

APPLICATION OF SECOND KIND MODEL OF AUTOREGRESSION FOR EXTRAPOLATION ECONOMIC TIME SEQUENCE

For extrapolation of economic time sequence we can use the method of autoregression. Originally given method of autoregression is used for prediction of the time series values. We must know: the first few points of sequence and time interval. As time sequence we use the real graph of changes in exchange rates. With all this data we can create the mathematical models of the given sequences $Z_0, Z_1, Z_2.. Z_n$, calculate the dispersion σ^2 , autocovariations $\rho_0, \rho_1, \rho_2... \rho_n$, average μ , coefficient of autoregression φ .

Prediction value can be calculated by following equation

$$Z_t = \varphi Z_{t-1} + \varphi^2 Z_{t-2} + \dots + \varphi^p Z_{t-p}$$

For determination the autoregression coefficient in the model of our time sequence (in form of autoregression) we used the Yule-Walker equations.

$$\begin{cases} \phi_1 \rho_0 + \phi_2 \rho_1 + \phi_3 \rho_2 + \dots + \phi_p \rho_{p-1} = \rho_1, \\ \phi_1 \rho_1 + \phi_2 \rho_0 + \phi_3 \rho_1 + \dots + \phi_p \rho_{p-2} = \rho_2, \\ \phi_1 \rho_2 + \phi_2 \rho_1 + \phi_3 \rho_0 + \dots + \phi_p \rho_{p-3} = \rho_3, \\ \dots \dots \dots \\ \phi_1 \rho_{p-1} + \phi_2 \rho_{p-2} + \phi_3 \rho_{p-3} + \dots + \phi_p \rho_0 = \rho_p \end{cases}$$

The graph of changes in exchange rate, taking from the Forexpros.ru help us to develop program at Turbo Basic language. This program illustrate that the predictable values are very close to the existing points of economic curve.



Fig. 1. Changes in exchange rate

Literature

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