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METHODICAL PRINCIPLES OF STABILITY ASSESSMENT OF THE SOCIAL-ECONOMIC SYSTEMS

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*The article deals with the functional development of the social economic systems (the SES) of different types. Development of the SES can be steady for a sufficiently long period. Of course, any SES develops through certain cycles, repeated at regular intervals, which means the arising of the appropriate crises. In addition, as theory and practice of management shows, the crisis of the SES is somehow a positive fact, since it stimulates the search and implementation of new management methods and tools. Crisis is some kind of filter of natural selection and checking SES ability to survive.*

*This paper analyses stability. It is argued that the main starting condition for sustainable development is an internal quality system. The essence of the concept of stability in the activity of industrial and economic system is defined. It is noted that the stability is an indicator of the quality of management system, internal quality mechanism of functioning of the SES.*

*It is concluded that stability is a sign of the quality of processes, their controllability and minimization of risks. Moreover, it can be identified with the concepts of consistency, ordering, and handling. The stability of the SES means that the results of its activities have minor fluctuations regarding a particular medium trend of development. The more the spread of indicators around a particular trend, reflecting the results of economic activity of SES, the more random processes in these results. The more factors' influence on the result that are not governed the less organized internal mechanisms and appropriate processes. This leads to the fact that activities' results of the SES are random and not natural variables. Randomness is a feature of not controllability of process. Randomness is a sign of SES's low quality of management system as a whole or its individual processes.*

**Keywords:** stability; socio-economic system; indicators of stability, rhythm system.

**Czyszyt S., Prylepow M. PODSTAWY METODYCZNE OCENY STABILNOŚCI SYSTEMÓW SPOŁECZNO-EKONOMICZNYCH**

*W artykule przedstawiono rozwój funkcjonalny systemu społeczno-ekonomicznego (SSE) różnych typów. Rozwój SSE rozwijał się przez stosunkowo długi okres czasu lin-*

earnie. Oczywiście, każdy SSE rozwija się cyklicznie i powtarza się przez określony okres czasu, co oznacza pojawienie odpowiednich zjawisk kryzysowych. Ponadto, jak pokazuje teoria i praktyka zarządzania, kryzys SSE w taki czy inny sposób jest pozytywnym zjawiskiem, ponieważ stymuluje proces poszukiwania i wdrażania nowych metod i narzędzi zarządzania. Kryzys jest rodzajem filtra doboru naturalnego i instrumentem sprawdzenia konkretnego SSE.

**Słowa kluczowe:** stabilność, system społeczno-ekonomicznych, wskaźniki stabilności, rytm, systemy.

#### **Чимшит С.И., Прилепова М.О. МЕТОДИЧНІ ЗАСАДИ ОЦІНКИ СТАБІЛЬНОСТІ СОЦІАЛЬНО-ЕКОНОМІЧНИХ СИСТЕМ**

У статті розглядається функціональний розвиток соціально економічної системи (СЕС) різного типу. Розвиток СЕС має бути постійним протягом досить великого проміжку часу. Звичайно, будь-яка СЕС розвивається через певні цикли, що повторюються з певною періодичністю і означають появу відповідних кризових явищ. Крім того, як показує теорія і практика менеджменту, криза СЕС в тій чи іншій мірі є позитивним явищем, оскільки стимулює з пошуку і впровадження нових методів та інструментів управління. Криза є свого роду фільтром природного відбору, перевірка на здатність СЕС до виживання.

**Ключеві слова:** стабільність; соціально-економічна система; показники стабільності, ритмічності, системи

#### **Чимшит С.И., Прилепова Н.А. МЕТОДИЧЕСКИЕ ОСНОВЫ ОЦЕНКИ СТАБИЛЬНОСТИ СОЦИАЛЬНО-ЭКОНОМИЧЕСКИХ СИСТЕМ**

В статье рассматривается функциональное развитие социально-экономических систем (СЭС) разного типа. Развитие СЭС может быть постоянным на протяжении достаточно большого промежутка времени. Конечно, любая СЭС развивается через определенные циклы, повторяющиеся с определенной периодичностью, что означает появление соответствующих кризисных явлений. Кроме того, как показывает теория и практика менеджмента, кризис СЭС в той или иной степени положительное явление, поскольку стимулирует поиск и внедрение новых методов и инструментов управления. Кризис является своего рода фильтром естественного отбора и проверкой на способность СЭС к выживанию.

