Econometric Analysis of Import and Inflation Relationship in Turkey between 1995 and 2010

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ABSTRACT

In economics, the relation between import volume and inflation rate has been discussed several times for different countries. This study investigates the relationship between inflation and import volume by using monthly time series data for the Turkish economy over the period 1995-2010. The study applies a number of econometric techniques: Augmented Dickey-Fuller unit root test, univariate cointegration test, error correction model, and Granger causality test. The results of this dissertation show that there is long term and short term co-integration relation between inflation and import volume. Indeed, there is one-way Granger-causality from import to inflation.

Key words: *Import, Inflation, Cointegration, Granger Causality*

Jel Codes: *E52, F43*

Introduction

There are a few different reasons that can account for the inflation in goods and services. Three major types of inflation, as part of what Robert J. Gordon (1988) call the "triangle model"; demand-pull inflation, cost-push inflation and built-in inflation. Demand-pull inflation refers to the idea that the economy actual demands more goods and services than available. This shortage of supply which enables sellers to raise prices until equilibrium is put in place between supply and demand. The cost-push theory, also known as "supply shock inflation," suggests that shortages or shocks to the available supply of a certain good or product will cause a ripple effect through the economy by raising prices through the supply chain from the producer to the consumer. According to demand-pull and cost-push theory we accept a relation between import volume and inflation.

Some of the studies which focus on the relationship between inflation and import are as follows; Bayraktutan and Arslan (2003) studied on the relationship among wholesale price index, foreign exchange rate, and import volume an annual data of the 1980-2000 periods. Their study shows that there is a direct and interaction among wholesale price index, foreign exchange rate, and import volume. Research by Cheng and Laura (1997) shows determinants of inflation in Turkey over the period 1970 to 1995. Bahmani-Oskooee and Domaç (2003), central banks can eliminate inflation by interfering with monetary aggregates, particularly, the monetary base. However, it is noted that the supported correlation between money and prices is not an indicator of the direction of causality. In Bahmani-Oskooee and Domaç (2003) the external shocks followed by exchange rate depreciations, changes in public sector prices, and inflationary inertia are all found to be factors influencing inflation in Turkey. According to Domaç (2004), increases in inflation expectations can be followed by exchange rate depreciation since the monetary authority buys foreign currency to keep purchasing power stable. Domaç (2004) found that monetary variables such as money or real exchange rate direct the inflationary process of Turkey. Their findings for Turkey by stating: "The empirical findings show that inflationary pressures in Turkey have their origin in the following factors: (i) the presence of external shocks which engender sharp exchange rate depreciations; (ii) changes in public sector prices; and (iii) inflationary inertia". Saatçioğlu and Korap (2005) investigated the potential causes of chronic-high inflationary environment in Turkish economy for the period 1988-2004 using monthly observations. Research by Albert, Maurice and Barrie (2005) supports the relationship between domestic market pressure and inflation depends on openness to international trade. The possibility that international trade is responsible for the apparent breakdown of the relationship between excess demand and inflation is suggested in the analyses of Phillips curve relationships studied by Gordon (1998) and Rich and Rissmiller (2000). Gylfason (1998) studied on export and population, per capita income, agriculture, primary exports, and inflation by statistical methods in cross-sectional data from the World Bank covering 160 countries. He showed two important hypotheses for these countries macroeconomic factors.First, concerning exports, inflation is inversely correlated with real exchange rates as long as nominal exchange rates do not adjust instantaneously to prices, even if high inflation may impede exports and growth through other channels as well. Second, economic growth has been linked to a host of variables in recent work, two of which are quite robust: initial income, reflecting catch-up and convergence, and investment.The ratio of exports to Gross domestic product (GDP) inversely related to population.

This paper analyzes inflation and import relationship in Turkey between 1995 and 2010 using bivariate cointegration model assumptions. Consumer price index (CPI) is used as indicator of inflation. In this study, we investigate the relationship between inflation and import volume by using monthly time series data for the Turkish economy over the period 1995-2010. In the study, existence of a co-integration relationship and causality between import and inflation is tested.

