first view the existence of seasonality together with the rare component accompanying each time series.

From the analytical point of view, it would be necessary to measure the effect of each season (quarter) after the rare component is eliminated. The applicable method is additive as the inflation changes contain positive and negative terms.



The series of the seasonal coefficients, in our case, contains four terms depending on the sign added or deducted from the quarterly level of trend respectively.

Marked c_cpi, the quarterly changes of inflation series in percent would be presented in the equation:

$$C\_cpi = T + S + R \qquad (1)$$

Where T – trend – S- seasonal component R – rare component

For forecasting purposes, it is also needed a cleared series from seasonality[1].

Thus, eliminating the seasonal component would transform the correlation (1) as below:

$$C\_cpi = T + R \qquad (2)$$

Table 1 Seasonal coefficients of inflation series

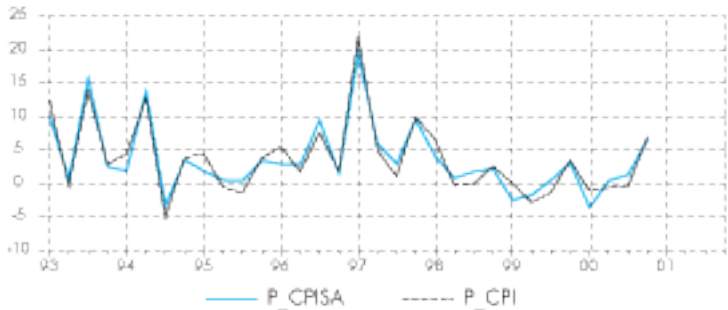
Sample: 1993:1 2001:4	
Included observations: 32	
Difference from Moving Average	
Original Series: P_CPI	
Adjusted Series: P_CPISA	
Scaling Factors:	
1	2.593065
2	-1.084623
3	-1.878914
4	0.370473

The above coefficients identified by means of the additive method indicate that the second and the third quarter, as expected, demonstrate a declining trend of inflation rates (throughout April – September period). The third quarter is the one that retains the most noticeable declines of consumer prices over the year. This fact is explained with the structure of the goods basket on whose basis the consumer price index (CPI) is accounted, where food beverages and tobacco comprise about 73 percent[2].

In this quarter, domestic products having a bulky disclosure additionally to imports (mainly fruit and vegetables) led to the reduction of prices by these products.

The first and the third quarter are characterized by growth of this indicator. Anyway, the most noticeable increases are evidenced in the first quarter each year.

Chart 3 The time series of quarterly changes of CPI and CPI cleared from seasonality



As evidenced from the Chart, the oscillations caused from the seasonal effects appear in the years of normal development of the economy ('95-'96 and after the second half of '97).

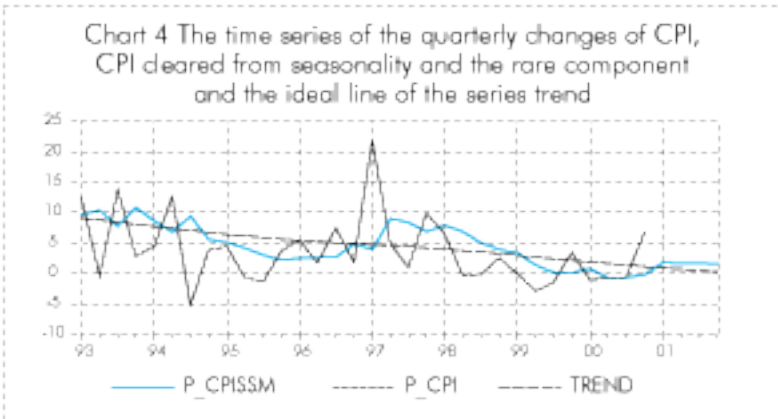
In the equation (2) that created the data series on the seasonally adjusted inflation it will be aimed to maximally clear the data from the rare oscillations.

This will be attained through the method of sliding averages or the exponential flattening.

Concretely for the series p_cpisa, it has been applied the method of exponential flattening or forecasting to gain the highest compatibility with the series trend.

