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THE DEVELOPMENT OF SMALL BUSINESS AS THE BASIS FOR THE SUCCESSFUL FUNCTIONING OF THE LATVIAN ECONOMY

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Abstract
In Latvia, as in many developed countries, micro and small enterprises make up a large proportion (over 98%) of businesses. Small business is not given due attention, there is no general concept of small business development, and there is a lack of support system for start-up entrepreneurs. The objective of the article is to identify the main socio-economic factors and the nature of their influence on the functioning of micro and small enterprises in Latvia. The novelty of the research lies in the fact that for the first time the overall system analysis of the main factors affecting the functioning of the small business cluster in Latvia has been performed. The object of the research is a cluster of micro and small enterprises in Latvia. The goal of the research is to develop recommendations for improving the functioning conditions of small businesses. Methods of research comprise system analysis, analysis of statistical data and mathematical modeling.
The theory of soft systems has been applied, in which the subjective factor (i.e., people) plays an important role. A cognitive map has been developed that reflects the interconnections and influence of the main socio-economic factors on the work of small and micro businesses in Latvia. The developed cognitive map is a sign directed graph – a mathematical model. It is established that the digraph under consideration and the system described are unbalanced. In general, the system is not stable enough. The situation of micro and small enterprises may deteriorate under the influence of various factors. According to the graph theory, the corresponding system of factors will be both absolutely and pulse unstable. This means that some impact on the system at one of its vertices can cause a "chain reaction" at other vertices and lead to undesirable consequences. To predict the behaviour of the system described by the digraph, an analysis of pulse processes in the system has been performed. Pulse is a single impact on the vertex of the digraph, for example, the effect of legislative change in taxes on enterprises in the direction of their reduction or increase. Using the calculated forecast values of the digraph vertices, it has been found out that the most positive influence on the functioning of micro and small enterprises is made by the state. As a result, this contributes to the growth of people's income, the inflow of working-age population and qualified personnel into the regions and a decline in the unemployment rate. As a result, the state also benefits, since the increased tax revenues are collected, the unemployment rate is reduced and less people move abroad for work. Political tension and international sanctions also exert a negative impact on small businesses. They lead to the opposite effect – lower income, higher unemployment rate, the departure of people to work abroad and the "decline" of individual regions.
KEY WORDS: micro and small business; state aid; graph theory.

Introduction

In Latvia, as in most developed countries of the world, the economy is based on micro and small enterprises – more than 98% of all enterprises by number (Kochetkov, Sventitskaya 2016). In the European Union as a whole, such enterprises account for about 99% of all enterprises, and about 65% of private sector employees work for them (Sventitskaya, Kochetkov 2018 [1]). In Latvia, these enterprises employ the majority of the country's able-bodied population. Micro and small enterprises in Latvia are functioning quite successfully. For example, they survived better than many larger enterprises during the last world financial and economic crisis of 2008–2010 and quickly began to increase output after the crisis ended.

Micro and small enterprises successfully cooperate with larger enterprises, often performing unusual tasks (Siropolis 1990). In highly developed countries of the European Union, there are systems of state support for micro and small businesses, since such a business improves the state of the socio-economic system of countries as a whole (Sventitskaya, Kochetkov 2018 [2]). Thanks to it, the unemployment rate is reduced, and the economic situation of the low-income population is improving. Latvia also has a state system for supporting small businesses. However, it does not work well enough, mainly due to insufficient funding.

The development of micro and small business in Latvia is in line with global trends in the formation of a mixed flexible economy, combination of different forms of ownership and farm models (Stecenko et al 2018). This sector of the economy largely determines the rate of economic growth, employment, structure, quantity and quality of gross national product. It influences the economic independence and security of the state, which are of high importance during various economic sanctions, the instability of world markets and structural unemployment. The share of the total value of small business products in Latvia's GDP is more than 20% (Kochetkov, Sventitskaya 2016). However, this indicator is much lower than in the highly developed countries of the European Union, where it accounts for about 70% of GDP. In terms of the number of small and micro enterprises per 1000 inhabitants, Latvia is still significantly behind the leading EU countries by more than 2.5 times. The experience of overcoming the financial and economic crisis of 2008–2010 demonstrated that small enterprises in Latvia with a small number of employees (up to 10–12 people) were more successful than companies with a large number of employees.