Methodology and Data

Before starting the analysis,time series are transformed to eliminate spurious problem. In the first step of the co-integration analysis, Augmented Dickey Fuller test is used as stationary test. If the series are nonstationary in levels but stationary in first difference, co-integration test can be applied. In the second step, error correction model (ECM) is performed to investigate dynamic relationship between inflation and import. In the last step, granger causality test is applied to clarify the existence and direction of the causality between variables.

The data used in this study belong to the period of 1995-2010. Import volume and CPI data was organized by using the Central Bank of the Republic of Turkey (CBRT) databases.CPI is used as indicator of inflation. Monthly CPI and import data table can be seen appendix A.1.

Table 1 Descriptive Statistics Table

	Mean	Median	St. Deviation	Skewness	Kurtosis	Jarque-Bera
CPI	894.88	425	237.30	0.418	2.373	8.733
IMP	368.48	244.03	231.85	0.819	2.442	23.988

Stationarity Tests

The main element of econometric studies with time series is to test whether series are stationary or not. Stationary process is a type of stochastic process that has got a great deal of attention and close examination by time series analysts. Generally, a stochastic process is said to be stationary if its mean and variance are constant over time and the value of covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2003:797).

Despite of the fact that our interest is stationary time series, we often face with non-stationry time series. In econometric practice, using of nonstationary time series can cause serious problems. A number of empirical works have been shown that, in general the statistical properties of regression analysis using nonstationary time series are doubtful. Models, generated by time series including stochastic or deterministic trend, can give spurious regression results (Utkulu, 1993).

Co-integration Test

As mentioned before, using nonstationary time series in econometric analyses may cause serious problems. The time series, which include stochastic or deterministic trend, can give spurious regression results. Hence test statistics can be invalid. Most of the macroeconomic time series include trend. Some researchers suggest to difference time series until transforming them to stationary series. It was proved that this method can cause losing some of long-run information which is of interest to economists (Utkulu, 1997:39).

This problem of econometric studies can be solved by the co-integration concept presented by Engle and Granger (1987). With the help of co-integration analysis, nonstationary variables can be included to the regression without causing spurious results. Also this analysis provides efficiency in testing, estimating and modeling of long-run relationships among time series variables.

Engle-Granger Two-Step Co-integration Method

A method of estimating a long-run equation was presented by Engle and Granger (1987) and this method has been widely applied by researchers. One of the main advantages of this method is that the long-run equilibrium relationship can be modeled by directly involving the levels of the variables. In the first step all dynamics are ignored and the long-run equation is estimated:

$$Y_t = \beta X_t + u_t \qquad (1)$$

In order for Y_t and X_t to be cointegrated, the estimated residuals from equation (1) must be stationary. In this case the co-integration regression is said to be sufficient. As the variables are nonstationary, we can face the spurious regression problem. Therefore, R^2 and DW must be carefully inspected. If all indicators are satisfactory, we can proceed to the next step.

The second step includes estimating of a short-run model. In the short-run there may be disequilibrium. Hence, we can treat the error term as the "equilibrium error" (Gujarati, 2003:824). And we can use this error term to tie the short-run behavior of GDP to its long-run value. The error correction mechanism (ECM) first used by Sargan (1984) and later popularized by Engle and Granger corrects for disequilibrium. An important theorem, known as Granger Representation Theorem, states that if two variables Y and X are co-integrated, then the relationship between the two can be expressed as Error Correction Mechanism (ECM) (Engle and Granger, 1987:255). Simply, we can write ECM for equation (1) as follows:

$$\Delta\Psi_\tau = \alpha_0 + \alpha_1 \Delta\Xi_\tau + \alpha_2 \upsilon_{\tau-1} + \varepsilon_\tau \qquad (2)$$

where *Δ* denotes the first difference, ε_t is an error term, u_{t-1} is the lagged value of the error term from co-integration regression (1).

According to the Granger Representation Theorem α_2 is expected to be negative and statistically significant. The absolute value of α_2 shows how quickly the equilibrium is restored. Also α_2 should take a value between -1 and 0, otherwise the process is explosive (Ghatak, Milner and Utkulu, 1997).