We emphasize that this method offers the maximal elimination possible of the irregular component but not the total extinction of its effects.

If this elimination would be fully attained, then we would have to do with an ideal line of the trend.



Although ideal, this line is not real. As a result it is inappropriate for forecasts, as a time series will be always submissive to the rare effects, irrespective of how unimportant they will be, they are not totally assigned and solely dependent on the time variable.

The data series p-cpissm is already maximally cleared from rare effects.

Finally, the only residual component in the equation would be that of the trend.

p_cpi or p_cpissm(t) = T (3)

Chart 5 The time series of quarterly changes of CPI and CPI stripped off from the seasonality and the rare component

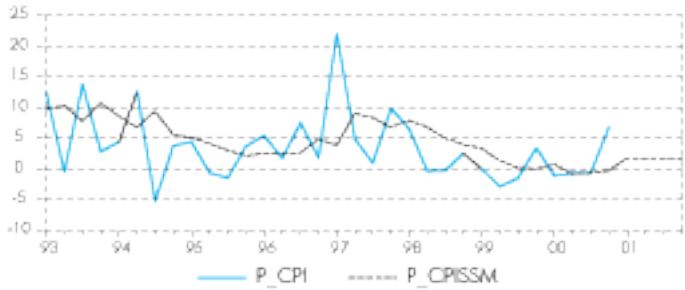
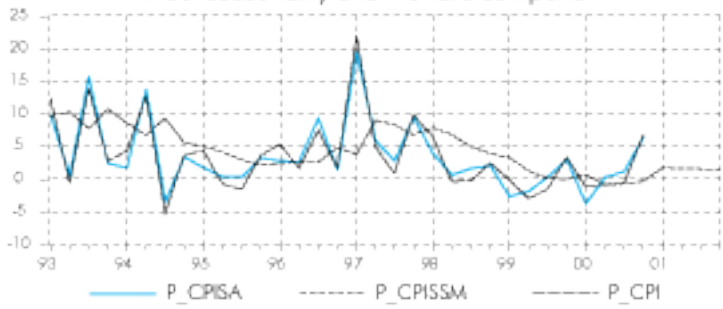


Chart 6 The time series of quarterly changes of CPI and CPI stripped off from seasonality and the series without seasonality and the rare component



The above graphical presentations indicate visually the way the time series of inflation (p_cpi) is transformed to its best clearing possible from seasonal and rare components.

3. A SCENARIO FOR FORECASTING INFLATION

Let's proceed with finding the equation of the trend, i.e., with the way how p_cpissm dependant variable is explained by the time independent variable. For this, it is necessary to enumerate some of the possible forms of time- adjusted- inflation, which are somewhat suggested from the graphical presentation of time duration in p_cpissm series.

The suggested forms require the construction of three samples, which state the dependency of time- adjusted- inflation on linear, squared and cubic forms.

Table 2 Linear dependence

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.140330	0.859140	10.63893	0.0000
TIME	-0.263097	0.044092	-5.966956	0.0000
R-squared	0.534566	Mean dependent var		4.667684
Adjusted R-squared	0.519552	S.D. dependent var		3.479530
S.E. of regression	2.411813	Akaike info criterion		4.657326
Sum squared resid	180.3220	Schwarz criterion		4.748023
Log likelihood	-74.84588	F-statistic		35.60456
		Prob(F-statistic)		0.000001

Table 3 Squared dependence

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.982488	1.361547	6.597268	0.0000
TIME	-0.236038	0.184632	-1.278426	0.2109
TIME*TIME	-0.000796	0.005268	-0.151070	0.8809
R-squared	0.534920	Mean dependent var		4.667684
Adjusted R-squared	0.503915	S.D. dependent var		3.479530
S.E. of regression	2.450748	Akaike info criterion		4.717172
Sum squared resid	180.1850	Schwarz criterion		4.853218
Log likelihood	-74.83333	F-statistic		17.25253
		Prob(F-statistic)		0.000010