During the last global financial and economic crisis (2008–2010), Latvia's GDP per capita decreased.

However, after the crisis it has steadily been increasing (Sventitskaya, Kochetkov 2018 [1]). There is an increase in the number of working people in the country, and the unemployment rate is declining. This is also due to an increase in the number of self-employed persons; in total there are about 85 thousand of them in Latvia, that is, about 9.8% of the total number of employees. In recent years, the income of self-employed persons subject to taxes has been increasing. For example, in 2016, tax revenues from self-employed persons to the state budget almost quadrupled compared to 2014. Self-employed persons independently find work for themselves, run their own "business", without having hired workers. This form of micro-entrepreneurship as the self-employment of the population helps reduce the number of people leaving the country to earn money abroad. This is especially true for youth, as the unemployment rate in the youth environment is quite high (Golubkova et al 2019).

Subject and relevance. In many countries of the world (Great Britain, France, Canada, and many others), national programs for the development of self-employment and attracting unemployed, especially young people, to this sphere are successfully functioning. Unfortunately, Latvia so far lags behind other countries in the development of self-employment of the population. Issues related to the nature of self-employment of the population in different regions of Latvia have not been investigated yet. The National Strategy for Social and Economic Development does not contain plans for the development of self-employment of the population at the places of residence in order to deter people from economic emigration to other EU countries (Цауркубуле, Махмудова 2017).

Small and micro businesses and self-employed persons face a number of problems that impede the development of this business in Latvia and make it difficult for these enterprises to enter both domestic and foreign markets (Sventitskaya, Kochetkov 2018 [1]). Existing problems are conditionally divided into internal and external. Internal problems (qualification of employees, attraction of financial resources, etc.) are often successfully solved by the management of enterprises with the assistance of state bodies. External problems are more significant and cannot be solved only by the management of enterprises (Sventitskaya, Kochetkov 2018 [2]).

The main problems of small business as a whole, identified by the expert evaluation method, are the following (Sventitskaya, Kochetkov 2018 [2]):

- frequent changes in tax legislation in the country and the amount of taxes;
- difficulties with the acquisition of modern high-tech equipment due to its high prices;
- the lack of sufficient initial capital;
- the lack of qualified personnel that is a common acute problem for any enterprise in Latvia;
- the dificulty of obtaining "cheap" loans experienced by novice entrepreneurs.

The Republic of Latvia is historically divided into four reģions, its capital – Riga – and the Riga region. The capital of Latvia, Riga, and its region, are the richest ones in terms of budget revenues. For example, tax revenues to the Riga budget in 2017 amounted to € 683.7 million. The second largest city in Latvia – Daugavpils – and the resort city Jurmala together received only € 104 million. About 60% of all Latvian enterprises operate in Riga and its surrondings, employing more than half of the country's able-bodied population. The number of economically active residents in Riga and the region is more than 520 thousand people, while in the country as a whole there are about 990 thousand economically active residents. The unemployment rate in the capital was only 4% in 2017, while the national average was 6.8%. At the same time, in the Latgale region, the unemployment rate was 15.8%, and the incomes of the inhabitants were the smallest in the country – they amounted to less than 450 € per inhabitant a month. The remaining regions occupy an intermediate position, but also lag behind in terms of the main indicators from the metropolitan region (Kochetkov, Sventitskaya 2019).

Table 1 provides the average statistics by the regions of Latvia (2014–2016) (CSB 2018).

Table 1. Average annual statistical data on self-employed persons in the regions of Latvia

Regions	Vidzeme	Latgale	Zemgale	Kurzeme	Riga & district
Unemployment, %	11.5	18.1	12.3	11.3	7.4
Income of 1 taxpayer, €	4957	5316	5474	4981	8102
Tax from 1 taxpayer, €	186	96	177	146	484
Ratio of self-employed persons to economically active residents, %	11.8	8.26	7.83	10.9	8.03

As it follows from Table 1, Riga and the region are the most favourable ones in terms of employment and income earned by the working population. According to Eurostat, in the Eropean Union (EU) the average poverty risk is about 17%. In Riga, the risk of poverty is even less than average – 15%. However, in the depressed Latgale region, it accounts for 44%.