Error Correction Model
(Hendry's General-to-Specific Approach)

Above the simple form of ECM is showed, but for obtaining the best error correction model for our analysis, in this study Hendry's (1995) general-to-specific approach will be used.

General-to-specific modeling is formulation of a fairly unrestricted dynamic model, in this manner called general, which is afterwards transformed, tested and reduced in size by performing a number of tests for restrictions. The general model is usually depicted as autoregressive distributed lag form (ADL). The ADL form means that a dependent variable, Y_t, is described as a function of its own lagged values, and the current and lagged values of independent variables. In the literature L^r (lag operator) is used for notation of ADL model. L^r is defined for variable X_t as:

$$L^r X_t = X_{t-r} \tag{3}$$

Let's consider a simple first order autoregressive model:

$$Y_t = \alpha Y_{t-1} + \varepsilon_t \tag{4}$$

We can rewrite this using lag operator as:

$$(1 - \alpha L) Y_t = \varepsilon_t \tag{5}$$

Also consider a finite distributed lag model:

$$Y_t = \beta_0 X_t + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \ldots + \beta_n X_{t-n} + \varepsilon_t \tag{6}$$

Using lag operator, equation (6) becomes:

$$Y_t = b(L) X_t + \varepsilon_t \tag{7}$$

If we add lagged values of dependent variable (Y_t) to distributed lag model (6), the result will be ADL model, and is denoted as:

$$Y_t = \alpha_0 Y_{t-1} + \alpha_2 Y_{t-2} + \ldots + \alpha_k Y_{t-k} + \beta_0 X_t + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \ldots + \beta_n X_{t-n} + \varepsilon_t \tag{8}$$

In more succinct notation, using polynomial lag operator, it can be denoted as:

$$a(L) Y_t = b(L) X_t + \varepsilon_t \tag{9}$$

In our investigation, for estimating short-run dynamics we will apply simple form of(8):

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i} \Delta Y_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta X_{t-i} + \beta_3 EC_{t-1} + \varepsilon_t \qquad (10)$$

Generally, Hendry's general-to-specific model consists of four steps :

1. General model is established. This model must include variables of the theoretical model and bound the dynamic of process in possible minimum.
2. After reparameterisation of the model, more orthogonal and more explainable parameters, from the long-run equilibrium's point of view, are obtained.
3. By simplifying the model, a short-run model with consistent data set is obtained.
4. Coefficients, error terms and power of the estimation are tested.

In economic theories, generally, no information about the adaptation process from short-run to the long-run are presented. Consequently, short-run dynamics of the models are determined according to variables of the time series.

Granger Causality

In econometrics, the notion of causality changes its philosophical matter and is more explicit. In empirical econometrics, researchers want to know whether an increase in one economic series results increases in another economic series or decreases; to identify the direction of relationship among series. The most widely econometrical definition of causality has been introduced by Granger (1969). In literature it is called as Granger definition of causality and can be formulated simply as follows:

If present value of Y can be predicted by using past values of X, then X is a Granger cause of Y; and causality from X to Y is denoted as $X \rightarrow Y$.

The basic aims of investigation of causality relationship between X and Y can be arranged as (Işiğiçok, 1994:90):

- Prediction of future periods by using current values of X and Y;
- Whether Y can be predicted by its past values or by past values of X;
- Identifying exogenity and endogenity of variables;

- Finding direction of causality;
- To find out after how many periods the change in one variable affects another variable;
- To determine the structural changes in parameters.

The Granger causality test was originally suggested by Granger (1969) and modification was suggested by Sargent (1976). The Granger test assumes that information related to the prediction of the variables, Y and X, is included only in the time series data on these variables. The test involves estimation of following regressions:

$$Y_t = \sum_{i=1}^{n} \alpha_i X_{t-i} + \sum_{i=1}^{n} \beta_j Y_{t-j} + u_{1t} \tag{11}$$

$$X_t = \sum_{i=1}^{n} \lambda_i X_{t-i} + \sum_{i=0}^{n} \delta_j Y_{t-j} + u_{2t} \tag{12}$$

Regressions (11) presumes that current value of Y is related with the past values of X; and (12) postulates that current value of X is related with the past values of Y.

