USING AHP FOR THE EVALUATION OF THE ECONOMIC STABILIZATION PROGRAM IN LATVIA

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ABSTRACT

A rapid growth of the economy of Latvia took place after joining the EU in the year 2004. Development of the economy of Latvia was generally based on the increase in private consumption and massive influx of foreign credit resources mainly in the activities related to the development of real property market which, together with the rapid import growth, caused increase in the national external debt up to 133 % of GDP. During the previous three years the economy of Latvia experienced an increase in wages that was inadequate to the national economic growth, which additionally favored the increase in inflation. Under the impact of the world financial crisis, the development of the economy of Latvia has stopped thus restricting the chance for Latvia's basic economic unit – enterprises – to make profitable business transactions at the local as well as the export market. On December 12, 2008, the government of Latvia adopted economic stabilization program for Latvia with the aim to stabilize the economy of the state and the bank sector, and to improve the international competitiveness of national economy. In this article the AHP method is used to compare the economic stabilization model for Latvia as proposed by the government with two other economic stabilization models. The AHP method is combined with the PEST method.

Key words: economic crisis, economic stabilization, AHP

1. Introduction

The Analytic Hierarchy Process, or AHP (Saaty, 1991, 2007), has been used in Latvia since the year 1995 in order to deal with certain problems and to take relevant decisions. The method has been used, for example, to evaluate territorial placement of grain primary processing companies (Rivza, 2001, 2007), to evaluate the strategy for developing higher education in Latvia as well as to take a decision on the best way in which Latvia's administrative regions can be set up. The AHP has also been used in the analyses of the structural models of general upper secondary schools (Rivza, 2007), in the analyses of the models for integrating meat production, and in the analyses of the development models of the mentoring. It is the first time when the method of AHP is used in Latvia with the purpose to evaluate the programs of economical stabilization in Latvia, which are aimed at strengthening the economical positions and at facilitating the prevention of economical crisis.

2. Causes of the economical crisis in Latvia

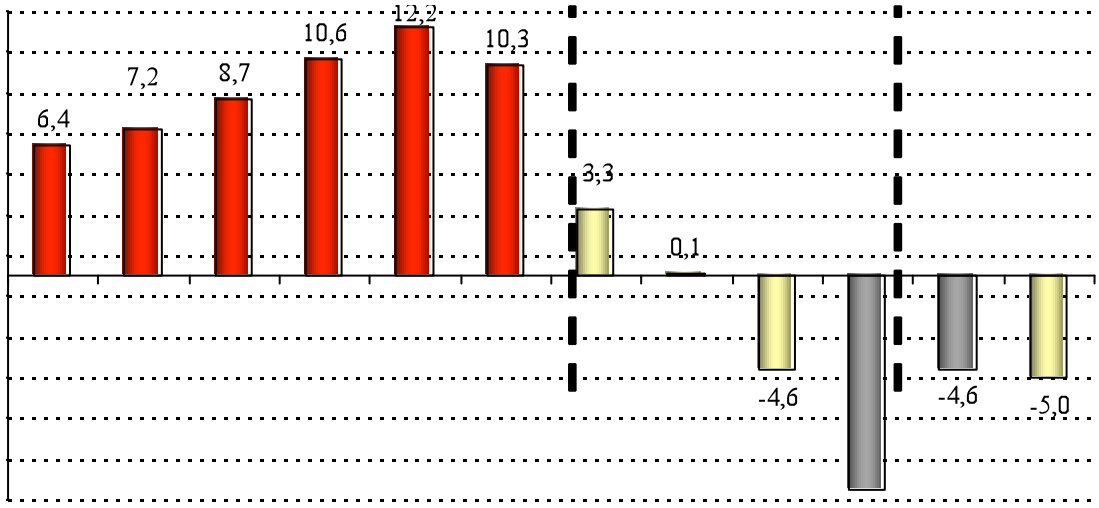
The development of the market economy is in a position of natural instability. This is a serious problem, as output of production, employment and other economic indicators tend to fluctuate – for a certain period of time they can grow, but for another - decline. This indicates that the economy develops cyclically. Moreover, these fluctuations may be enhanced by the international business cycle while interlacing with the national cycles of economic activity.

In general terms, the possible factors that cause economical cycles can be arranged into three groups:

- Political factors,
- International economic factors;
- Domestic economic factors.