The low standard of living in many regions of Latvia encourages people to move either to the capital region or to other EU countries to find work. Since 2010, Latgale has "lost" 14% of its inhabitants, which is the largest ratio compared to any other territory. In the midst of the

crisis of 2008–2010, 35 thousand people annually left Latvia (CSB 2018). In total, the "net loss" of the country's population after 2000 amounted to more than 300 thousand people. It is very bad that among them there were quite a lot of people with higher education (about 100 thousand) who could not find application for their skills and competneces at home (Golubkova et al 2019). In 2018, about 16 thousand people left Latvia to work in other EU countries, and 11 thousand people came to Latvia to work mainly from Ukraine, Belarus and Russia. Thus, due to labour migration the population has decreased by 5 thousand people. It should be noted that the negative balance of migration is gradually decreasing, but still remains significant.

The total average salary level in Latvia annually increases by 4–6%. However, by region it varies significantly (Цауркубуле, Махмудова 2017). Salaries in Riga and the region are about 10% higher than the average salary in Latvia, and in other regions salaries are 15–30% lower than the average. The labour market in Latvia is characterised by a rather high level of unemployment and low real salaries in comparison with the average indicators of the European Union. World experience demonstrates that neither large business nor the state is able to create a sufficient number of jobs. Therefore, it is necessary to develop micro and small businesses as well as to promote self-employment of the population in the regions (Kochetkov, Sventitskaya 2019). This will help reduce unemployment, resolve the socio-economic issues of the population (Tsaurkubule 2017). The analysis has revealed that the unemployment rate in the regions is closely related to the level of taxes imposed on employees. In Latvia, compared to other EU countries, taxes imposed on employees are rather high.

The objective of the article is to identify the main socio-economic factors and the nature of their influence on the functioning of micro and small enterprises in Latvia. *The novelty of the research* lies in the fact that for the first time the overall system analysis of the main factors affecting the functioning of the small business cluster in Latvia has been performed. *The object of the research* is a cluster of micro and small enterprises in Latvia. *The goal of the research* is to develop recommendations for improving the functioning conditions of small businesses. *Methods of research* comprise system analysis, analysis of statistical data and mathematical modeling.

Research Methodology

Any enterprises, including micro and small enterprises, can be considered an open system, the functioning of which depends on resolving the internal and external issues. It is impossible to make forecasts about the behaviour of complex systems based on human experience and intuition (Райзберг, Фатхутдинов 1999). Therefore, as a tool for analysing the functioning of the cluster of micro and small enterprises in Latvia as an integral part of the country's socio-economic system, the study used cognitive mapping, combining systemic and cognitive approaches. In accordance with the existing classification, the socio-economic system is classified as a "soft" system that can adapt to changing external conditions (Gigch 1978). In such systems, a significant role belongs to the human factor, people who make decisions. Cognitive mapping allows developing schemes or cognitive maps suitable for quantitative analysis. Mathematical maps are signed oriented graphs (digraphs) that allow analysing the cause-effect relationships in systems (Hage, Meeker 1988). Methods of research include system analysis, analysis of statistical data and mathematical modeling.

Computations and Analysis

In the constructed digraph A (Fig. 1), there are 10 vertices, 5 negative arcs, and the remaining 8 arcs are positive. The arcs indicate significant cause-effect relationships between factors. The sign "+" is assigned to the arc (u_i, u_j) if an increase in u_i leads to an increase (gain) in u_j, and a decrease in u_i leads to a decrease in u_j. The sign "-" is assigned if an increase in u_i causes a decrease in u_j, while a decrease in u_i, on the contrary, leads to an increase in u_j. In the general case, any digraph G is a pair (U, A), where U is some set of vertices, A is a set of ordered pairs of elements from U (many arcs with signs "+" or "-") (Roberts 1976). Cause-effect relationships between the vertices of a digraph can be positive "+" or negative "-". In the digraph under consideration, there are contours – closed chains of the arcs of one direction and semi-contours – chains of arcs of different directions.

