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STUDY OF INFORMATIVE VALUE AND PROGNOSTIC SIGNIFICANCE OF SOME CYTOKINES AND ANTIMICROBIAL PEPTIDES FOR EARLY DETECTION OF METASTASES IN PATIENTS WITH CERVICAL CANCER

Abstract: The article presents the results of a study conducted to study the informative value and prognostic significance of some cytokines and antimicrobial peptides in the early detection of metastases in patients with cervical cancer. For this purpose, in blood in 46 patients without lymph node metastases was determined the content of some cytokines (IL-2, IL-6, IL-10 and TNF- α) and antimicrobial peptides (endothelium, L-FABP, endotoxin, lactoferrin) by an enzyme immunoassay analysis. To determine the informativeness and prognostic significance of the studied indicators, was used a statistical dispersion of test ANOVA and ROC analysis. The results of the study showed a significant increase in proinflammatory cytokines and antimicrobial peptides in the serum of patients with cervical cancer. Elevated values were observed in those patients in whom various metastases to the lymph nodes were observed during the course of 6 months to 3 years. It has been established that IL-2, TNF- α , IL-6, endothelin and L-FABP have prognostic and diagnostic significance for the early detection of metastases in patients with cervical cancer.

Key words: cervical cancer, cytokines, tumor necrosis factor, endothelium, L-FABP (fatty acid binding protein)

Language: Russian

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ИЗУЧЕНИЕ ИНФОРМАТИВНОСТИ И ДИАГНОСТИЧЕСКОЙ ЗНАЧИМОСТИ НЕКОТОРЫХ ЦИТОКИНОВ И АНТИМИКРОБНЫХ ПЕПТИДОВ ДЛЯ РАННЕГО ВЫЯВЛЕНИЯ МЕТАСТАЗОВ У БОЛЬНЫХ С РАКОМ ШЕЙКИ МАТКИ

Аннотация: В статье представлены результаты исследования, проведенного с целью изучения информативности и прогностической значимости некоторых цитокинов и антимикробных пептидов при раннем выявлении метастазов у больных раком шейки матки РШМ. С этой целью в крови у 46 больных без метастазов на лимфоузлы, определяли содержание некоторых цитокинов (ИЛ-2, ИЛ-6, ИЛ-10 и ФНО- α) и антимикробных пептидов (эндотелин, L-FABP, эндотоксин, лактоферрин) путем иммуноферментного анализа. Для определения информативности и прогностической значимости изучаемых показателей использовали статистический дисперс тест-ANOVA и ROC анализ. Результаты исследования показали значительное повышение провоспалительных цитокинов и антимикробных пептидов в сыворотке крови больных РШМ. Повышенные значение наблюдались у тех больных в которых в течении от 6 месяцев до 3 лет наблюдалось различные метастазы в лимфоузлы. Установлено, ИЛ-2, ФНО- α , ИЛ-6, эндотелина и L-



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FABP имеют прогностическое и диагностическое значение для раннего выявления метастазов у больных РШМ.

Ключевые слова: рак шейки матки, цитокины, фактор некроза опухоли, эндотелин, L-FABP (белок связывающие жирные кислоты)

Введение

В последнее время активно изучаются воспалительные и регуляторные механизмы, участвующие в возникновении и прогрессировании РШМ. Особое внимание в связи с этим уделяется дисбалансу клеточных медиаторов, которые регулируют функциональную активность клеток, их пролиферацию и апоптоз. Медиаторами межклеточного взаимодействия и иммунорегуляции являются цитокины, среди которых ключевую роль в развитии иммунного ответа играют фактор некроза опухоли-альфа (ФНО-а), ИЛ-2 и ИЛ-6 [1, 3, 7, 15].

Многие авторы подчёркивают роль цитокинов и антимикробных пептидов (АМП) в развитии рака шейки матки (РШМ). Высокий уровень провоспалительных цитокинов и АМП у большинства больных с метастазами РШМ подтверждает их участие в прогрессировании поздних осложнений. Имеются много фактов, свидетельствующих о том, что некоторые медиаторы иммунной системы стимулирует опухолевую прогрессию. В последнее время считают, что в процессе возникновения и развития опухоли происходит нарушение баланса между секрецией цитокинов (ИЛ-2, ИЛ-6, ИЛ-10 и ФНО) и АМП (эндотоксин, лактоферрин) [1, 2, 7, 16].

Полученные результаты исследования могут использоваться для ранней неинвазивной диагностики и оценки процессов, протекающих при РШМ и прогнозирования метастазов.

Определение факторов, определяющих темпы развития РШМ, и выявление новых диагностических маркеров раннего выявления метастазов являются актуальной задачей онкологии. Решение этой проблемы имеет принципиальное значение для оптимизации

подходов к ранней диагностике и профилактике РШМ.

Целью данной работы, является изучение информативности и диагностических значений некоторых цитокинов и АМП при прогнозировании метастазов у больных РШМ.

Материал и методы. С этой целью было обследовано венозная кровь 46 больных с РШМ, находившихся на лечении в онкологической клинике Азербайджанского Медицинского Университета. В течение от 6-ти мес. до 3 лет после поступления в клинику у 13 из них выявлено различные метастазы в лимфоузлы. Кровь больных была взята при поступлении больных в клинику. Диагноз был поставлен на основании материала биопсии.

Для исследования содержания ИЛ-2, ИЛ-6, ИЛ-10, ФНО-а, эндотелина, эндотоксина, лактоферрина и белка связывающего жирные кислоты (L-FABP) в сыворотке крови использовали набор реагентов производства «Вектор-Бест» (Россия). Статистическую обработку результатов проводили методами вариационного, дисперсионного и ROC-анализов с помощью программ EXCEL-2013 и SPSS-20 [5,6].

Результаты и обсуждения. В целях определения прогностической значимости изученных лабораторных показателей для выявления метастазов больных распредели на 2 группы: I группа, у которых не выявлены метастазы в течении 3-х лет после операции (n=33), II группа, у которых выявлены различные метастазы в лимфоузлы в течении от 6-ти мес. до 3-х лет после лечения (n=33).

С помощью статистической обработки результатов получены следующие результаты. Результаты дисперсионного анализа представлены в табл. 1.