Latvia is a new country of market-economy. Therefore now is the first time when Latvia meets an economical crisis according to the principles of Business cycle theory. The gross domestic product of Latvia has been constantly growing since the year 2002. After joining the European Union on the 1st of May, 2004 the economic growth in Latvia has been the highest in the EU up to the year 2007. Joining the EU opened new opportunities for a free movement of goods, services and labor, as well as enabled the use of EU structural funding, which served as a guarantor for confidence of investors, leading to a rapid flow of foreign private financial resources into the country. This facilitated an excessive development of production (the average growth of real gross domestic product (GDP) was above 10% in a year), increase of employment and income, and growth of labor productivity.

However, in the year 2008, the economic recession began. In the 4th quarter of the year 2008, GDP ratio reached 10.5% and the year ended with a 4.6% decrease in GDP (Figure 1.).



Source: Central Statistical Bureau of Latvia, 2009
Figure 1. Dynamics of Latvia's GDP

What are the main causes?

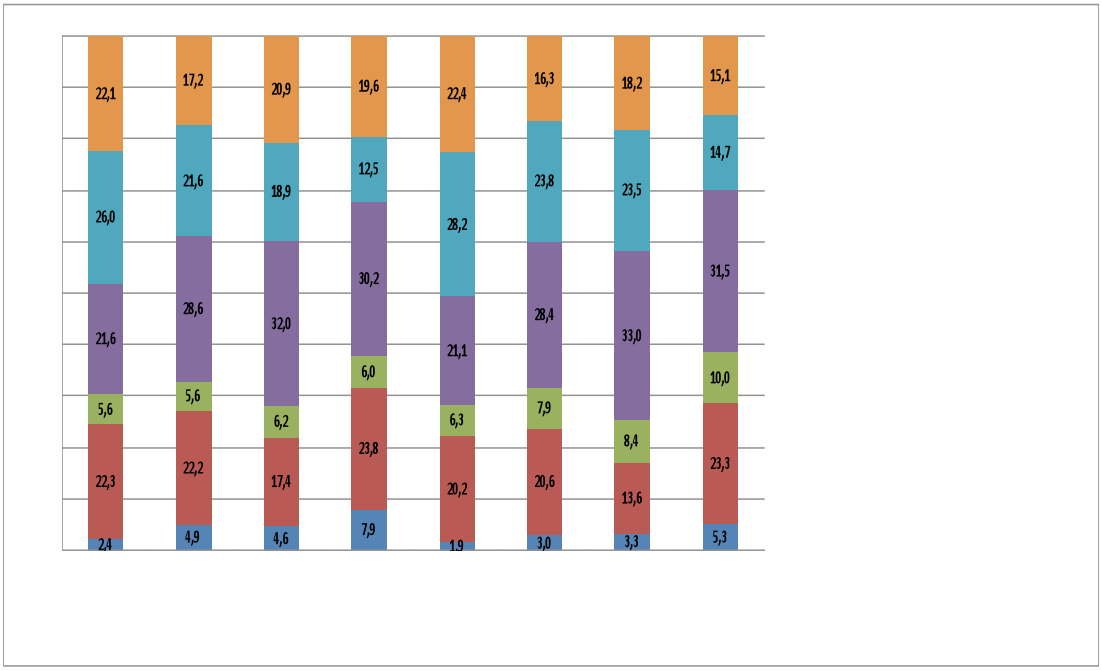
1. The overheating of the economy of Latvia was contributed by the availability of loans provided from the foreign capital. This led to an increase in domestic demand, thus causing a rise in private consumption and an increase in imports, which in its turn resulted in an

excessive and prolonged deficit of the current account of balance of payments (at the end of the year 2007 it amounted to 22.9%).

2. Within the international relations Latvia was in the status of a debtor. The major part of the debt consisted of the private banking sector which performed an aggressive lending policy by attracting the funding from its foreign parent banks. Thus in the year 2007, the total external debt of Latvia was 133% of the GDP.

3. The credit growth was extremely rapid. The lended money was mainly diverted towards the real estate market: real estate and residential purchase, construction and household consumption needs. Only 7% of the total amounts of loans were directed to the development of manufacturing. At the end of the year 2006, private consumption reached 30% of the real (minus inflation) increase (Berzina, 2009). Thus, an inefficient use of credit dominated in the credit market.