In a digraph, there are three balanced contours with positive feedback:

a) u_7-u_2-u_1-u_7;

b) u_1-u_7-u_8-u_9-u_1;

c) u_1-u_{10}-u_8-u_9-u_1.

When a positive (negative) pulse is introduced into any vertex of these contours, it will return along the contour to the same vertex with an increase (decrease). Each of these contours contains only positive arcs, or both positive and even number of negative arcs. An even number of negative arcs in the contour or half-contour bring about a positive effect similar to the situation when only positive arcs are present. In this case, the system will be balanced. For example, if in the contour "c" a single pulse is introduced to the vertex u_1 (introducing some kind of innovation into enterprises), which will allow expanding production volumes, then the unemployment rate (u_{10}) will decrease in the regions. It will also attract the able-bodied population (u_8) and qualified personnel (u_9) to these regions. As a result, the situation will continue to improve at the initial vertex (u_1).

In general, in the socio-economic system (digraph) under consideration there are two semi-contours:

d) u_7-u_2-u_1-u_8-u_7;

e) u_3-u_4-u_1-u_2-u_3.

These semi-contours are balanced because they contain an even number of negative arcs. For example, if in the semi-contour e) government aid to small businesses (u_3) increases, let us suppose tax reduction (u_4), then this will contribute to the development of micro and small enterprises (u_1). The available financial resources (u_2) will increase, which will be positive for the state (u_3): a

decrease in unemployment, an improvement in the social sphere, etc. Similar processes will take place in the semi-contour d). For example, the growth of population incomes (u_7), contributing to the development of small business (u_2, u_1), reduces the unemployment rate (u_{10}), and the number of employees (u_8) increases. People's incomes also continue to increase (u_7). Thus, the system described by the digraph is partially balanced.

A rather significant but negative role in the system under consideration is played by various international sanctions and the political tension caused by them in the country and in the world. According to the proposed scheme, there are two negatively affecting contours that lead to an imbalance in the system:

1) u_6-u_5-u_3-u_2-u_1;
2) u_6-u_5-u_3-u_4-u_1

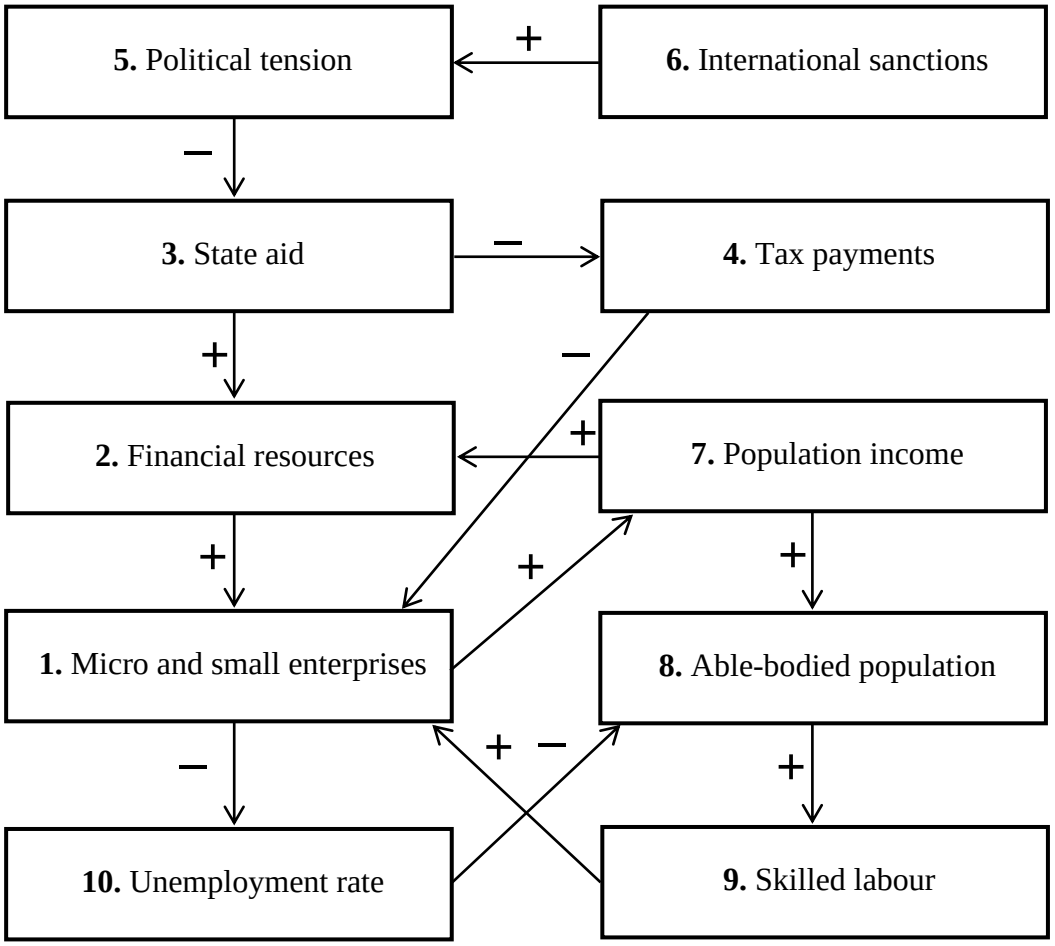

Fig. 1. A cognitive map of the system of interconnections of the main factors affecting the functioning of the small business cluster in Latvia. The numbers of factors correspond to the numbering of the vertices of the signed oriented graph A (u_1, u_2, ... u_{10}).

Here, international sanctions (u_6) cause an increase in political tension (u_5), which negatively affects the assistance to small businesses from the the state (u_3), which is forced to increase defense spending. This can cause both an increase in taxes (u_4) and a decrease in financial support for small business (u_2). Together, this all worsens the position of the cluster of micro and small enterprises (u_1) in Latvia. In general, the system described by the digraph becomes unbalanced. Small businesses can have very limited impact on such negative processes to improve the situation. Usually they are looking for new markets for their products, new sources of raw material supply or switch to the production of other types of products in accordance with the needs of customers.

Digraph A considered in the study (Fig. 1), which describes the socio-economic system, was tested for absolute and pulse stability. For this purpose, an analysis of the adjacency matrix of digraph A was performed. The adjacency matrix of a signed graph is as follows (Fig. 2).

The lack of stability in the digraph indicates that processes can occur in the system of factors described by it that adversely affect the functioning of the cluster of small enterprises. For this analysis, the eigenvalues of the adjacency matrix of digraph A were calculated. The characteristic polynomial of the adjacency matrix of the digraph is as follows:

$$C_A(\lambda) = \det(A - \lambda E) = \alpha_9 \cdot \lambda^9 + \alpha_8 \cdot \lambda^8 + \ldots + \alpha_1 \cdot \lambda^1 + \alpha_0 \cdot \lambda^0,$$

where det – the determinant of the matrix;
E – the corresponding unit square matrix;
α_i – the coefficients of the characteristic polynomial at roots λ_i.

Parameters λ_i are the roots and the eigenvalues of the matrix A only if they satisfy the equation:

$$C_A(\lambda) = \det(A - \lambda \cdot E) = 0.$$

$$A := \begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & -1 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\ -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -1 & 0 & 0 \end{pmatrix}$$

Fig. 2. The adjacency matrix of digraph A.

The adjacency matrix takes the following form: A = (α_{ij}), where

$$(\alpha_{ij}) = \begin{cases} +1, \text{ if the edge (i, j) is positive,} \\ -1, \text{ if the edge (i, j) is negative,} \\ 0, \text{ if the edge (i, j) is absent.} \end{cases}$$

As a result of the calculation, the following eigenvalues of the adjacency matrix of the digraph were obtained:

0; 0; 0; 0; 1.353; -0.177+1.203i; -0.177-1.203i; -1; $-1.082*10^{-8}$; $1.082*10^{-8}$.

Among these values, there is one eigenvalue that exceeds one in absolute value. According to the graph theory, in this case the system of factors described by the digraph will be both absolutely and pulse unstable (Roberts 1976). This means that the introduction of pulses in the analysed system to the vertices (u_6) or (u_5) will lead to an increase in negative pulses at other vertices of the digraph, and the conditions for the functioning of the cluster of small enterprises will deteriorate.