Table 4 Cubic dependence

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.34452	1.741041	7.090310	0.0000
TIME	-1.341020	0.436872	-3.069593	0.0046
TIME*TIME	0.079253	0.029621	2.675581	0.0121
TIME*TIME*TIME	-0.001570	0.000573	-2.738279	0.0104
R-squared	0.630466	Mean dependent var		4.667684
Adjusted R-squared	0.592238	S.D. dependent var		3.479530
S.E. of regression	2.221896	Akaike info criterion		4.547811
Sum squared resid	143.1678	Schwarz criterion		4.729206
Log likelihood	-71.03889	F-statistic		16.49241
		Prob(F-statistic)		0.000002

Graphical presentations and the comparative analysis of results for the above three regresses confirm that the most implicit dependence is the cubic. This is indicated by t-statistic values and their respective probabilities. On the other side, such kind of sample is R-squared supported, which in the case of the cubic dependence takes a value over the average advisory power, which compared to other variables is considerably higher than them. The value of adjusted R-squared in the case of the cubic

dependence remarkably improves by about 10 percentage points the better elucidation of time-adjusted inflation.

If referred to other test criteria supplied from the program for the selection of the most appropriate samples, then the basic criteria "Akaike info criterion" and "Schwarz criterion" assuming minimum values in the cubic sample respectively (4.41 and 4.72) confirm that the cubic sample is the most appropriate.

Thus, the equation of the trend would be the following:

C_cpissm (t) = 12.34 – 1.34*t + 0.08*t – 0.0015*t3 (*).

Giving certain values to (t) time variable in this sample, the result would indicate the value of adjusted inflation (at the deficiency of the seasonality and rare component). As it is required an as more real value of the series as possible the seasonal effect, which increases or decreases the values of adjusted series must be taken into consideration.

Naturally a similar sample might be used to anticipate the quarterly change of time adjusted inflation (*) and the seasonal one. So, we would be having a result that takes as basis the trend (the symmetry that the phenomenon has demonstrated throughout the period under study) and the seasonal effect, if present.

Let's illustrate everything above-described with an assessing forecast on the variable inflation for the second quarter of 2001.

In this case, the value of the time variable will be given at (t) = 34, so from the beginning of the period for which we have available data to the end of the period (the first quarter 2001) we have 33, hence in the second quarter 2001 the period we are trying to forecast, the value of the time variable (t) would be t + 1, thus 34.

p_cpissm (34) = 12.34 – 1.34* (34) + 0.08* (34)2 - 0.0015*(34)3

p_cpissm(34) = 0.31.

The found value of the trend without the seasonal effect is 0.31 percent. Whereas considering the seasonal effect of the second quarter (-1.08), the quarterly change for the period (April –June 2001) will result –0.77 percent [0.31 +(-1.08)]. The value is more than acceptable if we refer to the preliminary statistical result, whose estimates take into account the real values of inflation series for the period including the first quarter of 1993 and on. Even if the same periods of the previous years are surveyed, when the country has almost passed through normal situations, we might have similar figures to the estimation (-0.77).

For example:

- In the second quarter 1995, the announced value of inflation was about - 0.65 percent;
- In the second quarter 2000, the announced value of inflation was nearly –0.72 percent.

In the second quarter 2001, the expected value of inflation would have been about -0.72 percent, while the announced value from INSTAT reached the figure of 0.38 percent. What would be the explanation for this evasion? Will it be really called a deviation as long as the estimate without the seasonality is nearly equal to 0.31 percent, while inflation figure for this quarter is nearly 0.38 percent? Do we have the right in the long run to presume that the seasonal effects in the performed diagnosis have almost been insignificant and why?

The deviation might have been due to the presence of a number of problems:

First, the received sample takes into account only inflation dependency from the time variable.

Second, the seasonal effects might have been eased thus not having a considerable decline in the consumer prices for the second quarter, 2001.