The first step of the Granger causality test is establishing of hypotheses:

H_0: $\sum\alpha_i = 0$: X does not Granger cause Y

H_1: $\sum\alpha_i \neq 0$: X Granger causes Y

For testing null hypothesis, we apply *F* test:

$$F = \frac{(RSS_R - RSS_{UR}/m)}{RSS_{UR}/(n-k)} \tag{13}$$

where RSS_R is restricted residual sum of squares, obtained running regression with including all lagged Y, but without including X; RSS_{UR} is unrestricted residual sum of squares, obtained by running regression including lagged X; *m* is number of restrictions; *k* is number of parameters in the unrestricted regression; *n* is number of observations.

The final step is the comparison of the computed *F* value with the critical *F* value. If computed *F* value exceeds the critical *F* value at the significance level (%1, %5,

%10) then we reject H_0. Rejection of the null hypothesis indicates causality relationship between variables. Since the Granger causality tests are very sensitive to the lag length selection, Akaike information criterion (AIC) will be used in this study (Kasman and Emirhan, 2007). For choosing the lag length, we will start with one lag and increase them by AIC. The lag of the model with the least AIC value will be our model's lag length.

There are four possible cases that can appear when testing causality between Xand Y:

i. X → Y: Unidirectional causality from X to Y. It occurs when the estimated coefficients of the lagged X in (11) are statistically different from zero ($\sum\alpha_i \neq 0$); and coefficients of the lagged Y in (12) are not statistically differentfrom zero ($\sum\delta_\varphi = 0$).

ii. Y → X: Unidirectional causality from Y to X. The estimated coefficients of the lagged X in (12) are not statistically different from zero ($\sum\alpha_i = 0$); and coefficients of the lagged Y in (12) are statistically different from zero ($\sum\delta_\varphi 0$).

iii. X ↔ Y: Bilateral causality. The coefficients of X and Y are statistically different from zero.

iv. Independence. The coefficients of X and Y are not statistically significant.

Before the development of the error correction model, the standard Granger test had been using for testing causality between two variables. According to Granger, if there is co-integration between two variables, then the advantages of standard Granger causality test are not valid (Oskooee and Alse, 1993). Therefore, if there is co-integration between variables, then error correction term, obtained from long-run equation, is included to standard Granger test. Otherwise, standard Granger test is implied without including error correction term (Giles D., Giles J. and McCann, 1993:201). So, causality relationship is tested using error correction model. The Granger error correction model can be formulated as follows:

$$\Delta Y_t = \alpha_1 + \sum_{i=1}^{n} \beta_{1i} \Delta Y_{t-i} + \sum_{j=1}^{n} \lambda_{1i} \Delta X_{t-j} + \delta_1 EC_{t-1} + \varepsilon_{1t} \quad (14)$$

$$\Delta X_t = \alpha_2 + \sum_{i=1}^{n} \beta_{2i} \Delta X_{t-i} + \sum_{j=1}^{n} \lambda_{2i} \Delta Y_{t-j} + \delta_2 EC'_{t-1} + \varepsilon_{2t} \quad (15)$$

In these equations EC_{t-1} and EC'_{t-1} are stationary error terms, obtained from equations (14) and (15) respectively; and are called error correction terms. Δ indicates the first difference.

In Granger error correction model, we test whether estimated coefficients of lagged values of all variables are significant or not by using F test (Oskooee, Mohtadi and Shabsigh, 1991). Let's consider equation (15). For saying Y Granger causes X, not only all λ_{2i} must be statistically significant, but also δ_2 must be significant. For functioning of the mechanism also the coefficient of error correction term must be negative and the same time has to be between 0 and -1 (Ghatak, Milner and Utkulu, 1997:217).

Empirical Results

As a preliminary stage to co-integration analysis, the stationarity of each variable was tested using graphical analysis and unit root tests. First of all, the graphs of the variables (CPI, import volume) are presented in Figure below.