Таблица 1

Дисперсионный анализ изученных показателей у больных РШМ

Показатели		N	Среднее	Стан. откл.	Стан. ошиб.	95% НГр	95% Вгр	F	p
L-FABP, нг/мл	MC (-)	33	1,83	1,43	0,25	1,32	2,34	5,026	0,030
	MC (+)	13	2,98	1,88	0,52	1,85	4,12		
Эндотелин, пг/мл,	MC (-)	33	8,50	0,68	0,12	8,26	8,75	9,111	0,004
	MC (+)	13	9,19	0,74	0,20	8,75	9,64		
Эндотоксин, пг/мл	MC (-)	33	0,161	0,054	0,009	0,142	0,180	3,139	0,083
	MC (+)	13	0,192	0,050	0,014	0,161	0,222		
Лактоферрин, мкг/г	MC (-)	33	3,73	1,07	0,19	3,35	4,11	0,005	0,944
	MC (+)	13	3,70	1,12	0,31	3,03	4,38		

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TNF-α, пг/мл	MC (-)	33	19,2	11,1	1,9	15,3	23,2	4,648	0,037
	MC (+)	13	27,0	10,8	3,0	20,5	33,5		
ИЛ-10, пг/мл	MC (-)	33	14,3	3,7	0,6	13,0	15,6	0,134	0,716
	MC (+)	13	14,8	4,5	1,2	12,1	17,4		
ИЛ-6, пг/мл	MC (-)	33	6,04	1,79	0,31	5,40	6,67	7,225	0,010
	MC (+)	13	7,71	2,15	0,60	6,41	9,01		
ИЛ-2, пг/мл	MC (-)	33	28,2	12,8	2,2	23,7	32,7	7,703	0,008
	MC (+)	13	40,9	16,8	4,7	30,8	51,1		

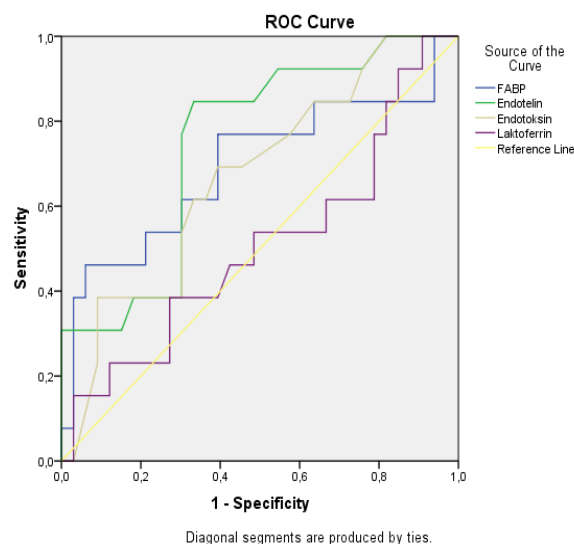
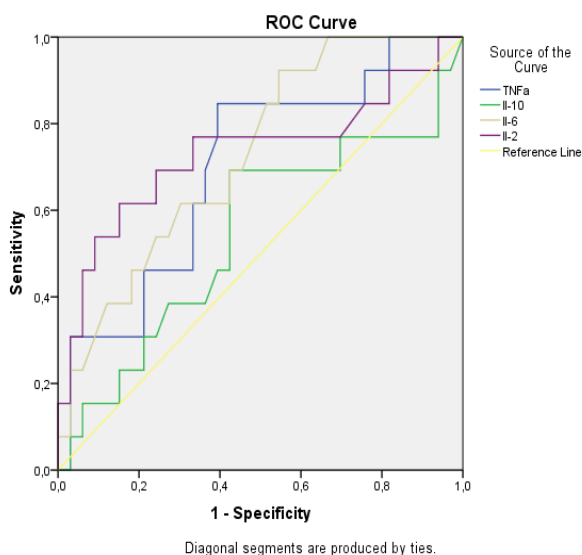
Прим: MC(-) – больные РШМ без метастазов, MC(+) – больные РШМ с метастазами.

У больных, которых не в дальнейшем не развились метастазы средняя величина ИЛ-2 составила 28,2±2,2 пг/мл; ИЛ-6 – 6,04±0,31 пг/мл; ФНО-α – 19,2±1,9 пг/мл. Полученные результаты показали, что у больных без метастазов уровень цитокинов значительно ниже по сравнению с данными больных с метастазами. У больных с метастазами среднее величина ИЛ-2 составила 40,9±4,7 пг/мл (p=0,008); ИЛ-6 – 7,71±0,60 пг/мл (p=0,010); ФНО-α 27,0±3,0 пг/мл (p=0,037).

Среднее значение эндотелина у больных без дальнейших метастазов составила 8,50±0,12

пг/мл; L-FABP – 1,83±0,25 пг/мл. Результаты анализа выявили достоверное увеличение некоторых АМП у больных РШМ с выявленными метастазами. Как видно из полученных результатов, у больных с метастазами, уровень эндотелина составила 9,19±0,20 пг/мл (p=0,004); L-FABP – 2,98±0,52 пг/мл (p=0,030).

С помощью ROC-анализа определяли специфичность и чувствительность цитокинов и АМП при раннем выявлении метастазов у больных РШМ (рис. 1).



Изменчивость теста (ов)	Площадь	Станд. откл.	Р дост.	95% доверительный интервал	
				Ниж. пред.	Верх. пред.
ФНО-α	0,698	0,085	0,038	0,531	0,865
ИЛ-10	0,544	0,101	0,643	0,346	0,742
ИЛ-6	0,728	0,078	0,017	0,576	0,881
ИЛ-2	0,732	0,096	0,015	0,545	0,919
L-FABP	0,692	0,098	0,044	0,500	0,884
Эндотелин	0,746	0,078	0,010	0,592	0,900
Эндотоксин	0,668	0,087	0,079	0,498	0,838
Лактоферрин	0,505	0,100	0,961	0,309	0,700

Рисунок 1. ROC-графики цитокинов и АМП при раннем выявлении метастазов у больных РШМ

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На основании ROC-анализа можно сделать вывод, что специфичность и чувствительность тестов ИЛ-2, ИЛ-6 и ФНО- α , а также L-FABP и эндотелина в прогнозировании метастазов у больных являются статистически значимыми.

Далее определили наиболее удаленные точки от опорной линии – точки отсечения (cut of

point) в координатах ROC-кривых, где суммарное значение специфичности и чувствительности являются наибольшей. По этим точкам вычисляли специфичность и чувствительность каждого теста (табл. 2).

Табл. 2

Специфичность и чувствительность изученных показателей в точках отсечений

Стат.	L-FABP	Эндотел ин	Эндоток син	Лактофе ррин	ФНО-а	ИЛ-10	ИЛ-6	ИЛ-2
Точка отсечения	3,8	8,8	0,18	5	19,5	14,6	5,4	44
МС (+)	13	13	13	13	13	13	13	13
++	6	10	8	2	11	9	12	8
Чв	46,2	76,9	61,5	15,4	84,6	69,2	92,3	61,5
\pm mp	13,8	11,7	13,5	10,0	10,0	12,8	7,4	13,5
МС (-)	33	33	33	33	33	33	33	33
--	31	23	22	32	20	19	15	28
Сп	93,9	69,7	66,7	97,0	60,6	57,6	45,5	84,8
\pm mp	4,2	8,0	8,2	3,0	8,5	8,6	8,7	6,2
ОДЦ	37	33	30	34	31	28	27	36
%	69,8	62,3	56,6	64,2	58,5	52,8	50,9	67,9
\pm mp	6,3	6,7	6,8	6,6	6,8	6,9	6,9	6,4
pPV	75,0	50,0	42,1	66,7	45,8	39,1	40,0	61,5
\pm mp	15,3	11,2	11,3	27,2	10,2	10,2	8,9	13,5
nPV	81,6	88,5	81,5	74,4	90,9	82,6	93,8	84,8
\pm mp	6,3	6,3	7,5	6,7	6,1	7,9	6,1	6,2
LR+	7,62	2,54	1,85	5,08	2,15	1,63	1,69	4,06
	хор.	поср.	не пр.	хор	поср.	не пр.	не пр.	поср.
LR-	0,57	0,33	0,58	0,87	0,25	0,53	0,17	0,45
	не пр	поср.	не пр	не пр	поср.	не пр	хор.	поср.