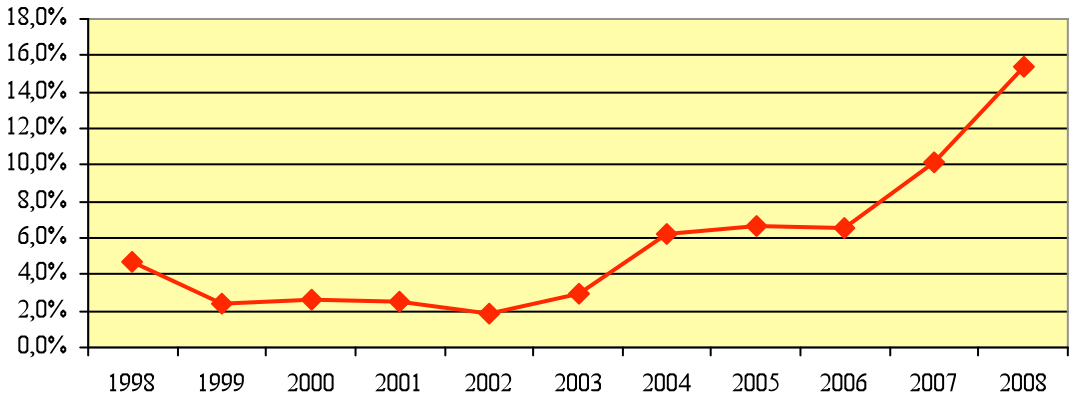
However, the rapid development of giving loans has also a positive aspect. In those cases where the borrowed funds are invested in the development of production, it is likely to produce goods for export in the future and to gain foreign exchange revenues. So, debt liabilities can be settled without lowering the current consumption. But if the foreign funds are being invested in industries oriented towards satisfying domestic demand, in the future there are no assets for debt repayment and the current consumption and investment is declining. Furthermore, the economic structure of Latvia, in comparison with other Baltic countries and the EU as a whole, has the lowest share of the industrial sector, and this is an aspect which escalates the problem considerably further. (Figure 2.)



Source: calculated by the authors using EUROSTAT data for EU-27, Statistics Estonia, Central Statistical Bureau of Latvia, Statistics Lithuania (EUROSTAT, 2009)
Figure 2. Structure of Economy by Sectors (EU-European Union, EE-Estonia, LV- Latvia, LT- Lithuania)

Thus the economic growth and consumption in Latvia have become largely dependent on the foreign funding. And likewise the covering of the current account deficit is dependent on the willingness of foreign investors to finance it. Since the borrowed money was not diverted to the development of production and the economic potential, the emerging of the business crisis was intensified. Additionally the money from non-residents began to outflow from Latvia.

What's there to do in this situation? According to the economic theory, aggregate demand should be stimulated, even till the point of allowance of devaluation of national currency, or costs should be reduced and export stimulated. To implement the stimulation of economy there is a need for financial means – money: accrued cash or borrowings. In the years of rapid economic growth the Government of Latvia applied a simulative fiscal policy and allowed the deficit of the state budget. Thus, reserves of the budgetary provisions were not made and now there is no funding to use for stimulation of economy in its recession. The inappropriate fiscal policy had a destructive effect – it encouraged the consumption even further as well as the increase in wages and inflation rates. In the year 2008, the average inflation rate had reached 15.4%, which led to the decrease in competitiveness of enterprises (Figure 3.).



Source: Central Statistical Bureau of Latvia, 2009
Figure 3. Inflation rate

In the period of rapid economic growth, the Bank of Latvia implemented a policy, which was in contrary to the principles of economic theory. Starting from the year 2004 it implemented restrictive monetary policy measures: raised the refinancing rate (from 3.0% in the year 2004 to 6.0% in the year 2007), and increased the minimum reserve margin in order to limit credit activity (from 3% in the year 2004 to 8.0% in the year 2007). Since the loans in foreign currency issued in credit structures continually increased, in addition to the restrictive monetary policy there was a need for a regulation also in the means of the Governmental fiscal policy. But there were no fiscal restrictions from the side of the government of Latvia.

Consequently, the sharp economic downturn led to a situation when the Government of Latvia was short in cash, and also availability of foreign financial resources was limited due to the global economic crisis. The only possibility to cover the current state spending was to borrow money from international institutions and to implement cost-reducing policies.

3. Strategies for the economical stabilisation

The parliament and the government of Latvia approved only one model of economic stabilization ″Reduced costs - increased taxes″. The authors of this article offer two additional scenarios: ″Reduced costs considering priorities – maintained previous tax rates″ and ″Reduced costs considering priorities and the implementation of a progressive personal income tax rate″.

Hereinafter a sequential analysis of each scenario is made to find the most suitable model for stabilisation of the economy of Latvia.