Generally this period confirms a significant reduction of prices by fruit and vegetable products due to the seasonal effect. The aggravated situation in the region and the conflict in FYROM caused a significant decline of imports in food products (fruits, vegetables and cereals), and significant components of the basket feel the seasonal effects at the same time. FYROM, considered as one of the major suppliers of these products, is estimated to have caused a rather significant decline in the market supply, implicating the increase of consumer prices for these customer- requested products. So, the consumer price index for the merchandise group of fruits and vegetables suffered an annual increase by 18.6 percent, fruits, especially, marked an annual increase by 6.7 percent and vegetables, by 35 percent. So, food, beverages and tobacco items marked for the second quarter of 2001 nearly 5.1 percent increase, compared to the same quarter of the previous year (INSTAT);

Third, although the applicable method has maximally avoided the rare casualty in the model, this does not mean that this avoidance has been totally complete. The rare (occasional) component has always been present in the time series and will surely transmit deviations, even small ones, from the real data.

It must be stressed that it is not only the time variable (the previous trends) and the seasonal effect that might help in forecasting a relatively accurate inflation for the future. The time factor gives only a likely inclination of it. It is an already acknowledged and tested fact that the political events influence inflation rates, especially on the rising side. In many developed countries, the feasibility of a similar effect is not exempted.

4. THE IMPACT OF POLITICAL EVENTS ON INFLATION

During the recent decade our country has faced specific situations certainly related to political events. Amongst these events we can mention the various electoral campaigns (parliamentary or local elections and different referendums)

and many other political events. The specialists' opinion is that irrespective of the intensity they are developed, they have not apparently affected core economic indicators, mainly those of inflation.

Excluding the first half of year 1997 when the economy faced the phenomenon of the falling pyramid schemes, in the majority of other cases the immune system against the political developments seems to have worked and their effects might be considered momentarily unimportant especially for inflation. Inflation performance confirms this fact.

Below we will present our effort, explaining that inflation changes prior and after the political events have been statistically important. In this way, the analytical methods used verify the above raised hypothesis from specialists.

To carry out an as grounded analysis as possible we deem that inflation time series taken under study must have a monthly frequency (month-to-month changes). That choice is based on the fact that we are generally interested in the fact whether we discern important changes of inflation two months before and after the political event, thus we will be considering 5 months totally, including the month when the political event has taken place or has reached its crest.

For the monthly series of inflation, the already explained stages must be followed to find the equation of the trend.

Time period that entail the political events will be further intervening in this model one after the other. To shape these interventions, qualitative variables or (dummy) indicators will be helpful.

The modelling or identification of these effects on inflation is attained through the agreement when;

Dummy variable = 1, the series values correspond to the period of the political event;

Dummy variable = 0, the series values do not correspond to the period of the political event but to the rest of the period.

The presentation of inflation monthly data indicates that in this series are present both, the trend and the seasonal components without exempting the casual component.

Chart 7 The monthly series of CPI

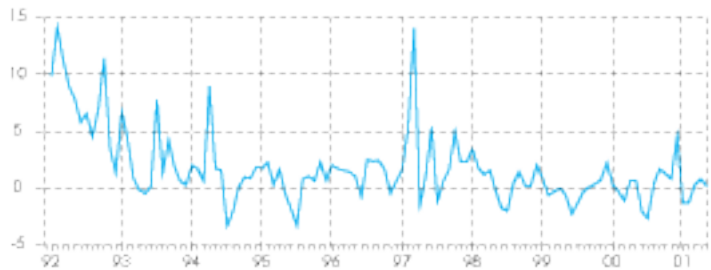
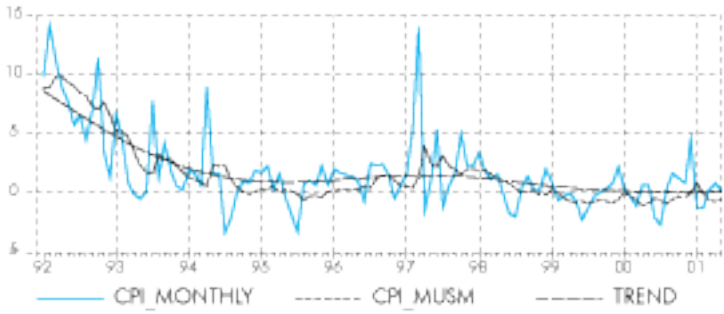