Прим: Чв – чувствительность; Сп – Специфичность; ОДЦ – общая диагностическая ценность; ++ (--) – истинно-положительные (отрицательные) результаты; \pm mp – 95% доверительный интервал полученных результатов; pPV (nPV) – предсказательная полезность положительного (отрицательного) результата; LR+ (LR-) – отношения правдоподобия положительного (отрицательного) результата.

Для определения силы фактора в прогнозировании метастазов у больных РШМ после лечения использован дисперс-тест по методу Снедекора. Результаты теста показали, что повышение содержание ИЛ-2 выше чем 44 пг/мл (СФ – 27,4%; $p < 0,001$), ИЛ-6 $\geq 5,4$ пг/мл (СФ – 14,6%, $p=0,004$); ФНО- $\alpha \geq 19,5$ пг/мл (СФ –

– 19,9%, $p = 0,001$); L-FABP-а $\geq 3,8$ нг/мл (СФ – 29,3%, ; $p < 0,001$) и эндотелина $\geq 8,8$ пг/мл (СФ – 21,8%; $p < 0,001$) является достоверными критериями в прогнозировании прогрессировании метастазов у больных РШМ (таблица 3).

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Таблица 3

**Дисперсионный тест-ANOVA
некоторых цитокинов и АМП у больных РШМ**

Пределы показателей		Сила фактора (95% ДИ: ВГр-НГр)	F	p
ИЛ-2	≥44,0	27,4% (20,7-34,1)	16,6	< 0,001
ИЛ-6	≥5,4	14,6% (6,7-22,5)	7,5	0,004
ИЛ-10	≥14,6	6,2% (0,0-14,8)	2,9	0,055
ФНО-α	≥19,5	19,9% (12,5-27,3)	10,9	0,001
Эндотелин	≥8,8	21,8% (14,6-29,1)	12,3	< 0,001
L-FABP	≥3,8	29,3% (22,8-35,9)	18,3	< 0,001
Эндотоксин	≥0,18	7,1% (0,0-15,7)	3,4	0,041
Лактоферрин	≥5,0	5,3% (0,0-14,1)	2,5	0,073

ИЛ-2 синтезируемый Т-хелперными лимфоцитами, играет исключительно важную роль в дифференцировке и пролиферации Т-клеток, принимает непосредственное участие в реализации механизмов противоопухолевой защиты и является активным стимулятором продукции ФНО-α [4].

ИЛ-6 является провоспалительным цитокином, иммуномодулятором, стимулирует синтез других цитокинов и может выступать в роли индуктора канцерогенеза. ИЛ-6 обладает и мощным ангиогенным действием, стимулируя продукцию VEGF опухолевых клеток, и поэтому повышенная экспрессия ИЛ-6, является фактором метастаза РШМ [10, 20].

ИЛ-10 относится к группе противовоспалительных цитокинов и основная функция ИЛ-10 состоит в угнетении синтеза цитокинов Th1-клетками и в снижении активности макрофагов, в том числе продукции провоспалительных цитокинов. Также полагают, что ИЛ-10 способствует стимуляции опухолевого роста в результате ингибирования Т-клеточного иммунного ответа [17,19].

ФНО-α усиливает синтез других цитокинов и экспрессию молекул адгезии. Повышение концентрации ФНО-α приводит снижению противоопухолевого эффекта и повышению резистентности организма против развития опухолевого процесса [8].

Как видно из результатов, высокое содержание эндотоксина сопровождается

усиленной продукцией провоспалительных цитокинов [11,13]. Лактоферрин в основном локализован во специфических гранулах полиморфноядерных нейтрофилов. является важной составляющей иммунной системы и иммуномодулирующими свойствами [14]. L-FABP - связывает жирные кислоты и обеспечивает их интрацеллюлярную транспорт [12,18]. Эндотелин вызывает увеличение количества Т-лимфоцитов в тканях и органах, что в свою очередь привлекает другие иммунокомпетентные клетки, в частности макрофаги, которые продуцируют факторы, стимулирующие воспаление и деструкцию очага, что приводит к неблагоприятному прогнозу для нормальной репарации [9].

Полученные результаты свидетельствует о взаимосвязи повышения уровня L-FABP и эндотелина со степенью повреждения и метастазирования опухолевых клеток. Поэтому L-FABP и эндотелин являются чувствительными и специфичными маркерами повреждения ткани.

В связи с этим исследование уровня ИЛ-2, ФНО-α, ИЛ-6, эндотелина и L-FABP может быть рекомендовано для оценки вероятности развития метастазирования опухолевых клеток у больных РШМ и может иметь прогностическое и диагностическое значение для раннего выявления метастазов.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

ASSESSMENT OF OCCUPATIONAL SAFETY MEASURES IN SMALL BUSINESSES

Abstract: The article in Namangan region of small business and private entrepreneurship in the country, employment, enterprises role in ensuring the well-being of the population and economic growth, labor protection measures being studied, analyzed and evaluated, as well as advice and suggestions for the improvement of the system. The development of small business and private entrepreneurship, special attention was given to expand the number of entrepreneurs, including high-tech, science is based on the most recent advances in technology and equipment to the country and to bring them to create appropriate conditions for the introduction of our primary duty is conditional on the it is possible to state the adequacy of recognition. Therefore, the development of the Republic of Uzbekistan for the period 2017-2021 the five priorities of the strategy of active entrepreneurial, innovative ideas and technologies to support the implementation of the Year of the state program to support entrepreneurship and business conditions outlined specific measures. The world of small business and private entrepreneurship in the field of labor protection, compensation and benefits costs savings, reduction in staff turnover, the level of labor productivity, the company provided an increase in the Fund's profitability and working hours. The analysis and scientific substantiation of labor protection in this area play an important role in the theory and practice of labor economics. Improving the scientific basis of protection of labor in small business entities will determine the prospects of socio-economic development in the sector and ensure the effectiveness of reforms implemented within the framework of the objectives of labor protection. This defines the relevance of the topic.

Key words: small business enterprises, safe working conditions for occupational safety, occupational injuries, occupational diseases, accidents.

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INTRODUCTION

In recent years, there has been considerable difficulty in gaining effective employment worldwide. According to the United Nations (UN) and the International Labor Organization (ILO), global unemployment rate ranges from 170 million to 204 million in the period from 2007 to 2015. Experts estimate that by 2030 this figure will reach 470 million [1]. In 2015, the UN has hosted the World Summit on Sustainable Development with the participation of leaders from 150 countries. This Summit agenda included a new program that includes seventeen sustainable development goals. The main objective of the program was to promote sustainable economic growth through achieving high productivity levels by introducing innovative technologies.