1st scenario: "Reduced costs - increased taxes".

The goals of the economical stabilisation program ″Reduced costs - increased taxes″ are:

- To stabilize the economy of Latvia;
- To solve the possible problems with liquidity;
- To restore the long-term stability, by strengthening the banking sector, preventing the fiscal imbalances and maintaining a stable exchange policy;
- To improve the international competitiveness in order to achieve a quick and sustainable growth of GDP and a balanced budget.

The main tasks of the economic stabilisation are the reductions of costs in the public sector:

- The reduction of the number of employment and the reduction of nominal wage by 15% in the public service structures funded from the state budget in order to support and promote the proportionality of wages in all areas and considering the decline of wages in the goods and services production companies;
- The reduction of costs of the goods and services for the state needs by 25%;
- The reduction of the public expenditure program grants on average by 25%, with the exception of health care programs, where the increased rate of financial resources remains.;
- For a period of time, till the economic growth is reestablished, freeze the planned increase of state-funded salaries and costs;
- Evaluate the public policies and functions of public institutions, and follow the recommendations developed during the evaluation of the public administration on the optimization and reduction of costs in the public sector, including revision of the administration mechanisms of policy programs;
- Avoid the entrance into new commitments in the form of guarantees or direct financing of investment projects in the years 2009 and 2010 in the fields that are not directly related to the competitiveness of Latvia.

And several tax rate changes:

- Preservation of the planned implementation of corporate income tax relief proposed in the year 2009 and the subsequent years;
- Reduction of the personal income tax rate by 2% points in the year 2009 with the untaxed minimum of personal income raised by 10 LVL, compared with the year 2008; extension of the level of personal income tax base in the year 2010 - by including also the income from capital and capital gains;
- Increasing of the VAT rate by 3% points, and the increasing of the reduced VAT rates from 5% to 10% and the cancellation of the reduced VAT rate for certain goods and services groups, with the exception of baby food, medicines, heat supply, electricity supply and public transport services;
- Increasing of the excise duties on fuel, coffee, alcohol and soft drinks to the level of taxation in the Baltic market;
- Expanding of the real estate tax base in the year 2010, including taxation for the housing, with significant reductions on registered housing for living purposes.

This model provides the increase in the government revenue, but this is done by increasing the tax rate, therefore it raises the cost of goods and services, thereby reducing consumption. This aspect is very significant and may lead to a relatively small increase in income, or even decrease.

Another negative aspect is the mathematical reduction of expenditure in the public sector without evaluation of functions and priority directions thereby reduced funding concerns also education and health care. This in turn may adversely affect future development and competitiveness of Latvia.

2nd scenario: "Reduced costs considering priorities – maintained previous tax rates"

The second scenario can be briefly named ″Reduced costs considering priorities – maintained previous tax rates″. The necessary reduction of the state budget is made by reducing the public sector expenditure and at the same time respecting the priorities - the areas not affected by the reduction or the reduction is done in a smaller amount than in other sectors - higher education and science, manufacturing, promotion of exports, the EU funds, health care, etc.

The current tax rates are preserved, thus the prices will not rise and people are not forced to reduce consumption. It would also promote the entrepreneurs to invest the money unpaid in taxes in the development of their business in order to promote their competitiveness in the future. At the current moment of the economic crisis, the preservation of the previous tax rates could help avoid the insolvency of numerous enterprises.

If the taxes are not increased the government should plan the budget with a deficit, bearing in mind the possibility that the increase in consumption and production can cause the growth of revenue.

This model would deliver the necessary savings, without affecting the economical growth potential and at the same time not diminishing the quality of human resources and economic development of Latvia, as well as the consumption. However, the concern remains whether it is possible to make the necessary amount of reduction in public spending while preserving the quality of their functions.

Also preservation of the previous tax level without ingressions would not have the desired effect, if people would purchase mainly imported goods, thus not encouraging the business development in Latvia; and also if the companies would not invest the money unpaid in taxes efficiently.

3rd scenario: "Reduced costs considering priorities and the implementation of a progressive personal income tax rate".

The third scenario is ″Reduced costs considering priorities and the implementation of a progressive personal income tax rate″. The government reduces its spending under the terms described in the previous scenario, and a transition to the progressive personal income tax (CBA) is made, which allows the government to increase its budget revenues.