Figure1.1 Variation of import versus inflation

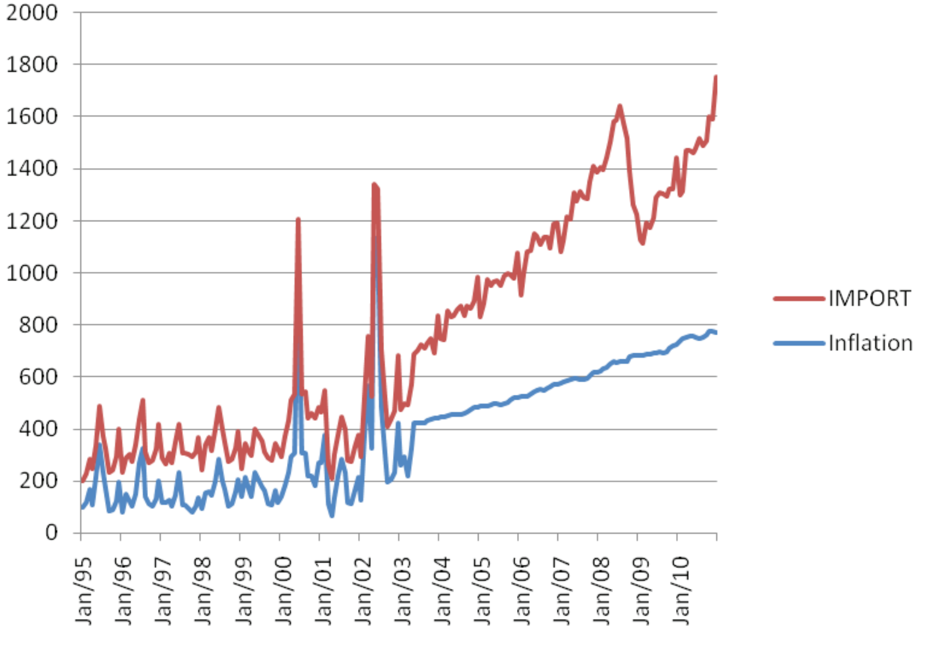

Figure above implies that the variables have been fluctuating and increasing togetherover the sample period. That is, showing an upward trend, intimating perhaps that the mean of all variables have been altering. This implies that the series of the variables are not stationary. On the other hand if the first differences of the variables are taken, it looks like purified from trend. Therefore the first differences of two variables seem stationary. However, these outcomes must be supported by the unit root test results which are presented in Table 1.

Table 2 Unit Root Test Result

	Levels ADF	Prob. ADFProb.		First Difference
With intercept				
Inflation	894.88	425	237.30	0.418
Import	368.48	244.03	231.85	0.819

Note: t-values are reported in the table.* denote rejection of null hypothesis at 1%, 5% and 10% respectively. Critical values are based on MacKinnon (1991); 1%, 5%, 10% is -3.45775, -2.87349 and -2.57322.

According to the unit root test, we cannot reject H_0, and all variables are nonstationary in levels (*I(0)*). After taking the first differences for variables, we reject the null hypothesis at 1% significance level. Test results show that time series are stationary from the first order (*I(1)*).

After showing that all variables are integrated of order one, we can proceed to the cointegration test. By using cointegration analysis, we will test whether there is a long-run relationship between inflationand import.

Table 3 Cointegration Test Results

Co-integration eq:	Cons. Term	Coefficient	R^2	DW	ADF
Yt= βXt+ut	-0.006447	-0.367997	0.18342	2.04625	-6.515491*
	(-0.000799)	(-6.515491)			

Note: The numbers in parenthesis are t-statistics. *denote rejection of null hypothesis at 1%, 5% and 10%. Critical values are based on MacKinnon (1991); 1%, 5%, 10% is -3.45775, -2.87349 and -2.57322.