The most successful way to achieve these goals lies in the creation of new jobs and the implementation of economic policies that encourage entrepreneurship. For this purpose set forth by the UN, it is envisaged to provide full and productive employment for all, one of the main goals of decent work by 2030. As you know, small businesses and private entrepreneurship play an important role in ensuring employment worldwide. Many international organizations, including the United Nations and IOM, are working hard to support this sector. This sector has a high potential for creating new jobs and providing quantitative and qualitative employment. Today, this sector provides one-third of global employment [1].



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LITERATURE REVIEW

Also scientists from CIS countries I.V.Gates [2], V.A.Devisilov [3], G.I.Belyakov [4], G.A.Vershina [5], O.S.Efremova [6], N.Karnaux [7], V.Korobko [8], R.Kouz [9], A.M.Lushnikov [10], Yu.M.Mihailov [11], Yu.Popov [12], O.M.Rodionova [13], V.Serduk [14] and others, theoretical and methodological bases of labor safety, production management, accident prevention, organization of workplace certification, labor conditions and labor productivity such as.

ANALYZE AND RESULTS

According to official statistics in Uzbekistan, 218,200 SMEs have been registered in 2017 by 2017 [15]. These subjects account for 57 per cent of the gross domestic product (GDP), 26.5 per cent of exports and almost 80 per cent of total employed in the economy [16]. These statistical data show that small business and private entrepreneurship play an important role in the employment of the country, the wellbeing of the population and the growth of the population. However, the vast majority of these types of business entities are incapable of endangering the environment at the earliest stages of their operations, with the effect of external environments [17].

In such a competitive environment, occupational safety plays an important role in maintaining long-term sustainability and sustainable development of small businesses. However, nowadays, many smaller enterprises use outdated techniques and technologies that do not meet today's requirements increase the risk of injury to employees. The state of the safety of small businesses is not at the level of demand. Employees are often not provided with special protective clothing, footwear or protective equipment from hazardous factors. Therefore, it is not surprising that small businesses suffer from double occupancy rates in state-owned enterprises [18].

Economically, work-related injuries, occupational diseases and accidents can also be averted by business entities because of the additional costs incurred by the employer [19]. Heads of small businesses believe that providing safe working conditions is costly, while insufficient safe working conditions can cost more.

Taking into account the abovementioned, surveys of some small business entities in Namangan

region were conducted on the basis of surveys. This questionnaire was based on the Likert scale. The answer to this question is to answer the questions that are based on 5 parameters (dimensions): "5" - I strongly agree, I'm "4", "3" is not perfect, "2" does not fit, "1" I do not agree.

The research includes the following steps: organizational (preparation); the process of questionnaires; the results of processing are the stage of processing; making suggestions based on the results and making suggestions and recommendations for improvement of business activity.

The validity and reliability of the survey options based on the Likert scale are based on the assessment of its internal sustainability. To evaluate the internal consistency and internal consistency of the questionnaire, using the "IBM SPSS Statistics 22.0" program, the coefficient of "Alpha Kronbach" (Cronbach's alpha) was used.

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}} \quad (1)$$

Here:

α = Kronbach's alpha coefficient

N = Number of surveyed enterprises surveyed

\bar{c} = the average dependence of the results.

\bar{v} = average difference.

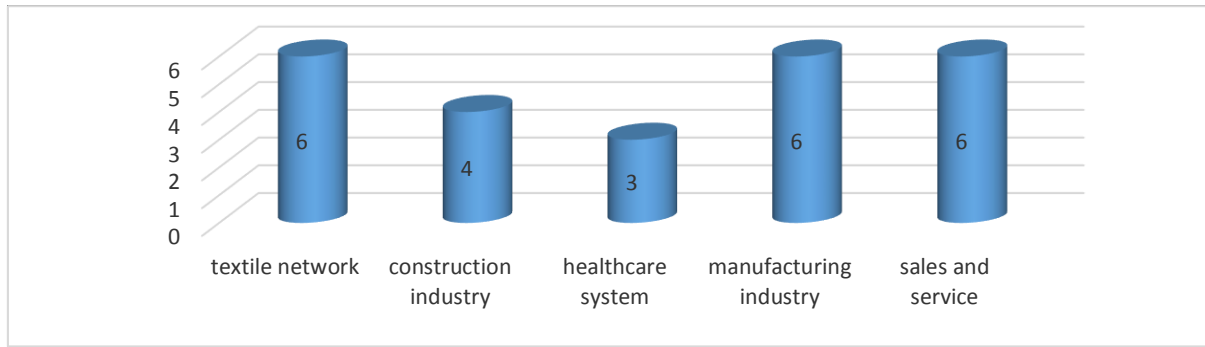
Kronbach's alpha coefficient ranges from 0 to 1 if its value is $\alpha \geq 0.9$, then the internal sustainability of the results obtained from each question is "excellent" if " $\alpha \geq 0.8$ " is "good", if $\alpha \geq 0.7$, "acceptable" if $\alpha \geq 0.6$, "suspicious", and finally if $\alpha \geq 0.5$, it is "inaccurate". In the study, it was found that this coefficient was 0.78. This means that the statistical reliability of the survey is positive.

The demographic characteristics of the studied enterprises during the research process include the scope of their activities and the number of employees and the number of enterprises they have been operating for years.

The survey consisted of 30 small business subjects, 25 of them responded to the questionnaire. The remaining four did not answer the questionnaire, based on the internal policy of the business entities.

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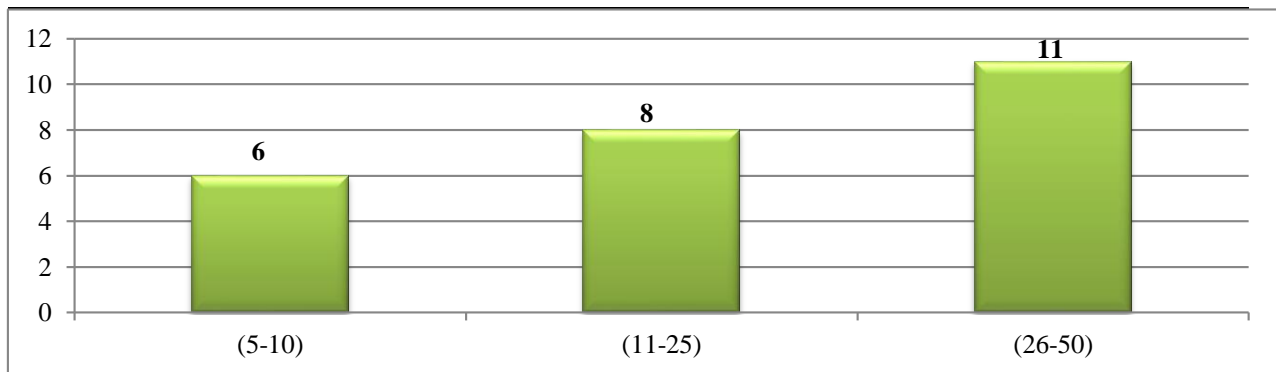


Source: Author's development

Picture 1. Distribution of small businesses by sectors and sectors studied during the survey.