A progressive tax rate means that it increases with increasing of the taxable income. Those, whose income is higher, pay taxes by higher rate of taxation from their income, for example, 20%, 25%, and 40%. Progressive tax rates for the personal income are applied in almost all EU countries. Progressive tax rates are considered to be the automatic stabilizers of the economy.

The people receiving lowest salaries would gain from the introduction of the progressive tax rates, because the after tax income would increase and more money could be spent for purchase of primary-necessity goods. Lower personal income tax rate would also contribute to the increase in the aggregate demand, follow by production development, GDP growth, unemployment reduction, and, ultimately, the tax revenue increase in the state budget.

This model would leave unaffected or even facilitate the deprived part of the population, but would impose additional burdens on the higher-paid. The negative aspect of a high CBA rate is that there would be a significant loss for higher-paid part of the population which would use less money for consumption and savings, and dissatisfaction would arise. This can have a

negative effect on their willingness to develop professionally and make a higher career, and the personal initiative and entrepreneurial diligence might decrease.

4. Evaluation of the economic stabilization program with the AHP method

To verify the correctness of the decision in choosing the Latvian economic stabilization program, a seminar for Master and Doctoral students (14 participants) was organised at the Faculty of Economics of the Latvia University of Agriculture. In the seminar, the economic situation of the world, the EU and Latvia was analysed. The main topics were the causes of the economic crisis, and the possible ways to reduce its influence. The economic stabilization scenarios of Latvia were particulary identified and analysed. For further analysis with the AHP method the following scenarios were selected:

1. The government of Latvia has developed the economic stabilization program, which is accepted by the parliament and described in detail in the previous paragraph; briefly it can be named *"Reduced costs - increased taxes".*

2. The next economic stabilization program could be named *"Reduced costs considering priorities – maintained previous tax rates",* i.e., expenditure of the public sector is reduced, but considering the priorities defined by the government. Taxes retain the current level.

3. Third economic stabilization program *"Reduced costs considering priorities and the implementation of a progressive personal income tax rate"* radically alters the personal income tax policy and imposes a greater tax burden on citizens with higher income.

To evaluate the potential programs of economic stabilization, the seminar participants experts of this research - were proposed to develop an AHP hierarchal scheme of the problem ″Choice of the economical stabilization program of Latvia″. As the base of criteria, the PEST (Political, Economic, Social, and Technological analysis) method (PEST, 2009) was used. According to this method 4 groups of criteria were selected:

- Political criteria (0.22);
- Economic criteria (0.56);
- Social criteria (0.13);
- Technological criteria (0.10).

Thus, this study attempts to combine two well-known methods: the PEST method for determining the groups of the criteria traditional for this method, and the AHP method for evaluation of the groups of criteria and alternatives of the criteria.

The coordinates of the priority vector are given after the group name of criteria in parentheses; they show how these criteria were evaluated by the groups of experts. As it is seen the highest evaluation rate is for economic factors - 0, 56, well below are the political - 0.22, social - 0.13, and technological criteria - 0.10 (Figure 4). The biggest discussion was about the importance of the social criteria indicated by a high degree of separation within the coefficient of variation (125%) of the evaluation of the experts.