**Ключевые слова:** стабильность; социально-экономическая система; показатели стабильности, ритмичности, системы.

#### **Introduction**

The functioning and development of the social and economic system (hereafter – the SES) of various types (enterprise, industry, probably economy of the country) can occur only under certain external and internal conditions. The SES development should be sustainable over quite a long time. Of course, any SES develops through certain cycles that are repeated at regular intervals and that mean the emergence of appropriate crisis. There is no SES that has not been exposed to some crisis throughout its life cycle. In addition, as it is proved by

theory and practice of management, the SES crisis in one way or another is a positive phenomenon, because it stimulates to finding and implementing new methods and management tools. The crisis is a kind of filter of natural selection, the SES's test on ability to survive.

Directly the SES's development before, during and after the crisis is important. The SES can grow. For instance, sales volumes in the company can grow on average by 15% each year during 4 years. However, during the crisis, the company can lose everything and even more. That means the rapid growth and deep fall. Alternatively, the company may have average growth rate of 2-3%, and during the crisis, it may lose only 5%. As practice shows, the likelihood of bankruptcy in the first case is several times higher and therefore the likelihood that the SES will cease to exist. Such ragged rhythm of development causes severe consequences for the state and prospects of development. It is clear that in the first case the SES will need at least 2-3 years to start the growth again. In the second case, the SES will grow probably next year, or in a year.

The main starting condition for sustainable development is an internal quality system. For example, the SES cannot control a number of external environment factors. Therefore, they directly affect its activities, but they are the same for all. For instance, the leap of the national currency is the only for all importers of computer equipment or household appliances. Why are some able to adapt and survive, while others cease their activities? The drop in demand and therefore in the price happens for all metal producers on the external markets. Why do some manufacturers have significant losses and are on the verge of bankruptcy, and others, for example, are able to get even a small income? Why does Ukraine lose 30% of GDP and Germany 5% during the global financial crisis? All are in the same conditions. This happens because the internal mechanisms are built in such a way that they are of a better quality in some than in others. Thus, it is almost impossible to control external factors. Nevertheless, each SES is able to adapt in different ways, to generate new solutions and to support regime of functioning according to a constructed system.

### **Statement of research objectives**

It should be noted that indicators of stability, rhythm and system reliability are key characteristics of internal quality system. This paper is devoted to the analysis of one of these characteristics – stability. It should be noted that this direction of analysis of SES is new, but very promising one.

### **Results**

First step is to define the essence of the concept of stability in the activity of industrial and economic system. Note that the stability is an indicator of the quality of management system, internal quality mechanism of functioning of the SES.

The stability of the socio-economic system (the SES) means that the results of its operations have minor variations concerning a particular medium trend of development. The main hypothesis is the following: the more variation of indicators reflecting the results of economic activity of SES are around a particular trend, the more random processes are in these results. The more factors that are not governed affect the result, the less organized internal mechanisms and related processes are. Therefore, from period to period these indicators will have significant differences, moreover, without any regularity. Thus, activities' results of the SES are random and not natural variables. Randomness is a feature of not controllability of process. Randomness is a sign of SES's low quality of management system as a whole or its individual processes. This means that the leadership of the SES does not control processes and they happen by themselves. In some cases, it gives such result and in other cases it gives the opposite result.

The presence of the general trend with relatively high index of approximation is a sign of high quality management system. The absence of such trend, or the presence of a certain amount, so to speak, of not typical results is a sign of low quality management system. The SES management system of a high quality will give consistently high positive result that will allow developing the company in the future over a significant time period.

This equally applies to extremely complex social and economic systems, as the economy of a particular country, and relatively simple ones – companies. General methodological positions as defined above will be identical for all socio-economic systems. This is why later in this paper we will use SES calculations of different difficulty levels.