To forecast the state of the system of factors described by digraph A, an analysis of pulse processes in the system was performed. Pulse refers to a single impact (positive or negative) on the vertix of a digraph. Theorems on pulse processes in digraphs were used (Roberts 1976). In vector form, the theorem of a simple pulse process in a digraph can be written as follows:

$$\mathbf{P}(t) = \mathbf{P}(0)*A^t,$$

where **P (t)** – the vector of pulses;
t – discrete instants of time, t = 0,1,2, ...
P (0) = (0, 0, ... 1, 0, ... 0) with "1" at the i-th place.

In the pulse process, pulses propagate and change in a digraph in connection with this parameter of the digraph vertices. The adjacency matrix of digraph A was used as the initial one (Fig. 1). The calculated forecast values of the vertices of digraph A are presented in Table 2.

Table 2. The forecast values of the vertices of digraph A at time t = 10

	The vertices of the signed digraph									
	u_1	u_2	u_3	u_4	u_5	u_6	u_7	u_8	u_9	u_{10}
u_1	20	13	0	0	0	0	14	26	18	-14
u_2	14	10	0	0	0	0	13	18	10	-13
u_3	26	11	1	-1	0	0	18	20	16	-18
u_4	-14	-9	0	1	0	0	-13	-18	-10	13
u_5	-18	-9	-1	1	1	0	-10	-16	-16	10
u_6	-10	-9	-1	1	1	1	-8	-16	-8	8
u_7	22	10	0	0	0	0	15	19	17	-14
u_8	13	5	0	0	0	0	9	11	9	-9
u_9	14	9	0	0	0	0	13	18	11	-13
u_{10}	-9	-4	0	0	0	0	-5	-9	-9	6

To calculate the propagation of the pulse process in the digraph with initial vertex u_i, the following formulas are used:

$$V_j(t) = V_j(\text{ref.}) + \{\text{element i,j in matrix } E + A + A^2 + A^3 + ... + A^t\},$$

where Vj(t) – the value of vertex u_j of the digraph at discrete points in time t = 0, 1, 2, ...,
E – the corresponding unit matrix.

A single pulse is introduced sequentially to all the vertices of the digraph (left column of Table 2). The calculation was performed for 10 time periods (t = 10). The predicate of Table 2 shows the values of the corresponding vertices of the digraph after 10 time intervals. The most significant positive impact on the condition and operation of small businesses (u_1) is exerted by the state (u_3): after 10 time periods, the vertix (u_1) changes by 26 units in the direction of improvement ("+" sign). At the same time, income of the population

(u_7) also increases (+18 units), the working-age population (u_8) (+20 units) and qualified personnel (u_9) (+16 units) are attracted to the region. The unemployment rate (u_{10}) declines (-18 units).

A positive impact, but to a lesser extent, on the functioning of small businesses is exerted by the introduction of positive pulses to the vertix of the digraph (u_1), (u_2), (u_7), (u_8), (u_9). Thus, an increase in household income (u_7) will contribute not only to the growth of financial resources (u_2) invested in the development of enterprises, but also to the attraction of able-bodied qualified personnel (u_8), (u_9). The number of people moving to other countries to find work will also decrease.

The introduction of pulses to the vertices of the digraph has a negative effect on the operation of small and micro enterprises: (u_4), (u_5), (u_6), (u_{10}). Political tension in Latvia and in the world (u_5) has the most negative impact on small business in the country (u_1) (-18 units). As a result, the number of working-age persons (u_8) and that of qualified personnel (u_9) (-16 units) are decreasing. The largest increase in unemployment (u_{10}) is caused by increased political tension (u_5) and increased taxes (u_4) (10 and 13 units, respectively).