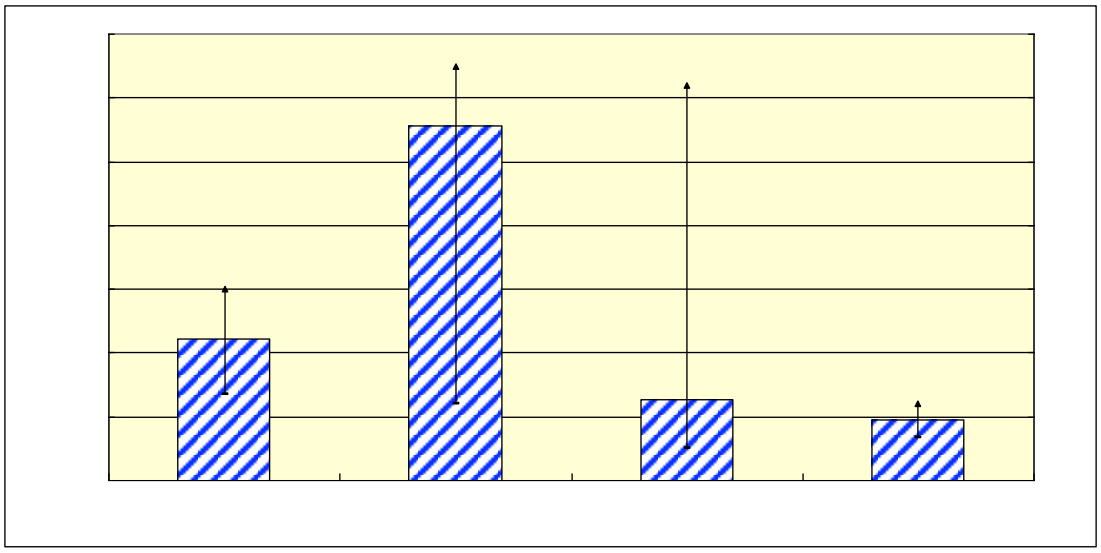


Figure 4. Groups of criteria and evaluation of these criteria

In the group of political criteria, the experts' separated the following criteria:
1. Stabilization of the national currency (0.09);

2. Co-financing and pre-financing of the projects from European funds (0.06);

3. Political stability and consistency of the government decisions (0.10);

4. Ensuring of national solvency, stabilization of the financial system (0.41);

5. Changes in tax rates (0.05);

6. Assurance of the implementation of the Euro currency (0.14);

7. Business-friendly government policy (0.15).

The highest assessment by experts was given to ″Ensuring of national solvency, stabilization of the financial system″ 0.41, which was followed by ″Business-friendly government policy″ 0.15, and ″Assurance of the implementation of the Euro currency″ 0.14.

In the group of economic criteria, the experts separated the following criteria:

1. The restructuring of unprofitable production units (0.30);

2. Amplification of the creditability of the banking sector and the availability of the loans (0.17);

3. Holding down of the economic growth rate reduction (0.11);

4. Increasing of investments (0.09);

5. Increasing of exports (0.21);

6. Reduction of business bankruptcies (0.12).

The highest assessment by experts in this group was given to ″The restructuring of unprofitable production units″ 0.30, ″Increasing of exports″ 0.21, and ″Amplification of the creditability of the banking sector and the availability of the loans″ 0.17.

In the group of social criteria, the experts separated the following criteria:

1. Reduction of poverty (0.18);

2. Support for education and re-training (0.19);

3. Amplification of employment (0.15);

4. Reduction of social taxes (0.09);

5. Increase of the social security (0.39).

The highest assessment by experts was given to ″Increase of the social security″ 0.39, ″Support for education and re-training″ 0.19, and ″Reduction of poverty ″ 0.18.

In the group of technological criteria, the experts separated the following criteria:

1. Technology development and dissemination (0.26);

2. Proportion of technology within the formation of prices (0.15);

3. Public support for the research (0.30);

4. Support for implementation of innovations and new technologies into production (0.29). From the technological criteria, the most significant were ″Public support for the research″ 0.30, ″Support for implementation of innovation and new technologies into production ″ 0.29, and ″Technology development and dissemination″ 0.26.

The programs of the economical stabilisation described above were evaluated according to a 9-point scale in respect to each of the criteria. Each of the experts did his/her evaluation independently, and for each expert the global priorities were calculated to determine which of the programs is better.

Afterwards all the experts' evaluations were summarized in a table, and the average value, minimum value, maximum value, as well as the ratio of dispersion (the coefficient of variation) were calculated from the table.

In the evaluation of the economical stabilisation programs (scenarios), in the group of 7 defined political factors the 3rd scenario *"Reduced costs considering priorities and the implementation of a progressive personal income tax rate"* was ranked the highest. Slightly lower was ranked the 2nd scenario *"Reduced costs considering priorities – maintained previous tax rates",* but the scenario drafted by the government was the least supported. Similar rating of the scenarios was also for social technological criteria.