In other words, one can say that studying the stability of SES's activities as a whole and its individual processes in particular, researcher should answer the question of whether these results fit into normal distribution law. Of course, incidental events can occur in any case of any SES's activity. These developments will lead to rather irregular results. However, an insignificant number of such events happens when the company operates at a high internal quality management system. For example, one or two indicators do not fit into the overall trends from a sample of ten or more indicators. They can be temporarily excluded from the analysis because they will artificially distort the overall trends. These cases need to be analyzed individually and to conduct separate analyzes. Nevertheless, these are random events and they are less interesting to the researcher. For example, in 2012 Ukraine hold a certain event (Euro 2012). This is a major event within the whole economy and it needed considerable investments in infrastructure. Nevertheless, not before, not after, nothing like this happened. Therefore, certain figures of that year may be artificially high / understated and

not such that do not meet the general macroeconomic trends. Therefore, the first step requires the analysis of the sample / the general totality for the major errors.

This methodical approach also allows you to assess the level of risk of existing internal economic mechanism of the company and its industrial and economic activities. The less stable the SES is, the higher the risks of its activities are.

Another important aspect in the management system should be noted. The lack of stability does not allow SES to plan adequately its activities. The variability is too high. Control in the management process becomes inefficient without credible plan. So at least two management functions cannot be efficiently performed out of generally known four management functions.

It should be noted that the concept of stability is often equated with the concept of sustainability. Note that these are slightly different aspects of the SES' activities. Sustainability as a synonym is closer to the concept of the viability of the system, its adaptability, the possibility to adapt and survive. Stability is a sign of the quality of processes, their controllability and minimization of risks. Stability can be identified with the concepts of consistency, ordering, and handling. So methodical base of analysis of these concepts is fundamentally different.

You can use indicators that reflect the extent of the spread of a particular indicator regarding certain average trend for the analysis of stability in the simplest form. It is proposed to use relatively simple indicators: dispersion, standard deviation, mean square deviation and more. You can also use the coefficient of approximation.

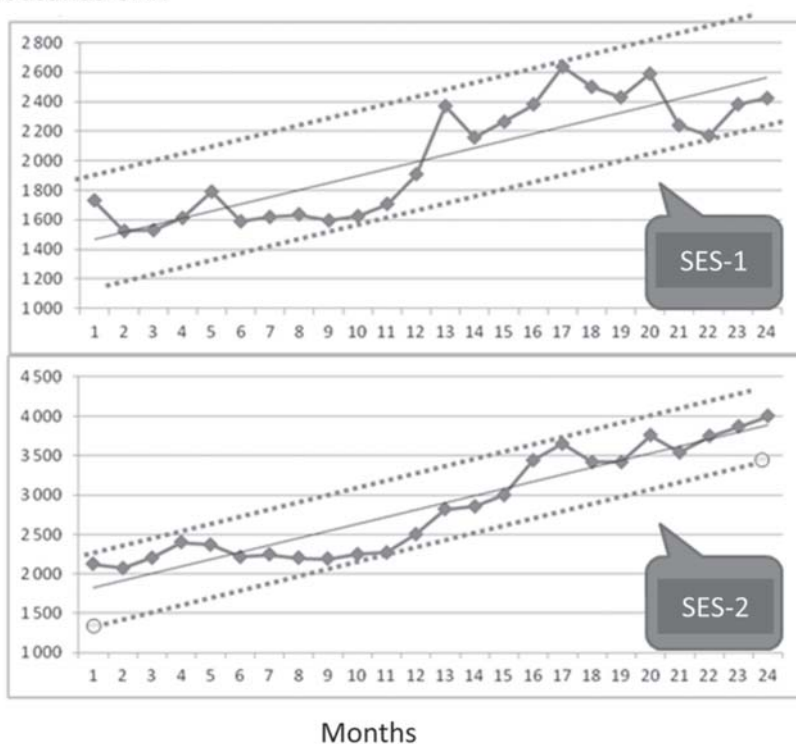
Figure 1 shows an example of sales volumes of two companies' products of one industry for two years in months. As we see, even visually stability of sales volumes of SES 2 is higher than in SES 1, which is confirmed by the spread width. Hence, the variability relative to the average trend is much lower.