Chart 8 The monthly series of CPI changes cleared from seasonality, the rare component and the ideal line of the trend



The above presentation reinforces the idea that in the monthly series of inflation, the dependency between inflation and time is of third rank, meaning that the equation of the trend is cubic. These results indicate that the regress explaining the inflation time correlation is cubic and is statistically important on the whole. Coefficients are totally important, even at high levels of

confidence. R-squared is also high and statistically important at the same time. The equation of the trend (omitted seasonality) will be:

cpi _ musm =10.72 – 0.52 * time + 0.08 time2 - 4.06E – 05 time

Variables can already intervene in this equation one after anther according to the time they represent from January '92 to December '00.

Table 5 Cubic dependence and (dummy) variables

Dependent Variable: CPI_MUSM				
Method: Least Squares				
Sample(adjusted): 1992:01 2001:05				
Included observations: 113 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.71643	0.411305	26.05472	0.0000
TIME	-0.514910	0.031108	-16.55220	0.0000
TIME*TIME	0.008143	0.000633	12.87324	0.0000
TIME*TIME*TIME	-4.06E-05	3.65E-06	-11.11469	0.0000
R-squared	0.854112	Mean dependent var		1.600844
Adjusted R-squared	0.850097	S.D. dependent var		2.730014
S.E. of regression	1.056987	Akaike info criterion		2.983479
Sum squared resid	121.7772	Schwarz criterion		3.080024
Log likelihood	-164.5666	F-statistic		212.7169
Prob(F-statistic)	0.000000			

The results indicate that generally the political event, particularly the pre and post electoral situations and referendums do not significantly affect on inflation changes. The coefficients are statistically unimportant (t-statistic values do not verify the statistical importance of coefficients).

The contrary happens with high-tension situations of the country in general and of the Albanian economy in particular. The point herewith is the crisis of year 1997 and Kosovo crisis in spring 1999. It is statistically evidenced and verified that both these hard situations had a significant effect on changing inflation. The '97 situation priced a considerable growth of monthly inflation, while Kosovo crisis marked a decline, perhaps also due to the large arriving inflows in aids, causing reduced prices for the main basket items.

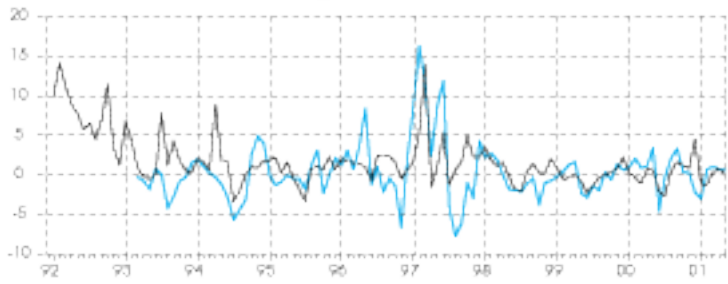
Table 6 Cubic dependence and (dummy) variables

Dependent Variable: CPI_MUSM				
Method: Least Squares				
Sample: 1992:01 2001:05				
Included observations: 113				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.721167	0.627728	15.48626	0.0000
TIME	-0.461565	0.041930	-11.00798	0.0000
TIME*TIME	0.007172	0.000776	9.245203	0.0000
TIME*TIME*TIME	-3.51E-05	4.22E-06	-8.330145	0.0000
DUMMY92	1.279724	0.531025	2.409913	0.0177
DUMMY94	-0.590168	0.406905	-1.450382	0.1500
DUMMY96	0.585665	0.307602	1.903967	0.0597
DUMMY97	2.434477	0.406164	5.993829	0.0000
DUMMY98	-0.664394	0.414841	-1.601563	0.1123
DUMMY99	-1.372991	0.413034	-3.324158	0.0012
DUMMY00	0.037030	0.435231	0.085080	0.9324
R-squared	0.916038	Mean dependent var		1.600844
Adjusted R-squared	0.907806	S.D. dependent var		2.730014
S.E. of regression	0.828925	Akaike info criterion		2.554902
Sum squared resid	70.08597	Schwarz criterion		2.820400
Log likelihood	-133.3520	F-statistic		111.2834
Durbin-Watson stat	0.555027	Prob(F-statistic)		0.000000