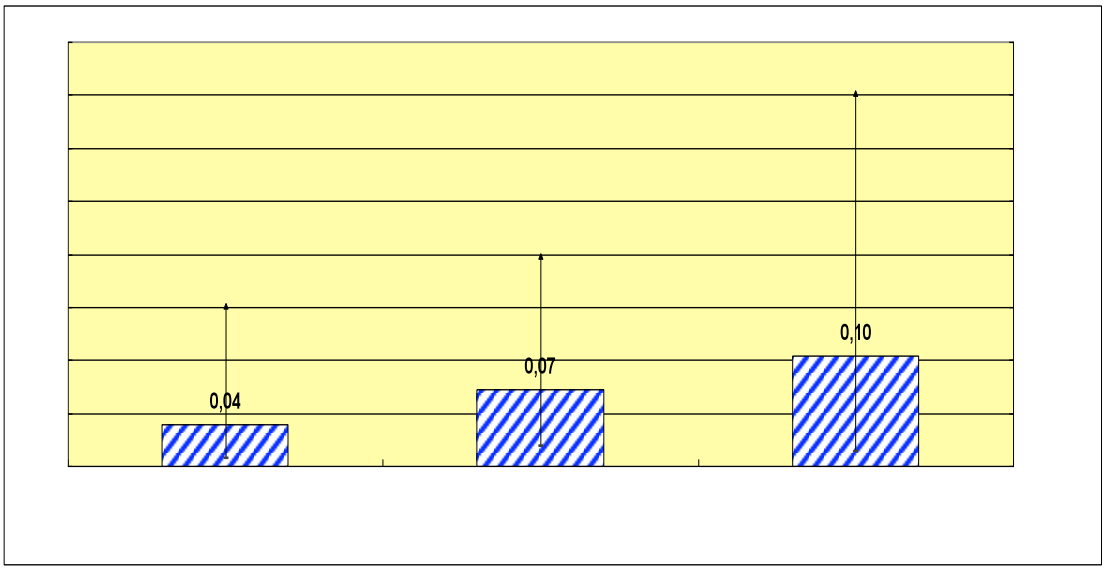


Figure 5. Evaluation of the scenarios by political criteria

A different evaluation of the economical stabilisation scenarios is by the economical criteria: the 1st and the 3rd scenarios are ranked equally, but the second scenario loses to the both other scenarios.

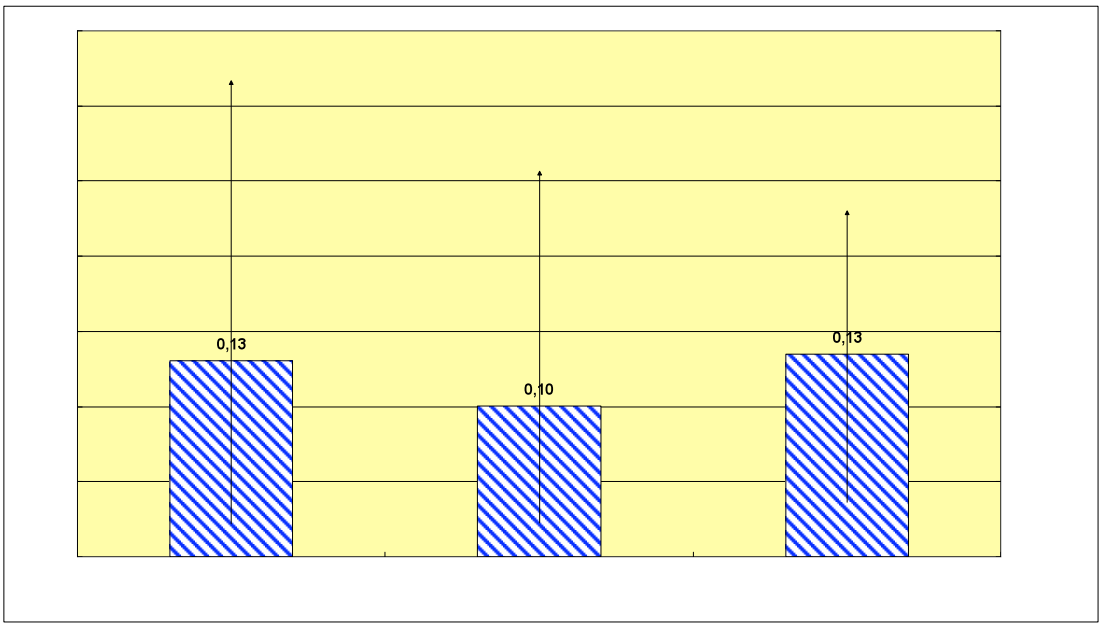


Figure 6. Evaluation of the scenarios by economical criteria

Summarizing the assessment by all the criteria and considering the weight of criteria, the 3rd scenario *"Reduced costs considering priorities and the implementation of a progressive personal income tax rate"* got the highest ranking. Slightly fewer points are for the 2nd scenario *"Reduced costs considering priorities – maintained previous tax rates"* but the scenario developed by the government of Latvia is the least supported (Figure 4).