It can be seen from Table 3 that coefficient of regression has negative sign and is statistically significant. In other words, increases in independent variable decreases dependent variable. Thus, our results are collateral with the demand-pull and cost-push theory. An increase in import volume will decrease inflation. Stationarity of the error term, which is obtained from cointegration equations, shows a long-run relation between inflation and imports.

$$Y_t = -0.367997X_t - 0.006447 \qquad (16)$$

According to equation (16), 1 unit increase in independent variable will decrease dependent variable by 0.367997. As seen in Table 2, the value of R^2 is low. However, it could be higher, if more independent variables (like, exchange rate, unemployment, export, oil price etc.) are added to the equation (16). According to Granger Representation Theorem, if there is co-integration between variables, error correction mechanism must work. Consequently error correction mechanism will be examined in the next step.

To examine whether a long-run equilibrium relationship between inflation and independent variables exists, co-integration tests are employed. It is found that inflation and imports are co-integrated; which means that a long run or equilibrium relationship exists between them. In the short-run relationship there may be disequilibrium. Therefore, one can treat the error term as the "equilibrium error" (Gujarati, 2003: 824). And we can use this error term to tie the short-run behavior of inflation to its long-run value. The short-run dynamics will be examined by employing an error-correction model.

In the next step, insignificant parameters were dropped and remaining parameters can show significant effects of used parameters to inflation. Our error correction model is employed for determining short-run dynamics.

Table 4 Error Correction Model Test Result

Co-int. eq:	inflation(-1)	Import(-1)	c	R^2	Adj. R^2
CointEq1	1	-0.82753 -0.1103 [-7.50256]	-91.3408	0.17278	0.150179

Note: The numbers in parenthesis are the t-statistics. The critical values at 10% and 5% are 1.29 and 1.66respectively (1-tail).

Two diagnostic tests (R^2, Adjusted R^2) were presented in the tables. The results, reported in Table 4, show that the adjusted R^2 is not high, which implies that the model used in this study is not affected from problem of autocorrelation.

The coefficients of the error correction terms, estimated for both models, are statistically significant and have correct (negative) signs, confirming the evidence for co-integration of the variables in the long-run model established earlier. These coefficients indicate what proportion of the discrepancy between the actual and long-run or equilibrium value of inflation is eliminated or corrected each month (Kasman A. and Kasman S., 2005). Coefficient of the error term, estimated for the first model, is - 91.3408.

Finally, and perhaps most importantly, it can be concluded that there is a dynamic relationship between inflation and import. The evidence from our error-correction models and from long-run models shows that both long-run and short-run dynamics are significant. Therefore, our findings support validness of an equilibrium relationship between the dependent and independent variables in each co-integration equations.

If there is a co-integration vector between inflation and import, there must be causality among variables at least in one direction (Granger, 1986). Hence, Granger causality test is used to examine the nature of this relationship. Granger (1986) and Engle and Granger (1987) supply a test of causality, which takes into account the information, provided by the co-integrated properties of variables.

Table 5 Granger Causality Test result

Null Hypothesis	Obs	F-Statistic	Probability
Import does not Gr. cause CPI	190	9.12461	0.00017
inflationdoes not Gr. cause Import	1.48607	(-6.515491)	0.22895

Table 5 reports results of the causality analysis of inflation and import. It can be seen that there is unidirectional causation between inflation and import. Table 5 indicates that since F-statistic value of import is significantly big, therefore import does Granger causes on inflation. Simply it shows the inflation does not affect import. As a result there is unidirectional causation between inflation and import from import to inflation.

Conclusion

In this study, we investigate the relationship between inflation and import volume by using monthly time series data for the Turkish economy over the period 1995 to 2010. In the study, existence of a co-integration and dynamic relationship and causality between import and inflation is tested by performing econometric methods such as co-integration, error correction model and Granger causality. Our test results indicate that; (a) long-run and dynamic relationships are found between inflation and import, (b) there is unidirectional causality from import to inflation. Also this result supports the theoretical approach.

Our results imply that policy makers who are responsible for optimum inflation rate for sustainable development can use import to reach the planned inflation rate target through changing imposed tax rates on import.

Future studies may focus on the relationship between inflation and import including the other related factors and changes in degree of relationship over financial crises and time.