5. EXCHANGE RATE IMPACT OVER INFLATION

One of the most important factors estimated to impact over future values of inflation series, thus over the expected inflation is even the exchange rate. As long as it is an indicator, against the changes of which the public, business and banks' common sensitivity is great, we think that it must be treated carefully. The fact that imports comprise the majority of trade transactions and estimate to be more than three times than exports indicates

Chart 9 The monthly series of changes in USD exchange rate and CPI



that in general the economy is first significantly linked with the exchange rate. Second the exchange rate changes affect consumer price changes, logically related to inflation.

It is clearly and graphically observed that exchange rate changes in USD are transmitted with one month lag to inflation indicator.

Inflation and exchange rate indicators are reflected in monthly changes in percent, in the form of a chain.

The over-evaluation of the inflation USD exchange rate correlation will be given on the basis of this reasoning. The variables explaining inflation changes will be given in the following:

- Inflation of the previous period,
- USD exchange rate of the previous period (Lek /USD).

During the diagnosis process of a group of samples (the intervention of some reverse lag variables), it was evidenced that two of the most appropriate variables are the above mentioned ones.

Economically and theoretically, this fact already stands. The current inflation is mostly related to that of the previous period and to the exchange rate, with the same lag. It is vitally important to understand that changing effects of exchange rate are reflected in inflation, with lag of time.

Table 7 Inflation dependence on exchange rate

Dependent Variable: CPI_MUSM				
Method: Least Squares				
Sample(adjusted): 1993:04 2001:05				
Included observations: 98 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023012	0.059212	0.388644	0.6984
CPI_MUSM(-1)	0.858569	0.041515	20.68097	0.0000
C_USD(-1)	0.060984	0.013997	4.356909	0.0000
R-squared	0.820023	Mean dependent var		0.654973
Adjusted R-squared	0.816234	S.D. dependent var		1.172826
S.E. of regression	0.502766	Akaike info criterion		1.492750
Sum squared resid	24.01350	Schwarz criterion		1.571882
Log likelihood	-70.14476	F-statistic		216.4228
Durbin-Watson stat	1.933047	Prob(F-statistic)		0.000000

As noticed, both variables are statistically important and support the economic theory. Inflation changes for the respective period follow the same trend with those of USD exchange rate in the previous period. The same happens with the previous period inflation. It results out of the sample that it is as decisive as the USD exchange rate to current inflation.

The one-month lag is justified with the fact that it is the preliminary variables which prepare the grounds for inflation performance in the near future.

Exchange rates of other currencies (Euro components) are not statistically important variables of inflation performance in a direct way, but they will be needed to prove its correlation to indirect variables, as for example to REER.

The above model excludes the USD current rate. It results uncorrelated with inflation of the same period (current). It needs a month time to reflect inflationary effects in the economy.

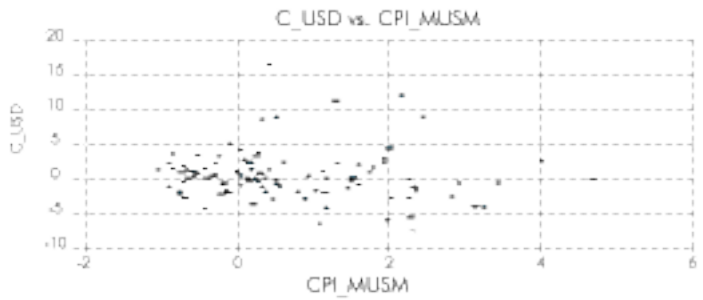
The overall importance of the sample (thus, both variables are important at the same time) is confirmed by the high values of adjusted R-squared coefficient. It indicates that about 82 percent of inflation variance is explained with the presence of two variables with a negative 1- lag in the sample.