The use of index approximation for analyzing the sustainability of the SES is based on the following considerations.

There is a certain array of indicators based on which we can derive appropriate mathematical relationship, and describe it by a specific function. In this case, it does not matter which one exactly. The view of this feature is another question: what it is and what it should be. Thus, the existence of mathematical dependence means the presence of a particular regularity, which we are able to formalize in one form or another.

All deviations from this function mean certain misbalance of the system. The more these deviations are, the bigger they are in values, the greater the likelihood that the received result is random, because it does not fit the pattern.

## Thousands UAH



The attention should also be drawn to the fact that at a certain stage of SES's development the origin of fundamentally new trends and patterns may occur. They can emerge spontaneously from the outside without the knowledge of SES's management.

If we analyze them from the standpoint of the past, they will negatively reflect indicators of stability until these indicators take a particular critical mass and it will become evident that these are new phenomena in SES's activities. In this case, the researcher should make appropriate adjustments in the analysis. How can he beforehand recognize these phenomena and understand that they are not random problems, but sustainable trends? Because of limitations into scope of this work, we will leave this question unanswered. We note only one thing: a constant monitoring of indicators of stability with minimal period is needed. Typically, a new trend can already be recognized in the 3rd-5th meaning.

Often cases are possible where the growth rate of sales volume in given period of a company with lower stability is higher than sales volume of a similar company with a higher stability. However, it should be noted that not only the sum of current implementation determines the efficiency of production and economic system, especially as it is only about short period. It is likely that, for example, the total profit or profitability of sales (profit is high quality integrated performance indicator) will be lower in the first company. Alternatively, perhaps it can be higher, because the casualty for this company is higher. Therefore, it is difficult to give some assessment. Risks are higher in less stable SES, especially risks of uncertainty of their behavior and outcomes. Higher current performance realization indicators with less stability usually lead to more losses in the future.

In general, it should be noted that it is difficult to predict the behavior of systems with high levels of variability, and after some threshold of the variability, it is impossible. It is meaningless to build certain plans and to give them beforehand assessment. The error in the plans / forecasts will be very high and will not represent a significant interest for management. The final performance indicators will be able to set only post factum, but then it will not be possible to change anything.

You can use a more complex indicator – the stability coefficient to characterize the uniformity of certain processes. It can be calculated as follows:

$$KCT = 1 - CB / CA3 \quad (1)$$

where KCT – the stability coefficient;

CB – standard deviation;

CA3 – the arithmetic mean value.

The second more complicated way to study stability of the SES functioning is building trend lines and calculation of the approximation coefficient.

With all listed indicators of you must first assess:

- o income of the company;
- o operating income and operating profitability of sales;
- o remnants of raw materials, finished products and receivables;
- o net income and total profitability of sales, assets and equity;
- o cost as a whole and for individual groups of costs;
- o labor complexity rates, material consumption, energy intensity, administrative and management costs, and marketing costs;
- o weighted average cost of capital;
- o net cash flow;
- o level of indebtedness.

When it comes to the calculation of stability indicators, it is necessary to remember about the presence of cycles in the enterprise work caused by, for example, seasonal demand for products or seasonal production (construction, agriculture, etc.). Therefore, one of the initial conditions for analysis of stability is to determine business cycles.

When you study stability, it is important to understand two aspects:

1. Parameters of mathematical dependence (various economic processes have a different shape of this dependence: stable linear, increasing linear, polynomial of the 2nd degree polynomial of the 3rd degree, etc.). The researcher should understand that the ideal figure, such as unemployment or inflation in the economy should be in the form of a stable linear dependence of the type  $y = b$ , all fluctuations around this line are a manifestation of instability.

2. The scope of permissible fluctuations, which in each case will be different. We must interpret them differently (fluctuations + 10% of income for the company or its operating profit is a remarkably high stability rate. However, for example, for material costs per unit of output, or average wages it is contrary extremely high variability).