As a result of statistical analysis, 6 (24%) of 25 enterprises in the textile and light industry, 4 (16%) in construction, 3 (12%) in the healthcare system, 6 (24%) in manufacturing, 24%) in the sales and service sector. When analyzing the data received, it

became clear that all the studied enterprises had a business history of at least five years. When analyzing the demographics of the surveyed enterprises, 6 of them were found to be from 5 to 10, 8 to 11 to 25, and to 11 to 26 to 50.



Source: Author's development

Picture 2. The classification of small businesses by the number of employees studied during the survey

Respondents' answers to the questionnaires were analyzed and their average statistical value and standard deviation were calculated. The results obtained in Table 1 show that the statistical value of the ventilation system in the workplace is $\bar{x}=4.04$ and

SD = 0.53. Here, as the \bar{x} have a statistical value of almost 4, the "Likert scale" responds to the claim that they are equipped with ventilation systems (Table 1). and the results are reflected.

Table 1

Implementation of occupational safety measures¹

No	Measure of events	Average statistical value (x)	Standard deviation
1	Ventilation system is installed in the workplace	4,0400	0,53852
2	Enough coverage of workplaces is taken into account	4,0000	0,50000
3	Workplaces are equipped with modern and safe technologies	3,8000	0,57735
4	All workers are provided with personal protective equipment	3,7600	0,52281
5	The company has a safety manual	3,6800	0,62716
6	The enterprise will be financially protected from occupational healthcare activities	3,3200	0,47610
7	The organization has enough information on labor protection	3,3200	0,74833

¹Statistics obtained during the survey.

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8	The workplace meets ergonomic requirements	3,2800	0,61373
9	Employees have legal knowledge of labor protection	3,2800	0,61373
10	Employees of the enterprise are subject to medical examination in the prescribed manner	3,2400	0,77889
11	Employees are trained in labor protection	2,9200	0,70238
12	Measures to prevent accidents are uninterrupted	2,6800	0,55678

Source: Information obtained by the author during the study

Failure to install ventilation system at work will result in contamination of the workplace and subsequent infectious diseases. Ventilation is one of the positive features of the physical working environment associated with the productivity of the workforce [20]. Also, the average statistical value of the responses received on issues of adequate coverage of the workplaces, safe operation of workplaces, provision of personnel with personal protective equipment, as well as availability of safety instructions in the enterprise. Therefore, the respondents said that they "agree" with these opinions.

The workplace lighting system is one of the most important elements in preventing accidents in production, staff health and safety, simplifying the working process, and increasing the workforce. Personal protective equipment protects employees from various harmful effects and extreme environment (extremely hot or cold) in the workplace. Misuse or misuse of personal protective equipment can lead to injury [21].

The company found that the average statistic value of the results of the workplace's compliance with the ergonomic requirements, the allocation of funds for the protection of labor, the medical examination of the staff in the prescribed manner and the right of employees to occupational safety were found. It is well-known that the researchers are convinced that they are not convinced of this. Responding to ergonomic requirements of the workplace can significantly reduce the level of hazard in production. Ergonomics should be part of

the labor protection policy aimed at improving the working conditions of enterprises [22].

The average statistical value of the workforce for the training of employees on occupational safety training and prevention measures is close to $\bar{x}=2$. This means that according to the above method, the respondent does not agree with the implementation of such measures by the enterprises, which means that such measures are practically impossible at the enterprise. Training of employees on occupational safety plays an important role in the formation of security culture in the enterprise.

In practice, there are limited opportunities for the employer to fully fulfill all labor protection obligations in respect of the major business entities due to management and financial problems of small businesses. It is therefore difficult to fully adhere to the principle of unified compliance with the requirements of labor protection. It may be desirable to set a certain period of time for employers of small businesses to allow them to fully fulfill these requirements, and to allow gradual implementation of the measures envisaged.

Factors such as building a security culture, improving information delivery, increasing responsibility for employee health and safety, and ergonomic factors are more cost effective for the enterprise. Finally, research in Finland is remarkable. In this country, one of the existing laws and regulations on labor protection was found to be the most profitable for small businesses and some of them the most profitable (Table 2).

Table 2

Classification of occupational safety measures with regard to enterprise profitability

What is profitable?	What is not profitable?
Important for enterprise activity: - health and order; - Switchgear; - organization of production, bringing raw materials and materials to workplaces; - improving the information delivery system; - improving the business environment in the community.	Technical modifications, disconnected from other types of activities; - Safety of equipment and equipment; - Chemical problems and pollution level - noise level
Team membership accounting and staff participation in enterprise management	The Ruler of the Supervisor and Entrepreneur
Responsibility for employee health and safety	Establish and maintain labor protection as prescribed by law

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Analyzing problems and looking for reasons	Requirements of technical decisions based on the requirements of legislation and stand-by requirements
Planning Ergonomics and Engaging in Purchasing Equipment	Ergonomics: - Changes in individual workplaces without taking into account the employment process
Medical service: - Active work on the prevention and rehabilitation of the company's medical center	Medical service: - Unlawful operation of the medical facility of the enterprise; - focus all attention on medical care

We believe that in the overall improvement of the work environment in the small business sector, it is important for employers of these businesses to reduce workplace costs and ensure the safety of technological processes in the workplaces rather than spending excessive costs for employee injuries and occupational diseases. . The employer should also be aware that the loss of work capacity as a result of disability or illness of an employee may result in more serious harm than the number of employees in a large number of enterprises.

CONCLUSION

Taking into account the above, experts believe that, with the involvement of trade unions, 86% of employees will be able to easily understand occupational hazards as a result of the training of

workers. Labor-related casualties have a negative impact not only on human capital, but on the productivity of the enterprise. In addition, accidents can result in loss of power tools (technics) and loss of working days. Experts believe that job-related accidents may cause the company's competitiveness to decline, even in cases where its work is suspended.

The enterprises studied in Namangan region pay special attention to the level of personal protection of employees, their safe and modern technologies, their safety instruction, and the provision of normal microclimate in the workplace. However, these enterprises are not paying much attention to the cost of labor protection, training of workers on occupational health and safety training, and prevention of accidents.

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SECTION 31. Economic research, finance, innovation, risk management.

ECONOMETRIC MODELING OF GDP CALCULATION BY ULTIMATE CONSUMPTION METHOD

Abstract: The gross domestic product will serve as an indicator representing the final results of economic activity in international and national practice. The national accounts system of the Republic of Uzbekistan includes various aspects of reproduction of GDP: its production, formation, distribution and accumulation, and many other goals. The interconnected and mutually exclusive goods and services in GDP are gradually represented in the process of re-generation of revenue streams.

In this regard, the article defines the regression equation based on the effects of factors on gross domestic product and its correlation with gross domestic product consumption. In addition, the effectiveness of the factors selected from the example of the Republic of Uzbekistan through these regression equations is also determined and recommendations are given to ensure sustainable economic growth.