On the other side, this sample lacks the multi-co-linearity, i.e., the correlation between both variables. The analytical and the graphical results sustain a complete deficiency of co-linearity of variables. This means that the value of R-squared coefficient nearly at 82 percent is real and is totally dedicated to variables.

Table 8 Correlation matrix

Correlation	CPI_MUSM(-1)	C_USD(-1)
CPI_MUSM(-1)	1.000000	-0.101578
C_USD(-1)	-0.101578	1.000000

Chart 10 The dependence of USD monthly rate change on monthly inflation



6. DOMESTIC CURRENCY APPRECIATION AND DEPRECIATION AND THEIR IMPACT ON INFLATION

Naturally a question arises: "Is the USD exchange rate (Lek/USD) of the same determining effect, either when the domestic currency appreciates or depreciates?"

To give an answer to this question first of all the most important periods corresponding to Lek appreciation or depreciation must be surveyed, second, given the already assigned correlation in the model of this section, whose results are presented in table 6, the modelling will be realized only by modifying the periods that noticeably evidence appreciation and depreciation phenomena of the domestic currency.

The 1996:02 to 1996:10 and 1997:09 to 1999:03 are regarded as the periods highlighting the domestic currency appreciation tendency, by surveying the monthly data. Whereas the 1995:01 to 1996:02, 1996:10 to 1997:10 and 1999:03 to 2000:12 are the periods highlighting the domestic currency depreciation tendency.

Regression results for both phenomena separately confirm the expected fact theoretically and practically.

Appreciation phenomenon indicates that inflation exchange rate correlation is statistically unimportant, while the reverse happens for depreciation periods. This correlation is utterly important for high levels of confidence, which is indicative of the fact that the speculative factor is robust.

Table 9. Appreciation period

Dependent Variable: CPI_MUSM				
Method: Least Squares				
Sample: 1996:02 1996:10 1997:09 1999:03				
Included observations: 28				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010998	0.083064	-0.0.132399	0.8957
CPI_MUSM(-1)	0.933176	0.071594	13.03436	0.0000
C_USD(-1)	0.024831	0.017993	1.380016	0.1798
R-squared	0.873412	Mean dependent var		0.829776
Adjusted R-squared	0.863285	S.D. dependent var		0.782471
S.E. of regression	0.289319	Akaike info criterion		0.458382
Sum squared resid	2.092635	Schwarz criterion		0.601118
Log likelihood	-3.417352	F-statistic		86.24546
Durbin-Watson stat	1.396050	Prob(F-statistic)		0.000000

Table 10 Depreciation period

Dependent Variable: CPI_MUSM				
Method: Least Squares				
Sample: 1995:01 1996:02 1996:10 1997:07 1999:03 2000:12				
Included observations: 46				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.071310	0.071487	-0.997528	0.3241
CPI_MUSM(-1)	0.785848	0.072664	10.81477	0.0000
C_USD(-1)	0.090192	0.017479	5.159986	0.0000
R-squared	0.828191	Mean dependent var		0.127665
Adjusted R-squared	0.820200	S.D. dependent var		1.081515
S.E. of regression	0.458593	Akaike info criterion		1.341688
Sum squared resid	9.043240	Schwarz criterion		1.460947
Log likelihood	-27.85882	F-statistic		103.6388
Durbin-Watson stat	2.405156	Prob(F-statistic)		0.000000

7. SOME CONCLUSIONS AND PROBLEMS

1. Studying inflation behaviour in time confirms that it is not an easy path to reach inflation forecast. One of the problems to be taken into account while setting up predictive and explanatory models is the log-likeliness of series. Notwithstanding that at the beginning of this paper a relatively positive evaluation was given related to the size of Albanian time series, it is generally estimated

that the time series of macroeconomic indicators are considered young-aged. In this aspect, inflation series, comprising the subject of this study, suffers from this problem. This is a series that has suffered the largest shocks from the Albanian economy. This fact has made it a series without a sequence. This is one of the reasons why the study on inflation performance, which will be normally intended to find inflation forecasting models, is carried out over the series generated from the monthly or quarterly changes of the CPI. This finding enables that inflation time series and variables explaining it (the USD exchange rate), turn into stationary or stable series, appropriate for analysis and forecasts.