Very often, the value of the stability indicator of a particular parameter of the SES's operation has not as great importance as its dynamics has. It is advisable to compare the indicators of the enterprise according to different periods and to observe how this figure changes. To do this, you need to select a sufficient sample size. If the reporting system allows, you need to take a week, which is the 52nd value as the base. When it comes to difficult SES, then perhaps you need to take according to years (e.g. GDP of the country, industrial production index, inflation, etc.). Once the SES has worked a certain period, the new value is added to survey and the last value is ejected. This is a kind of moving average method.

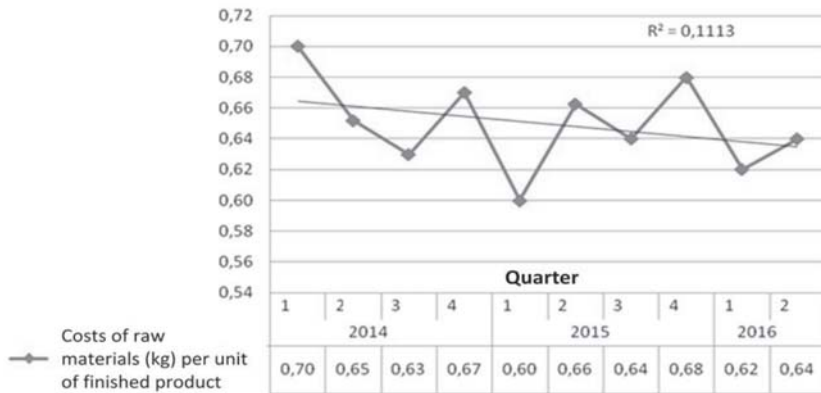
Let us consider an example of the SES's stability analysis (in this case the production company) by such indicator as material consumption. Figure 2 shows calculations of material consumption of one of food industry's companies.

What conclusions can be drawn from the above data other conditions being equal?

First, this may indicate shortcomings and significant problems in production technology (deficiency, waste, yield coefficient of product, etc.).

Secondly, the company loses a lot. The difference between the maximum and minimum value potentially is 100 grams per 1 unit of product. Given the share of this component in the total cost of production (in this case it is 63-65%) and its price, these are significant indicators.





Thirdly, this leads to corresponding changes in production costs. Of course, the company cannot change the price of its own output in this way. Therefore, the price remains most likely a stable one. If it is calculated on the minimum threshold of costs of these raw materials, the company loses profit. If it is calculated on the maximum, the company has a slightly inflated price and may lose a certain number of customers. If the company adjusts price every time, the consumer will see the volatility of pricing policy. He/she will think why that is. The consumer also needs stability. There is a high probability that he/she will suspect something is not good and “just in case” will abandon production of this producer. Consequently, the price should be kept stable. However, then the profit of the company will vary considerably.

Let us consider more complex example for more complex SES.

We will take economies of five countries: the USA, Germany, Spain, Greece and Ukraine for the analysis. To some extent, we have known in advance the quality of social and economic processes of that or another country. Therefore, we need to get confirmation of the hypothesis that is described above after calculations.

Let us start with the key performance indicators of the SES - GDP.

From these calculations, we see that the economy of Ukraine (if judged only in terms of GDP) is much less stable than, for example, economies of Germany or the USA. Moreover, in this indicator we are inferior even to countries such as Greece or Spain. It testifies that the processes that occur in our economy are not managed. Therefore, they are casual in the vast majority. The internal quality system and components of the mechanisms are very low. Otherwise, Ukraine's economy operates on its own. When due to certain external factors

there is growth, it also grows. When negative external factors occur, it collapses. Moreover, this does not depend, for example, on economic policy of the state. The mechanism is an uncontrollable one. The results are random. The year 2009 is taken as a threshold that divides the economy “before” and “after” crisis. The table shows what happened after the crisis, how stable and manageable systems reacted and how economies of other countries reacted. Germany’s economy lost -8.9%. The situation was stabilized next year. Two years later the country’s GDP has surpassed pre-crisis rate. Ukraine’s economy lost 35%. It reached pre-crisis level only 5 years after. Interesting that Greece and Spain, which have also extremely low indicator of stability, have not been able to reach the pre-crisis period by year 2014.