Key words: Gross Domestic Product, National Accounts System, Final Consumption, Correlation, Regression, Econometric Model, Statistical Monitoring.

Language: English

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Introduction

GDP shows the final consumption patterns of households, state-owned enterprises, non-profit organizations (households) serving households, the sum of final consumption expenditures on commodities and services, the balance between aggregate savings and exports and imports of goods and services. In general, the local outcome indicators will be integrated into each area of activity, sectors, institutional sectors, forms of ownership, and management information. Therefore, a more objective monitoring of their activities should be conducted statistically, a high level of statistical coverage, and current statistical reports should fully comply with market principles.

This will allow the full range of indicators at the local level to be fully reflected in the quality of information, and will provide an expanded opportunity to study, analyze and assess the national economy on an international basis. The transposition of indicators at the local level to the international standards is of primary importance and today plays an important role in the real evaluation of the economic and social status of each region.

For quantitative assessment of the impact of production factors on the results of economic activity, it is of primary importance that the HDI's economic growth is interrelated and interrelated. At the same time, indicators of gross domestic product, GDP, national income are selected as the final indicator. It should be noted that the concept of factor and outcome indicators is relative, that is, depending on the analysis, these factors are the factor and the resultant indicator.

The use of correlation-regression analyzes for the actual statistical study of the relationships among the SCA's aggregate indicators is also important. If correlation determines the degree of dependence between the factors and the factor and the other factors, regression determines the functional linkage of the factors and factors effectiveness.

Literature review

In the context of this topic, many scientists are able to do research, including J. Kains [1], V.Leontev [2], R.Stoun [3], J. Marshall [4]. In particular, the English economist J. Kain's macroeconomic theory focuses on the economic analysis of the results of the monetary analysis through the variables that are

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interconnected (common income, consumption, investment, savings). In addition, J. Kaines has formed important theoretical and methodological foundations of the national accounts system.

R. Stoun founded the current system of national accounts. He was one of the first to apply a double accounting principle to a macroeconomic level. In R.Stown's aggregate matrices, the economic structure and processes of its operations are interpreted on the basis of standardized indicators (national output, consumption, trade balance, etc.) and the financial balance is included in the system of national accounts. But in their scientific works, the general methodological issues of the NGO are addressed solely in conjunction with the conditions of the respective countries.

Peter Friedrich Lippe explains how the transition from a planned economy to a market economy and the official statistics are in conformity with market requirements, and the need for a comprehensive study of internationally adopted standards, methods and techniques, and the need to meet the common needs of professionals to eliminate existing deficiencies in the field has been investigated [5].

On the basis of assessment, analysis and forecasting, synergies, crises management and data transfer methods, the specific features of forming the basis of these systems with theoretical and methodological approach to modeling the behavior of different levels of business entities operating in a changing market environment. In the monograph published by Ponomarenko and T. Klebanov [6], Yu. In the textbook published by Ivanova, special attention was paid to key sections of macroeconomic statistics - the system of national accounts, balance of payments, international comparisons of GDP, price and employment statistics and others, taking into account the modern practice of statistical methodology of international standards and Russian statistics [7].

In addition, Yu.Ivanov's research has been designed to broadly explain the theoretical

foundations of national accounts and to explain different ways to compare international macroeconomic indicators [8] N.D.Kremlyov [9], B.I.Bashkatov [10], Economic Balance and models the economist from Uzbekistan, YA.Abdullayev [11], A.Abdugafarov [12], R.A.Alimov [13].

R.A.Alimov's doctoral research has been studied economically from the methodological point of view of the introduction of RIA in the Republic of Uzbekistan [13]. However, this study did not aim to statistically study statistical analysis of main macroeconomic indicators of the SCO in the Republic, improvement of information supply, statistical modeling and forecasting of macroeconomic indicators. B.K.Goyibnazarov [14] has not studied statistical studies of the methodological problems of the development of MDGs in the Republic of Uzbekistan, although the calculations have not been studied for econometric models, and this is a topical issue in the scientific justification of the selected topic.

Research Methodology

In the course of the research were used such methods as economic-statistical analysis, mathematical statistics, correlation-regression analysis, statistical observation, grouping, econometric modeling.

Analysis and results

In the ongoing study, the qualitative analysis of the processes and phenomena that is being studied in the context of the survey is usually based on the concept of a particular political economy, and is based on the key factors such as GDP, national income, savings, etc., as GDP and the factors influencing: cost of final consumption - X_1, investment in fixed capital - X_2, stock redemption - X_3, and the balance of export and import of services X_4 products were selected.

The correlation between the resulting factor and the factors influencing the correlation is assessed and the result is shown in Table 1 (Table 1):

Table 1

Correlation link results

	Gross Domestic Product	Expenses for final consumption	Basic capital expenditure	Backups	Export-import balance of goods and services
Gross Domestic Product	1				
Expenses for final consumption	0,998817692	1			
Basic capital expenditure	0,999537136	0,798431767	1		
Backups	0,869976071	0,787203441	0,786460867	1	
Export-import balance of goods and services	0,316028078	0,282425044	0,308676657	0,221475587	1

Source: author's work on the basis of the data from the State Statistics Committee of the Republic of Uzbekistan

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According to the table data, the Gross Domestic Product is exempted from the export-import balance of goods and services (0.316028), including the cost of final consumption (0.88177), fixed capital (0.99954) and reserves replacement (0, 86997) have strong density links. It should be noted that among the selected factors $|r_{x_1, x_2}| < 0,8$ It was found out that multicollinearity is not available because of the fulfillment of the requirements. This indicates that all factors can be involved in the creation of a regression equation representing the observed process.

To make the regression equation, it is best to use the most useful Eviews software. According to him, the following regression equation was

determined using the statistical indices of the dynamics of changes in 1997-2017,:

$$Y_{GDP} = 192,6 + 0,56 * X_1 + 2,2 * X_2 + 0,6 * X_3 + 0,71 * X_4 \quad (1)$$

Here: Y_{GDP} - gross domestic product volume;
 X_1 - cost of final consumption;
 X_2 - investment in fixed capital;
 X_3 - change reserves;
 X_4 - export-import balance of goods and services.

At the same time it is necessary to check on the reliability and adequacy of definite regression equations on criteria.

