

**ANALYSIS THE ECONOMICAL PROCESS ON THE
 BASIS OF SOLOU MODEL**

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It is known that one the most important features of the economical system being was guided by market attitude of the very complex dynamicses development of this system: Of the chaos, is to observe of the other, regular fluctuation etcs, periodicity. Naturally, line, to model this kind of systems on the basis of balance models is not possible. In general, exist in the real economical systems of the balance situation chaos, periodicity, irregular fluctuations and so on grain proves being observing of the dynamics consisting of the economical systems nonlinear dynamic systems.

It is necessary to note that they are divided into according to the behaviour of nonlinear dynamic systems to three important groups and. Nonlinear dynamic systems entering the first group have with dots, periodic attractor nonlinear dynamic systems entering the attractor, the second group. But, they differ distinctly nonlinear dynamic systems entering the group two other grupas from systems entering . Systems entering this group have what dots nor periodic attractor. This type attractors are called chaotic or other simple attractor of the dynamic systems. [1].

Chaotic attractor behaviour of the dynamic systems having , to prognosticate differently is not possible from dots and systems periodic attractors.

Observing of the development in the behaviour of the market economical systems, decline, crisis, chaos, periodicity, irregular fluctuations gives ground to say him, that but dots attractor in the dynamics of the same system built on market attitudes in the definite stage , chaotic attractor will be able to observe in the periodic attractor, another stage in the other stage.

If volume of the gross national product is accepted of the economical system as the person which changes basicly, in general, then but dots attractor having of this system constant to staying of the growth of the gross national product, having of periodic attractor, periodic change having of the volume of the gross national product, have of chaotic attractor show happen in the economical system of the chaos impossible specify of the volume of the gross national product.

But, economical systems in spite of offering of the many models for describing up to now, very complex dynamisms of the economical systems on the basis of these models, to define impossible .

It is known that volume of the gross national product use and is/are taken of the economical system for influencing to economical systems as the person which changes basicly from all models and from two important parameters changing this, labour playing the decisive part in the economical growth is accepted that depended on productivity and the number of the workers.

Let us accept describe with equation of R.Solou counted economical fundamental model of the neoclassic growth theory [2] of the growth from these parameters.

$$\frac{dk}{dt} = \xi f(k) - \zeta k, \quad (1)$$

Let us write model discrete in the following picture.

$$\begin{aligned} \frac{k_{i+1} - k_i}{\tau} &= \xi f(k_i) - \zeta k_i \\ k_{i+1} &= k_i + \tau \xi f(k_i) - \tau \zeta k_i \quad i=0,1,2,3,\dots \end{aligned} \quad (2)$$

Let

$$f(k) = ak - bk^2 .$$

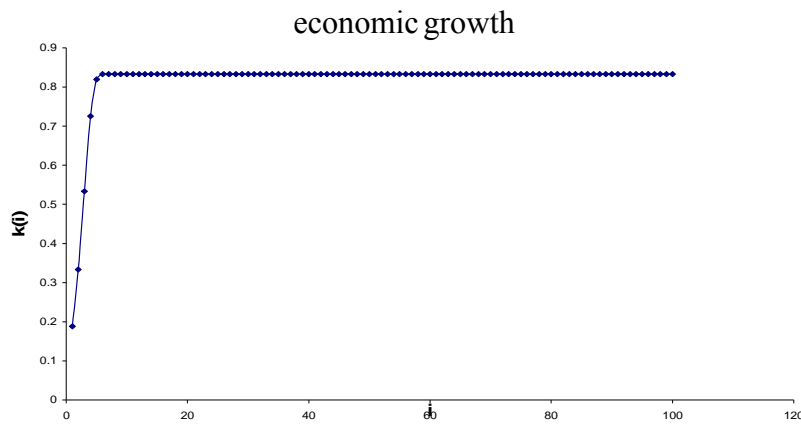
Then

$$k_{i+1} = k_i + \tau\xi(ak_i - bk_i^2) - \tau\zeta k_i$$

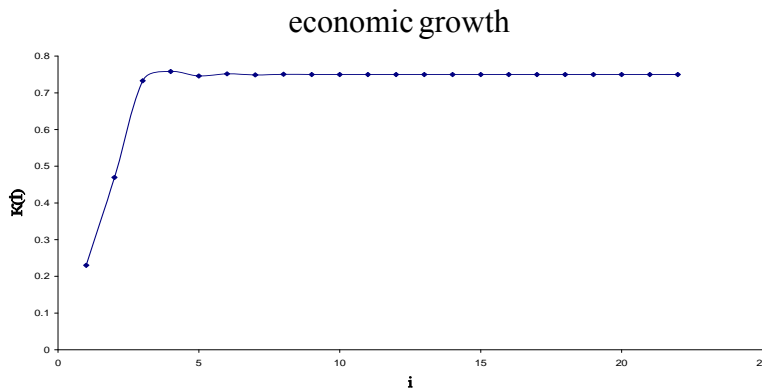
$$k_{i+1} = k_i(\alpha - \beta k_i), \quad i = 0, 1, 2, 3, \dots \quad (3)$$

where $\alpha = 1 + \tau\xi a - \tau\zeta$, $\beta = \tau\xi b$.

So, we are where/which have/has received (bought, got) model which consist (of) (3) from (the) equation of difference with end for (the) doing (making) to describe the behavior of the economical system. Prices, marks of parameters k_0, α, β must be known for the investigating the dynamics of the economical system on the basis of this model. Different prices have been carried out (taken away) experiment of the counting in the computer give to these parameters. Results of the experiment of counting have been given in the form of the following graphic.