**Table 2.**

**Calculation of Stability Indicators for Different Economies (in billions USD, according to the World Bank)**

|                    | GDP of Germany | GDP of the USA | GDP of Spain | GDP of Greece | GDP of Ukraine |
|--------------------|----------------|----------------|--------------|---------------|----------------|
| 1992               | 2123           | 6539           | 629          | 116           | 74             |
| 1993               | 2069           | 6879           | 524          | 109           | 65             |
| 1994               | 2206           | 7309           | 529          | 117           | 53             |
| 1995               | 2592           | 7664           | 613          | 137           | 48             |
| 1996               | 2504           | 8100           | 641          | 146           | 44             |
| 1997               | 2219           | 8608           | 589          | 143           | 50             |
| 1998               | 2243           | 9089           | 617          | 144           | 42             |
| 1999               | 2200           | 9661           | 633          | 142           | 32             |
| 2000               | 1950           | 10285          | 595          | 130           | 32             |
| 2001               | 1951           | 10622          | 626          | 136           | 38             |
| 2002               | 2079           | 10977          | 705          | 154           | 42             |
| 2003               | 2506           | 11510          | 906          | 202           | 50             |
| 2004               | 2819           | 12275          | 1069         | 240           | 65             |
| 2005               | 2861           | 13094          | 1157         | 248           | 86             |
| 2006               | 3000           | 13856          | 1265         | 273           | 108            |
| 2007               | 3440           | 14477          | 1479         | 318           | 142            |
| 2008               | 3752           | 14718          | 1635         | 354           | 180            |
| Average error      | 0,116          | 0,02           | 0,19         | 0,17          | 0,45           |
| Standard deviation | 507,1          | 2 596,9        | 342,1        | 73,5          | 39,6           |

|                 |         |          |       |       |      |
|-----------------|---------|----------|-------|-------|------|
| Arithmetic mean | 2 500,8 | 10 333,1 | 836,0 | 182,9 | 67,7 |
| Stability index | 0,80    | 0,75     | 0,59  | 0,59  | 0,41 |
| 2009            | 3418    | 14419    | 1499  | 330   | 117  |
| 2010            | 3417    | 14964    | 1431  | 299   | 136  |
| 2011            | 3757    | 15518    | 1488  | 288   | 163  |
| 2012            | 3539    | 16163    | 1339  | 245   | 176  |
| 2013            | 3745    | 16768    | 1369  | 239   | 183  |
| 2014            | 3868    | 17419    | 1381  | 235   | 132  |

Of course, these calculations are only an illustration of the calculation methodology. It is impossible to make serious conclusions about the state of the economy and the quality of its mechanisms based on only one indicator of GDP.

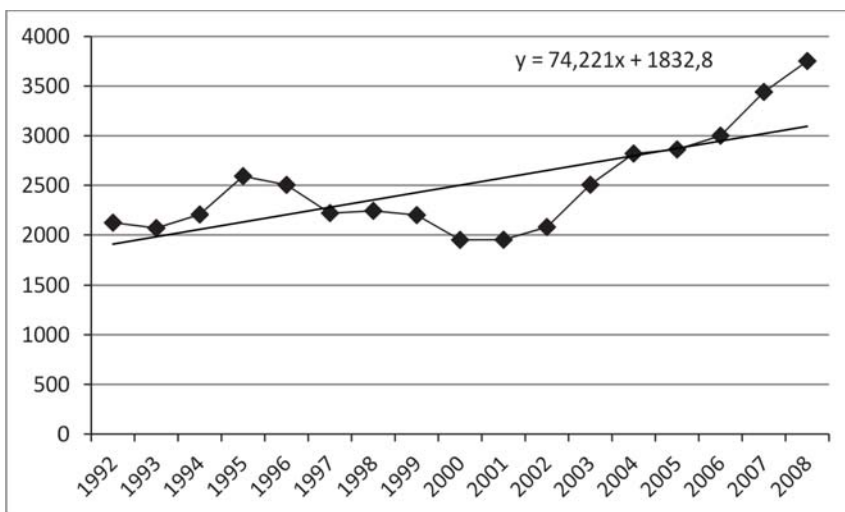
If you hold such an analysis using the average error indicator, we get similar findings.