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Appendix A

A.1 Monthly CPI and Import Data

year/month CPI/Import	jan	feb	mar	apr	may	jun
1995	100 100	119,3 108,85	165,85 117,97	106,25 142,33	212,5 123,22	340 145,27
1996	81,928 150,42	151,11 136,4	121,43 178,47	101,49 174,7	151,11 185,96	272 163,17
1997	115,25 172,31	119,3 147,83	125,93 182,7	103,03 167,06	144,68 205,95	234,48 184,67
1998	94,444 148,09	154,55 184,78	158,14 208,08	144,68 173,27	194,29 199,07	283,33 198,72
1999	141,67 106,17	212,5 132,95	165,85 145,21	138,78 158,99	234,48 162,57	206,06 171,02
2000	138,78 153,98	183,78 187,47	234,48 198,56	295,65 214,18	309,09 224,03	971,43 236,73
2001	272 194,15	377,78 171,4	111,48 148,25	66,019 144,87	133,33 169,7	219,35 157,31
2002	128,3 163,66	377,78 144,87	566,67 187,82	323,81 200,88	1133,3 205,26	1133,3 187,72
2003	261,54 211,03	295,65 199,61	219,35 274,45	323,81 248,49	425 263,79	425,34 273,1
2004	445,26 301,84	447,56 292,76	451,85 403,03	454,1 378,24	456,06 381,03	455,46 403,78
2005	486,39 344,27	486,47 396,92	487,75 486,21	491,23 457,56	495,73 467,87	496,24 474,35
2006	524,96 388,42	526,11 467,13	527,55 553,38	534,61 552,53	544,63 605,32	546,46 594,43
2007	577,09 505,07	579,55 542,81	584,86 631,07	591,92 616,05	594,89 712,18	593,45 680,27
2008	624,25 779,1	632,32 764,22	638,39 801,68	649,1 853,06	658,78 920,61	656,4 928,74
2009	683,55 442,57	681,22 432,72	688,73 501,74	688,86 482,59	693,28 518,22	694,04 596,09
2010	739,5 557,48	750,21 561,78	754,58 716,31	759,09 712,55	756,37 702,21	752,12 726,25

year/month CPI/Import	jul	aug	sep	oct	nov	dec
1995	234,48	174,36	85	87,179	123,64	194,29
	137,16	152,21	146,22	153,19	170,43	205,93
1996	323,81	141,67	111,48	104,62	130,77	200
	186,61	167,92	158,3	171,87	188,05	218,45
1997	107,94	109,68	93,151	81,928	103,03	133,33
	197,12	198,31	207,79	208,57	207,59	235,62
1998	200	170	101,49	111,48	158,14	206,06
	199,92	177,84	174,52	173,46	167,45	184,55
1999	178,95	161,9	113,33	107,94	161,9	115,25
	172,53	151,56	173,75	169,71	183,5	211,45
2000	309,09	309,09	219,35	219,35	183,78	272
	223,05	232,66	221,43	239,58	255,71	211,6
2001	283,33	234,48	115,25	111,48	161,9	212,5
	163,87	167	163,32	160,43	169,73	164,07
2002	485,71	309,09	194,29	206,06	234,48	425
	219,35	210,71	215,05	230,32	236,63	256,06
2003	424,53	425,21	430,95	434,94	440,46	442,33
	298,86	284,91	295,91	313,55	250,11	392,65
2004	457,63	461,11	465,49	475,94	482,18	483,71
	416,22	375,92	404,68	385,66	408,57	499,45
2005	493,4	497,6	502,7	511,71	518,89	521,05
	457,59	489,83	494,3	481,13	461,26	557,08
2006	551,09	548,67	555,72	562,77	570,04	571,35
	558,36	585,38	579,51	534,05	614,97	622,18
2007	589,11	589,24	595,31	606,11	617,92	619,27
	725,48	700,09	689,48	745,15	793,09	768,67
2008	660,19	658,57	661,55	678,75	684,4	681,6
	980,28	918	852,82	712,53	575,72	543,84
2009	695,79	693,71	696,42	713,2	722,25	726,08
	613,05	610,9	595,35	609,06	601,67	716,2
2010	748,51	751,52	760,74	774,68	774,89	772,55
	766,69	735,95	745,87	824,77	817,07	980,27