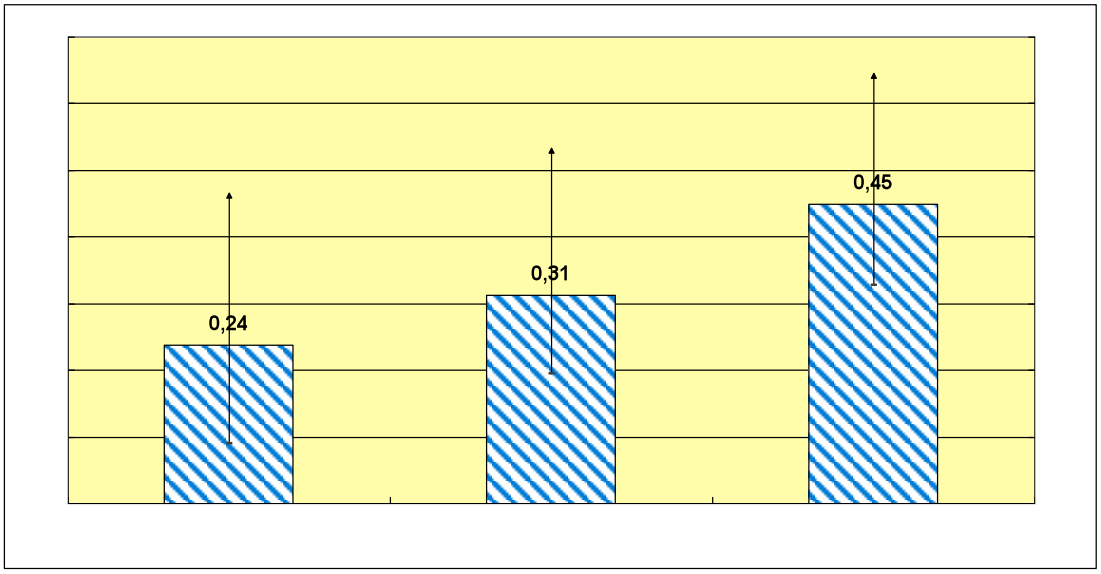


Figure 7. Evaluation of the scenarios by all the criteria

The dispersion of the assessment of experts is 20-40%, which, in this case, when there is so much uncertainty, is acceptable.

5. Conclusion

1. The method of AHP substantially complements the method of PEST, and enables quantitative measurements for expert assessment.
2. The highest ranking is for the group of economic criteria, which is understandable in the case of addressing the problem of the best choice between the economic stabilization scenarios.
3. The highest ranking in the expert assessment was for the third scenario *"To reduce costs according to the priorities and implement progressive personal income tax rate",* which in this case is considered to be the best option.
4. *In the short-term*, the progressive tax rate could result either in essential gain or in insignificant gain, it is dependent on the amount of marginal propensity to consume (MPC) ratio.
    - If people spend the increased part of their income mainly on the purchase of local products and services, and their savings are comparatively low or they do not exist at all, MPC is bigger and GDP increase is bigger. The consequences are the following: the expenditure for consumption is reduced, national budget receipts increase (from personal income tax, VAT and social payments). As a result, it would enhance production development and GDP growth.
    - Or, if people spent their increased income not only on the purchase of local products and services, but also on the imported goods and savings, MPC would be less and GDP growth relatively insignificant.
5. *In the long-term*, the gap between the rich and the low-income population would decrease. The middle class would grow. Along with the increase of the well-being of low-income families and GDP, the demand for the imported goods would grow, decreasing the total demand for the locally produced goods, thus having an impact on the macro-economic equilibrium and diminishing the amount of the multiplier ratio in economics. In this case savings could flow away from Latvia, job stimuli would be restricted, and the gain would be less.

6. Suggestions

1. In order to promote economic growth in the short-term period in Latvia, the progressive tax should be introduced.
2. The state has to decide which tax policy is appropriate: direct or indirect taxes should be increased or decreased and to what extent.

   Direct taxes (in Latvia: people's income tax, company income tax, state social insurance mandatory payments and real estate tax) have either progressive or proportional tax rates. As it was mentioned above, the EU people's income tax has a progressive rate. Persons with bigger incomes pay higher taxes. Very high taxes diminish initiative. On the other hand, the reduction of tax burden encourages economic activities.

   Indirect taxes (in Latvia: VAT, customs duties, excise tax, natural resources tax, gambling and lottery tax) usually have regressive rates. These taxes are included in the market price of products and they mostly are paid by a consumer. VAT is mostly imposed on the goods of prime necessity that are consumed by low-income population in bigger amounts compared to well-off people. Excessive indirect taxes which are imposed on consumer goods decrease the demand and eventually tax receipts.

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