Be noted that ideally the function of trend should be of type  $y = kx + b$  and no other. The only difference would lie in the fact that US economy will look more reliable than Germany's one. An example of calculation is presented in Table 3.

**Table 3.**  
**The Example of Calculation of Average Error of GDP for Germany**

|             | GDP of Germany | GDP growth equation    | Value according to regression line | Error | Percentage of error | Average error |
|-------------|----------------|------------------------|------------------------------------|-------|---------------------|---------------|
| <b>1992</b> | 2123           | $y = 74,221x + 1832,8$ | 1907,0                             | 216,0 | 0,10                | 0,116         |
| <b>1993</b> | 2069           |                        | 1981,2                             | 87,8  | 0,04                |               |
| <b>1994</b> | 2206           |                        | 2055,5                             | 150,5 | 0,07                |               |
| <b>1995</b> | 2592           |                        | 2129,7                             | 462,3 | 0,18                |               |
| <b>1996</b> | 2504           |                        | 2203,9                             | 300,1 | 0,12                |               |
| <b>1997</b> | 2219           |                        | 2278,1                             | 59,1  | 0,03                |               |
| <b>1998</b> | 2243           |                        | 2352,3                             | 109,3 | 0,05                |               |

|             |      |  |        |       |      |  |
|-------------|------|--|--------|-------|------|--|
| <b>1999</b> | 2200 |  | 2426,6 | 226,6 | 0,10 |  |
| <b>2000</b> | 1950 |  | 2500,8 | 550,8 | 0,28 |  |
| <b>2001</b> | 1951 |  | 2575,0 | 624,0 | 0,32 |  |
| <b>2002</b> | 2079 |  | 2649,2 | 570,2 | 0,27 |  |
| <b>2003</b> | 2506 |  | 2723,5 | 217,5 | 0,09 |  |
| <b>2004</b> | 2819 |  | 2797,7 | 21,3  | 0,01 |  |
| <b>2005</b> | 2861 |  | 2871,9 | 10,9  | 0,00 |  |
| <b>2006</b> | 3000 |  | 2946,1 | 53,9  | 0,02 |  |
| <b>2007</b> | 3440 |  | 3020,3 | 419,7 | 0,12 |  |
| <b>2008</b> | 3752 |  | 3094,6 | 657,4 | 0,18 |  |



**Figure 3.** GDP of Germany

In its turn, the approximation indicator of this function  $R^2$  will make 0.51. Difficult for German economy years from 2000 to 2003 are the reason for such low indicator.

If we conduct stability studies through this indicator, we will have the following meanings:

For the USA = 0,99;

For Spain = 0,75;  
 For Greece = 0,78;  
 For Ukraine = 0,37;

Table 4 shows the results of calculations of several more macroeconomic indicators.

**Table 4.**  
**Calculation of Inflation and Unemployment Indicators**

|                     | Standard deviation | Arithmetic mean | Stability index |
|---------------------|--------------------|-----------------|-----------------|
| <b>Germany</b>      |                    |                 |                 |
| <b>Inflation</b>    | 0,011              | 2,03%           | 0,44            |
| <b>Unemployment</b> | 0,011              | 8,74%           | 0,87            |
| <b>The USA</b>      |                    |                 |                 |
| <b>Inflation</b>    | 0,006              | 2,67%           | 0,79            |
| <b>Unemployment</b> | 0,009              | 5,46%           | 0,83            |
| <b>Spain</b>        |                    |                 |                 |
| <b>Inflation</b>    | 0,027              | 4,15%           | 0,36            |
| <b>Unemployment</b> | 0,055              | 15,54%          | 0,65            |
| <b>Greece</b>       |                    |                 |                 |
| <b>Inflation</b>    | 0,041              | 5,98%           | 0,32            |
| <b>Unemployment</b> | 0,011              | 9,59%           | 0,89            |
| <b>Ukraine</b>      |                    |                 |                 |
| <b>Inflation</b>    | 0,193              | 18,88%          | 0,02            |
| <b>Unemployment</b> | 0,019              | 8,52%           | 0,77            |

In this case, our assumption is fully confirmed. The most stable is the economy of the USA. It is followed by Germany. Spain and Greece are considerably inferior to the first two economies. Ukraine does not even reach two, probably the worst economies in the EU.

