

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
ФАКУЛЬТЕТ ІНОЗЕМНОЇ ФІЛОЛОГІЇ
ТА СОЦІАЛЬНИХ КОМУНІКАЦІЙ**



СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА

**МАТЕРІАЛИ ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ ВИКЛАДАЧІВ,
АСПІРАНТІВ, СПІВРОБІТНИКІВ ТА СТУДЕНТІВ**

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top. The Ministry of Land, Infrastructure and Transport considers that the condition of the vehicle must correspond to the inspection issued by Japanese laws. If at least one of a hundred does not meet safety standards, ecology sticker will not be issued. Use of a vehicle without sticker in Japan is impossible. The mandatory technical control costs very expensive, and for vehicles with over 5 years exploitation CTC price increases. That is why it is more profitable for Japanese motorists to sell their vehicles before the expiration of CTC term and to buy new ones.

So, the analysis of comparative characteristics of mandatory technical inspection undertaking of vehicles turned out that the procedures of CTC undertaking in Ukraine, Germany and Japan are different. The stages, cost and parameters of the compulsory technical control also distinguish.

THE ROLE OF ENTREPRENEURSHIP IN ECONOMIC DEVELOPMENT

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The functioning of a market economy is inextricably linked to its main actors. It is economic man (*homo economicus*), which is characterized by rational behavior, their own interests, actively striving for the realization of personality, willingness to take risks and assume responsibility. The implementation of these individual interests takes place in conditions of economic and business activities. In modern conditions this activity got its name as a entrepreneurship or a business that is the potential for economic growth of the country with a market economy type.

Entrepreneurship is a necessary defining feature of the market, it is a mandatory feature. The market cannot exist without entrepreneurs, and on the contrary, the market mechanism creates favorable conditions for the activities of resourceful business people, develops different forms of entrepreneurship and so it becomes the foundation of economic development.

The basis of developed economies are primarily small and medium-sized enterprises, which immediately react to the slightest market changes, adjusting its own economic behavior and thus ensuring a steady state of the economic system as a whole.

The development of small and medium businesses corresponds global trends in the formation of the flexible mixed economy, the combination of different forms of ownership and their adequate management model, which is implemented in a complex synthesis of the competitive market mechanism and state regulation of large, medium and small-scale production. And if big business is the backbone, the axis of the modern economy, the diversity of medium and small business is the muscle, the living tissue of the economic organism..

Every state sets its own criteria for the distribution of the enterprises according to their size for example small, medium and large business depends on the nationality, industrial grades, economy and industrial culture. The value of small business is very high in the economy. Market economy cannot operate and develop without small and medium-sized business. In a market economy, small and medium business is a leading sector, which determines the rate of economic growth, structure and quality of gross national product; in all developed countries, small business amounts 60 - 70 percent of GDP.

Small and medium business is one of the factors of economic growth. The role of small and medium businesses is indispensable in solving the most pressing economic and social problems. Without requiring a significant investment by the state, small and medium business contributes to a "healthy" competitive environment, the establishment of market balance, the creation of new of workplaces, the formation of the middle class, meeting the various needs of the population, which ultimately leads to sustainable economic growth.

With this in mind, we might consider the following conclusions:

- increasing in the number of owners, and thus the formation of the middle class is the main guarantor of political stability in a democratic society;
- increasing in the share of economically active population, which increases incomes and smoothes out disparities in well-being of different social groups;
- selection of the most energetic, capable individuals, for whom a small business becomes a primary school of self-realization;
- creation of new workplaces with relatively low capital costs, especially in the service sector is important;
- employment of workers who are redundant in the public sector, as well as representatives of vulnerable groups;
- training of workers with limited formal education who acquire their skills on the job;

- elimination of monopoly producers, creation of a competitive environment;
- mobilization of material, financial and natural resources that otherwise would remain unused and their more effective use;
- better relationship between the sectors of the economy.

DRIVEN ANHARMONIC OSCILLATOR: CLASSICAL AND QUANTUM ANALYSIS

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The existence of a perfectly isolated quantum system is impossible. In reality, no quantum system is completely isolated from its surroundings, so every quantum system is open to some extent. The dynamics of any open quantum system is described by Lindblad equation [1].

The anharmonic oscillator is one of the most important models in the study of physics. Classically, it is used to describe oscillating systems in which the proportionality between the acting force and the displacement is not purely linear. This is often the case when describing the forces between atoms or molecules, i.e. on a microscopic scale. Therefore, the anharmonic oscillator occupies an important role in the field of quantum mechanics, for example in solid state systems or the theory of dynamical chaos, etc.

We consider the model of open nonlinear quantum oscillator with a periodic modulation. The model has a classical analogue, namely the dissipative nonlinear oscillator that allows the chaotic attractors as an asymptotic solutions. It is expected that a quantum system in terms of Lindblad approximation has quantum attractor, i.e. an asymptotic state, which carries the “prints” of the classical chaos. Our aim of the research is to investigate the relation between the classical dissipative chaos and the quantum attractors of open quantum systems.

We have used the method of quantum jumps to find the quantum attractor of the considered model system. This method allows to reduce the calculations significantly. If N is the number of system states, than we need to average the solutions of Schrödinger quasi-equation only with N variables instead of finding the N^2 variables of Lindblad equation.