Table 2

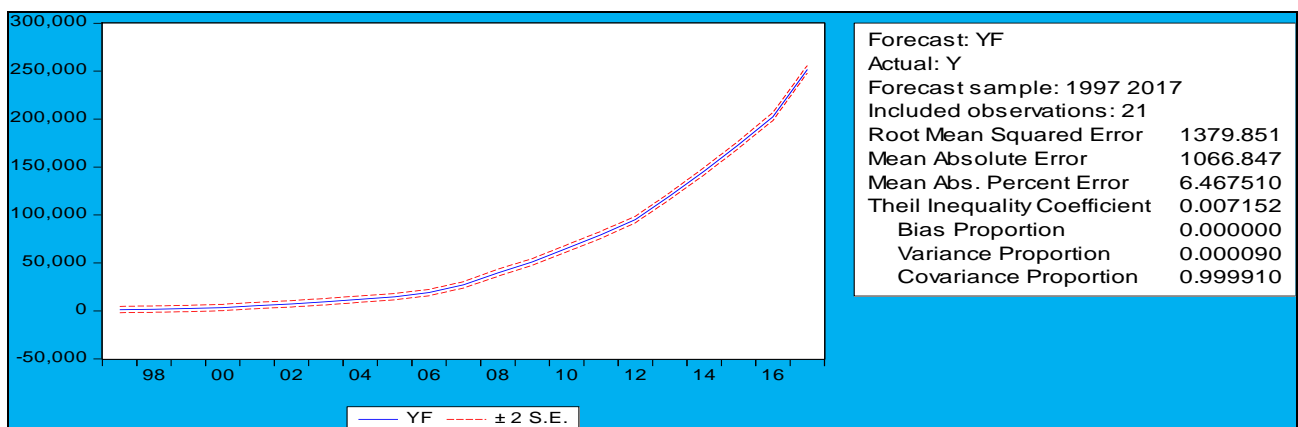
(1) the reliability and adequacy of the equation of the equation

R-squared	0.999641	Mean dependent var	63213.14	t-Statistic	
Adjusted R-squared	0.999552	S.D. dependent var	74666.10		
S.E. of regression	1580.818	Akaike info criterion	17.77353	X1	3.974043
Sum squared resid	39983789	Schwarz criterion	18.02223	X2	5.796430
Log likelihood	-181.6221	Hannan-Quinn criter.	17.82750	X3	1.256014
F-statistic	11150.57	Durbin-Watson stat	1.838203	X4	3.578180
Prob(F-statistic)	0.000000			C	0.379941

Source: author's work on the basis of the data from the State Statistics Committee of the Republic of Uzbekistan

The criteria for the Akaike, Schwarz, and Hannan Quinn (1), which are identified in the model evaluation, can be considered reliable, but it is desirable to eliminate misunderstandings on the t-statistics criteria given in Table 2. Table t-criterion for the Student distribution $\alpha = 0,05$ value ratio and $df = 21$ the value of freedom levels by

number $t_{\text{жкдвал}} = 2,0796$ e, $t_{x_3} = 1,256$ equality $t_{x_3} < t_{\text{жкд}}$ the significance of the equation defined by the MAPE (Mean abs. percent error) $< 10\%$ and $0 \leq \text{TIC}$ (Theil inequality coefficient) ≤ 1 criteria should be checked.



Source: The author's research on the results of the research

Picture 3. Retrospective graph of GDP change forecast

The change in GDP predetermines the quality of the projection model $\text{MAPE} < 10\%$ and $0 \leq \text{TIC} \leq 1$ and is shown in Figure 3 $\text{MAPE} = 6,468 < 10\%$ as well as the $\text{TIC} = 0.0072$ in this process, the quality

of the forecast is very high, and (1) the equation of accuracy is adequate and adequate.

$$Y_{GDP} = 192,6 + 0,56 * X_1 + 2,2 * X_2 + 0,6 * X_3 + 0,71 * X_4 \quad (1)$$

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The cost of final consumption, the export-import balance of goods and services, and the unbundling of 10 units of revaluation will increase the GDP by adding 5.6 units, 7.1 units and 6 units respectively. Given this process, an increase in gross domestic product (GDP) in comparison with all factors is an investment in this capital, and if this factor is multiplied one, GDP can be increased by an additional 2,2 times.

If we change the volume of gross domestic product, households $-X_1$, public administration bodies $-X_2$, Nonprofit organizations serving households $-X_3$, gross accumulation $-X_4$ and export-import balance of goods and services $-X_5$, we will definitely be able to change from a certain angle. This, of course, affects the factors that determine the gross domestic product.

Table 4

Factor correlation of GDP

	Y_{GDP}	X_1	X_2	X_3	X_4	X_5
Y_{GDP}	1					
X_1	0,998821463	1				
X_2	0,998662982	0,79987976	1			
X_3	0,996113413	0,79618068	0,7966743	1		
X_4	0,999287556	0,99828169	0,698533443	0,697484294	1	
X_5	0,316028078	0,28305186	0,279472904	0,298649578	0,305162	1

Source: author's work on the basis of the data from the State Statistics Committee of the Republic of Uzbekistan

The table data suggests that factors affecting GDP are properly selected. But the gross savings $-X_4$ households $-X_1$ between $|r_{x_1, x_4}| < 0,8$ one of the factors in the normalized regression equation, which

is determined by the existence of multicolinguishability on condition (the general accumulation of research $-X_4$ option) and we will continue the work. According to him:

$$Y_{\text{НИМ } 1} = 382,2 + 1,3 * X_1 + 1,5 * X_2 + 4,5 * X_3 + 1,3 * X_4 \quad (2)$$

normalized regression equation.

Here: X_1 - households;

X_2 public administration bodies;

X_3 - Nonprofit organizations serving households;

X_4 - export-import balance of goods and services.

Of course, the definitive (2) model needs to be tested on criteria that is reliable and adequate, and is done through EVIEWS 9. The results are shown in Table 5 below (Table 5).

Table 5

(2) The result of an assessment of the adequacy of the model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1	1.271123	1.116987	1.137993	0.2719
X2	1.537810	0.465838	3.301169	0.0884
X3	4.518587	1.673157	2.700635	0.0038
X4	1.260972	0.330069	3.820333	0.0015
C	382.1809	897.6777	0.425744	0.6760
R-squared	0.998897	Mean dependent var		63213.14
Adjusted R-squared	0.998621	S.D. dependent var		74666.10
S.E. of regression	2773.059	Akaike info criterion		18.89755
Sum squared resid	1.23E+08	Schwarz criterion		19.14624
Log likelihood	-193.4242	Hannan-Quinn criter.		18.95152
F-statistic	3620.922	Durbin-Watson stat		1.897772
Prob(F-statistic)	0.000000			

Source: author's work on the basis of the data from the State Statistics Committee of the Republic of Uzbekistan