In this case also we must remember that the level of unemployment or inflation in each country differs significantly, which in itself is important. This figure clearly shows the indicator of standard deviation and Arithmetic mean. For example, average inflation from 1992 in Greece is 5.98%, in the United States it is 2.67%.

Overall estimates confirm the main thesis - more stable SES are more manageable, results of their activities are not random, but natural. Such SES are more effective, they are developing stably and better tolerate crisis.

The proposed methodological provisions also allow making some forecasts. Less stable SES may develop more rapidly in some short period (Ukraine in 2004-2008), but even in the medium term they will give up in their development to more stable SES. The reason for that, above all, will be more failures during the crisis. These SES are unable to resist external interference efficiently; they do not have appropriate potential for this. Stability is primarily a sign of the quality of system and its potential.

In addition to these aspects, the stability analysis can be used as an auxiliary tool. For example, it is possible to use side indicators such as earnings stability in the analysis of the solvency of the company and its financial stability. Let us suppose that the company has debts for the total amount of 100 thousands hryvnia. It should be paid in the current period, for example, a week. The company also has some revenues, which are in average approximately 300 thousands hryvnia per day. So theoretically, the company receives weekly earnings of 150 thousands hryvnia and it has to pay 100 thousands hryvnia. Mathematically everything is fine. However, if the company has a low-income stability, it causes significant risks whether it will receive 150 thousands hryvnia this week. It is quite possible that 90 thousands hryvnia will be received this week and 210 thousands hryvnia will be received next week, for example. Nevertheless, money is needed this week.

Let us give another case. The company's management is considering the possibility of saving costs by buying large amounts of raw materials and getting additional discounts. Overall, this will reduce liquidity and turnover, but this should be compensated by an increase in profitability. The supplier provides a standard deferred payment of 3 weeks. The question is – will it not violate a financial mechanism of the enterprise? Maybe the company will have to apply to credit funds and then the interest payments on loans will block further benefit from the discount. In this case, if stability of sales is low, it is likely to lead to the situation that products produced from raw materials will not be fully realized in the current period, money for it will not be received in full. Therefore, the difficulties will occur with payment to suppliers.

In addition, sales stability allows more effectively planning material and technical support of the company and keeping smaller material reserves. For example, additional excessive raw materials remains in the warehouse, which the company holds to ensure the continuity of production, are frozen financial resources.

Here it is possible to bring another rule - unstable SES should have greater reserves to balance their activities. It leads to excessive use of capital and, consequently, to the reduction of their performance. The capital of the SES is not used efficiently – low turnover, low productivity, low return on capital. If such system does not hold reserves, it will have to compensate for this with additional borrowed resources. This in turn, will violate its financial stability, solvency and high added value losses due to the required interest payments to creditors. For example, an unstable SES Ukraine has today (2016) 16.2% for repayment of debt within the structure of budget expenditures. That means that every sixth hryvnia in the state budget is not spent on social and economic development, but is given to creditors. By the way, all three economies of Spain, Greece and Ukraine, which had low rates of stability, are bankrupt in one form or another today, because they did not have their own reserves.

### **Conclusions**

Stability is an indicator of the quality of management system, internal quality of mechanism of functioning of SES. Stability is a sign of the quality of processes, their controllability and minimization of risks; it can be identified with the concepts of consistency, ordering, and handling. The stability of the SES means that the results of its activities have minor fluctuations regarding a particular medium trend of development. The more the spread of indicators around a particular trend, reflecting the results of economic activity of SES, the more random processes in these results. The more factors' influence on the result that are not governed the less organized internal mechanisms and appropriate processes. This leads to the fact that activities' results of the SES are random and not natural variables. Randomness is a feature of not controllability of process. Randomness is a sign of SES's low quality of management system as a whole or its individual processes.

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