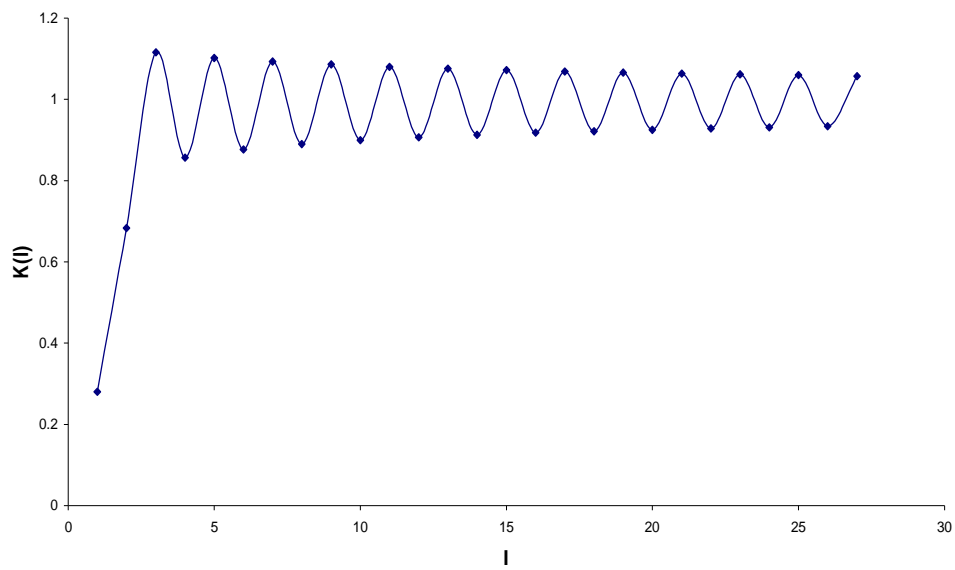


Picture 1. $\alpha = 2, \beta = 1.2$



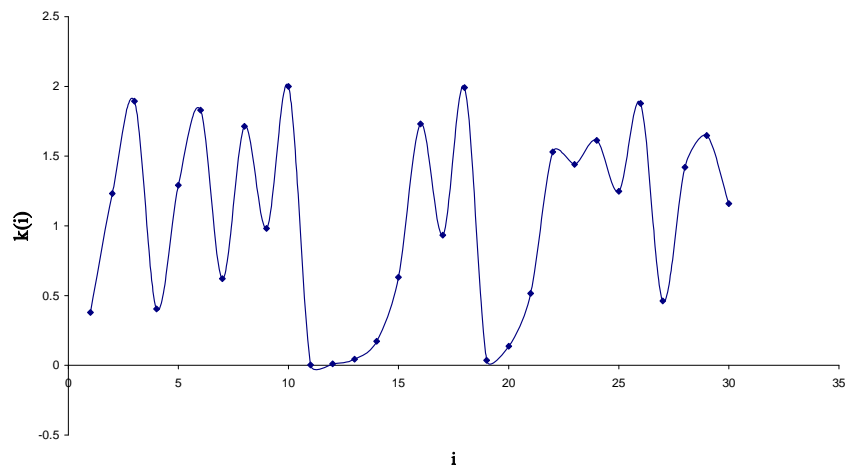
Picture 2. $\alpha = 2.5, \beta = 2$

economic growth



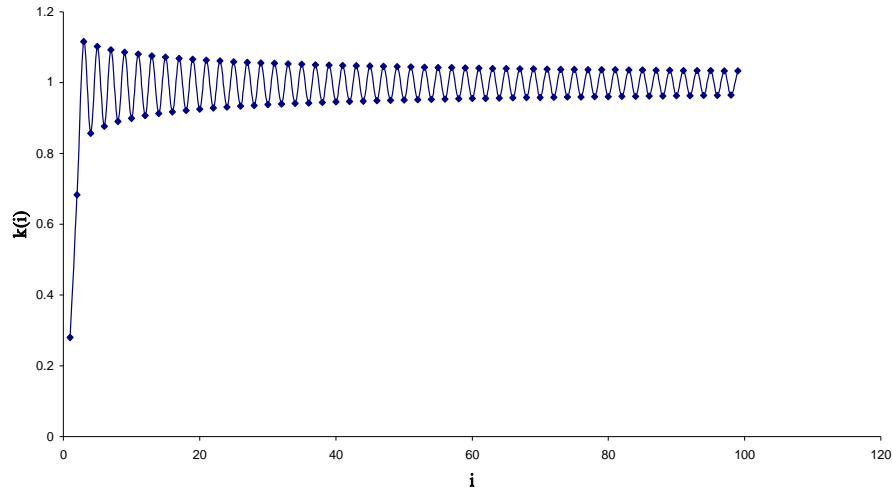
Picture 3. $\alpha = 3, \beta = 2, k(0) = 0.1$

economic growth



Picture 4. $\alpha = 4, \beta = 2, k(0) = 0.1$

economic growth



Picture 5. $\alpha = 3, \beta = 2, k(0) = 0.1$

Results of the experiment of carried out taken away the counting show that one or another dynamics is observed in the economical system depending on prices of these parameters. So, when was in the dynamics of the system from the price, mark of parameter independently and it is observed stable. But, but 2 grains happen losing gradually of stopping observed in the dynamics of the system when price of parameter changes until 3 -as and at last, chaos is observed in the dynamics of the system.

Analysis of the results of the experiment of the counting shows that determiner to describe the chaotic dynamics observed in the real economical systems is/are the possible on the basis of model.

Literature

1. Peters. Chaos and the order in the markets of the capital. M., 2000.
2. S. Dzarasov. The theory of the capital and economic growth. Publishing house of the Moscow State University, 2004.