Conclusions

Small business is an integral element of any developed economic system, without which the economy cannot effectively develop. World experience shows that the development of small business is of great importance in solving the socio-economic problems of the country. The stimulation of entrepreneurial activity, the development of small business should become a tool to achieve national goals – diversification of the economy and the development of its innovative potential. Small business is, on the one hand, a tool for solving the country's social problems, as it provides the population with jobs, increases the employment of socially disadvantaged groups of society (youth, women, and pensioners), and on the other hand, according to the experience of developed countries of the world, it is an effective way for the development and implementation of innovations.

Small business has a certain potential for optimising the development of the economy and society as a whole. A characteristic feature of a small enterprise is the high intensity of use of all types of resources and the desire to optimise their quantity. In practice, it means that a small enterprise cannot have excess equipment, excess reserves of raw materials and excess employees. This fact is one of the most important factors in achieving rational indicators of the economy as a whole.

The socio-economic system, including micro and small enterprises in Latvia, is only partially balanced, and it is not stable enough. The system of factors affecting the operation of the cluster of small enterprises in Latvia is also absolutely and pulse unstable. Under the influence of certain external factors, for example, international sanctions, the stability of the system may be violated, which causes negative consequences (increase in unemployment, decrease in income, etc.).

In this situation, the most effective factor creating a positive impact on the functioning of the system is state aid. State aid can be provided in various forms: stimulating the production of the priority types of products, providing tax benefits, subsidies for preferential bank loans, creating information and advisory centers, as well as scientific and technical centers, developing the insurance system, etc. An important role is played by the adoption and implementation of special legislation on supporting small enterprises. The task of creating a favourable economic environment for the development of the small business segment in the country is quite complicated, since it requires taking real practical measures simultaneously in several areas. Enterprises themselves must also be proactive in overcoming difficulties. It may be manifested through an active search for new sources of raw materials, markets, attracting qualified employees to develop new types of products, introducing innovations, etc.

References

Central Statistical Bureau of Latvia. (2018). Statistics Database. [revised 2018.11.14.], http://www.data.csb.gov.lv/Table.

Gigch, John P. (1978). *Applied General System Theory.* California State University. Harper & Row, New York – London.

Golubkova, T., Masharsky, A. and Sirjajeva, L. (2019). Influence of intellectual migration on the economy of Latvia. *Scientific Approaches and Applied Technologies*, 42(2), 62-78.

Hage, J., Meeker, B.F. (1988). *Social causality.* Unwin Hymen. Boston.

Kochetkov, Yu. and Sventitskaya, E. (2016). Characteristics of small business in Latvia. *VADYBA Journal of Management*, 29(2), 19 – 25.

Kochetkov, Yu. and Sventitskaya, E. (2019). Self-employment of the Population in the Regions of Latvia. *VADYBA Journal of Management*, 34(1), 7 – 13.

Roberts, F. S. (1976). *Discrete Mathematical Models, with Applications to Social, Biological, and Environmental Problems.* Prentice-Hall, Englewood Cliffs.

Siropolis, N.C. (1990). *Small Business Management. A Guide to Entrepreneurship*. Houghton Mifflin Company, Princeton, New Jersey.

Stecenko, I., Fu, Chien and Lin, J. (2018). The assessment of the impact of small and medium-sized enterprises on the manufacturing sector in Taiwan and Latvia: comparative analysis. *Economic Annals-XXI*, 3(4), 16 – 19.

Sventitskaya, E. and Kochetkov, Yu. (2018) [1]. Self-Employed Persons and Micro-Entrepreneurship in Latvia. *VADYBA Journal of Management*, 32(1), 31 – 37.

Sventitskaya, E. and Kochetkov, Yu. (2018) [2]. Problems of Micro & Small Enterprises Development in Latvia. *VADYBA Journal of Management*, 33(2), 7 – 14.

Tsaurkubule, Zh. (2017). Evaluating the Efficiency of the State Socio-Economic Policy of Latvia. *Contemporary Economics*, 11(3), 327-341.

Райзберг, Б. А. и Фатхутдинов, Р. А. (1999). *Управление экономикой*, 784 с. Бизнес-школа "Интел-Синтез". Москва.

Цауркубуле, Ж. и Махмудова, Ю. (2017). Социально-экономические проблемы и диспропорции развития рынка труда в Латвии. *Социологические исследования*, 10, Москва, 133 – 140.

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