The proposed scenario that studies inflation performance in time, reflects not only its trend, but also may be used for forecasting. This scenario, albeit its good explanatory force, unveils some problems related to the fact that:

- The model (scenario) reflects only inflation dependence on time variable, meaning that it does not take into account other macroeconomic and social indicators, which bear an indisputable impact on inflation. However, the building scope of a similar scenario is more useful for finding the main inflation trend and as such it fits to the quality of a "good" model to its best;
- The other problem, which to some extent depends on the previous one, relates to the fact for how long this model can go with forecasting, i.e., how far does it go in time. Theoretically it can go very far, as far as allowed by the chain of ordinal numbers, i.e., in infinite. Practically, the more we get away from the published values, the further from reality this forecasting model goes. That is why this model is available for short-term forecasts, and with some reserves, even for mid-term ones.

2. During the last decade, the country and the economy have been faced with political events that have influenced even the inflation indicator. Which of them, in particular, have "hit" it considerably?

The presentation of model results studying this phenomenon indicates that it is the rather tensioned situations the country and the Albanian economy have passed through that have caused shocks (changes) statistically important to inflation. Concretely, we are referring to the 1997 crisis and the spring 1999 Kosovo crisis, whereas the other situations such as the electoral period or referendums have not caused such impacts. The importance of this finding lays in the fact that it is reasonable to exclude these periods (concretely the spring 1997) from future modelling, since they represent shock periods and as such they deform the forecasts and analyses.

3. Inflation is an indicator closely related to the exchange rate in general and to the USD exchange rate in particular. It is an already verified fact that the explaining power of the USD exchange rate is significantly higher than that of the European currencies or the Euro components.

One of the frequently encountered problems in building the model is the selection of the lag. The model has provided reliable results for lag = (-1) but, the common practice for building such models recognizes a bigger lag. In the case of Albanian reality, the sensitivity against the changing exchange rate of USD is quicker in inflation. It emerges with one month lag.

4. The phenomenon of domestic currency appreciation indicates that the inflation exchange rate relationship is statistically unimportant, whereas in periods of its depreciation the reverse takes place. This correlation is utterly important for high levels of confidence. In fact cases with strong domestic currency appreciation periods must generate declining inflation and this correlation would turn out to be important, something our data do not verify. This fact confirms our market nature, which is not a price regulator on the descending side, where the speculative element is very strong.

5. Seasonal adjustment and the levelling (flattening) of series already constitute a very important requirement that must be normally applied in such kind of studies. For all above-

explained reasons this requirement is applied in all variables (mean dependent variables and the reverse) of this paper. Moreover, the European statistics standards are highly requiring the application of a seasonal adjustment of time series, because in this way they are comparable in time and space.

The above treated problems indicate that studying inflation, its behaviour and main determinants is a long way through which models of a high explaining and forecasting power are aimed at. The above study is an effort to clarify some important moments of its behaviour and their explanation is made in an empirical way. In the meantime, it will be followed by the introduction of some other models that would be modestly called as such and would help the central bank forecast inflation, initially for short-term periods.

ANNEX 1

Periods expressed in dummy variables in the model are as follows:

DUMMY 92 – includes the period of January `92 – September `92
DUMMY 94 – includes the period of August `94 – December `94
DUMMY 96 – includes the period of March `96 – December `96
DUMMY 97 – includes the period of April `97 – August `97
DUMMY 98 – includes the period of September `98 – January `99
DUMMY 99 – includes the period of March `99 – June `99
DUMMY 00 – includes the period of August `00 – December `00

NOTES

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[1] Clearing time series from seasonality and rare component is attained through statistical methods included in special softwares i.e. E-views, SPSS, and SAS etc. All analytical processing and graphs included in this paper are processed through E-views.4.0.

[2] From the household budget survey in year 2000, "Food, beverages and tobacco" resulted of 58 percent weight in the consumption of Albanians household budget.

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