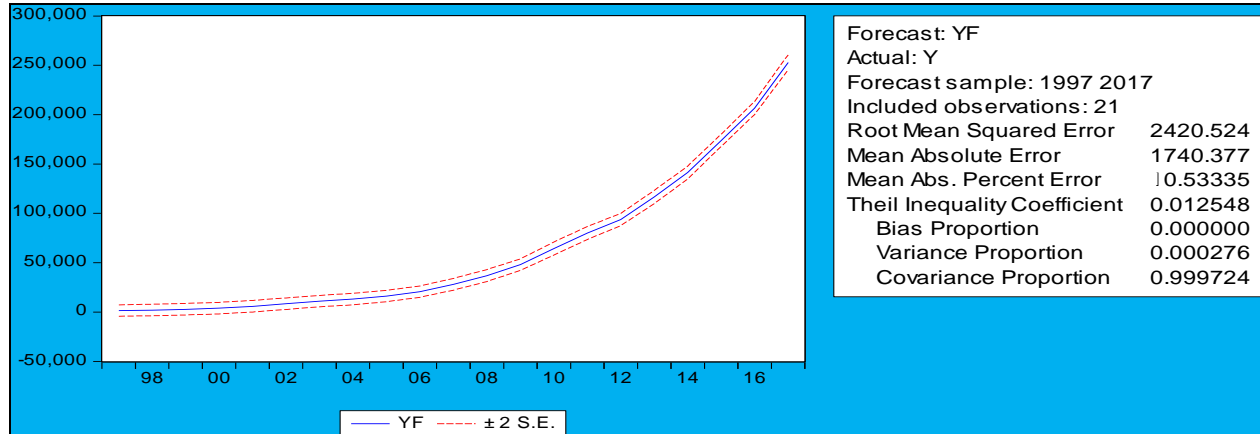


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As the table shows, X_1 parameter $t_{X_1} < t_{\text{жад}}$ was found to be negligible. However, it is desirable to verify that this parameter is significant or

insignificant by measuring another criterion, ie $\text{MAPE} < 10\%$ and $0 \leq \text{TIC} \leq 1$, which determines the quality of the prognosis model (Figure 6).



Source: The author's research on the results of the research

As you can see from Figure 6, all the parameters selected for the particular model are significant, as measured by the criterion (2) of $\text{MAPE} = 0.53335 < 10\%$ and $0 \leq 0.0126 \leq 1$, which determines the quality of the model, and (2) the model is reliable and adequate you can say.

$$Y_{\text{ИМ}1} = 382,2 + 1,3 * X_1 + 1,5 * X_2 + 4,5 * X_3 + 1,3 * X_4 \quad (2)$$

In the case of the model, if an increase in the share of households, public authorities, non-profit organizations serving households and the export-import balance of goods and services, the gross domestic product of the country will increase by 1.3%, 1.5% 4.5% and 1.3% respectively.

Conclusion/Recommendations

Usually it is necessary to increase income from reducing costs in the economy. However, if we come from today's demands and scientific research, all reforms must first of all serve human interests. According to the results of the research, the cost of final consumption, the export-import balance of goods and services and the volume of 10 units of replacement will increase the GDP by 5,6 units, 7,1 units and 6 times respectively.

As a result of this process, an increase in the Gross Domestic Product (GDP) in comparison with

all factors is an investment in this capital, and if this factor is multiplied, GDP can be increased by an additional 2,2 times, and (2) the share of households, public administration bodies, non-profit organizations serving households and the export-import balance of goods and services, the gross domestic product of the country increased by 1,3% , 1.5%, 4.5% and 1.3% respectively.

To do that, it is necessary to carry out a number of tasks, including:

- Improving the statistical database of macroeconomic indicators applied in the national economy;
- to study the best practices of international practice on calculation of macroeconomic indicators, to justify their use in the country;
- Determine the statistical characteristics of macroeconomic indicators and their calculation, taking into account international standards for MHT-2008;
- Improve the method of calculation of gross domestic product by final consumption method.

This, in turn, creates new productions, equips existing ones with new equipment and technology, and requires a sense of responsibility from employees. As a result, if we deal with the work of the employees, we need to increase the cost of the services provided.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

THE AGRARIAN MARKET AND WAYS OF STABLE DEVELOPMENT OF THE AGRARIAN MARKET'S MAIN COMPONENTS

Abstract: This article describes the features of sustainable development of the agricultural market and its components, including lending, taxation, insurance, customs clearance and valuation mechanisms. The methodical approaches developed by the author to the improvement of the implementation complex of the functional activity of the enterprise of the agro-industrial complex can be used in the practice of managing economic entities. The novelty of scientific results is that an approach to the study of the agricultural market and the stable development of structural parts has been developed. In addition, the method of adjusting the single tax rate, based on natural and climatic features of the regions.

Key words: system of taxation, insurance system, evaluation mechanism, customs privileges system, agricultural market, agricultural products market, agrosurs market, agro services market.

Language: English

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1. INTRODUCTION

The situation in the world agrarian market shows that the growth rates of agricultural production and exports are observed in countries with natural and climatic advantages. International food safety research finds that the situation in the world and in some parts of the world is compounded by this problem. According to experts, "... the competitive environment in the agrarian and food markets of the world is increasing day by day. This is especially true in wet and dried fruits, vegetables, canned products, processed fruits and vegetables, vegetable oil, flour and flour, tea, coffee, citrus fruits, milk and meat products. Thus, the volume and volume of sales and demand for this product will have a strong influence on its appearance, color, size, good packaging, reputation of the manufacturer, the behavior of the seller and the ability to propose the goods and other factors". [1]

The rapidly changing world market conditions and the growing competition in the conditions of globalization require the creation and implementation of a totally new approach and principles for the development of our state in a more stable and rapid pace. The natural and climatic conditions of our country, the abundance of sunny days, the fertile soil, rich scientific and intellectual potential, quality and

taste create a great opportunity for the cultivation of agricultural products demanded in the world market. Therefore, in the five priorities of development of the Republic of Uzbekistan for the period 2017-2021, the Strategy for the modernization and accelerated development of agriculture is aimed at "deepening structural reforms and consistent development of agricultural production, further strengthening of food security of the country, expansion of production of ecologically clean products, considerable increase of the export potential of the agrarian sector". [2]

2. LITERATURE REVIEW

In the scientific development of the problem of stabilization of the agrarian market, state regulation of its development, as well as the problem of effective organization of marketing activities at the enterprises of the agro-industrial complex were made by Borkhunov N., Golubev A., Dobrynin V., Zhogoleva E., Kiselev S., Mashenkov V., Radugin N., Serkov A., Serova E., Tarasov A., Tkach A., Kholod L., Shakirov F., Epstein D., and others. In most studies, the problems of developing market relations are considered mainly on a national scale. The issues of improving the functioning of mechanisms for stabilizing the agricultural market at the regional level remain insufficiently developed.



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3. THEORETICAL AND METHODOLOGICAL BASIS OF THE RESEARCH.

The theoretical and methodological basis of the research is based on the use of the theory of state regulation of the market economy, the theory of the transitional economy, the work of domestic and foreign agricultural economists on the development of the food market. When considering the organization and management of the marketing activities of the enterprise, sources were used in the theory of management, marketing, agromarketing. Legislative and normative acts, concepts and programs for the development of the agro-industrial complex, including the agro-industrial complex of the Republic of Uzbekistan, were drawn. Statistical and economic-mathematical methods were used during the research.

4. DATA COLLECTION

The study reflects the data of current statistical information, statistical compendiums of the State Statistics Committee of Uzbekistan, the Ministry of Agriculture, annual reports of enterprises of the regional agro-industrial complex.

5. OBJECTIVES

The object of research in the work is the system of the agrarian market of the region and the activity of market entities in the organization of sales management of their products. The subject of the study is a complex of relations that arise in the sphere of regional turnover of agricultural products and the formation of a regulated market for agro-industrial products.

6. THE NOVELTY OF SCIENTIFIC RESULTS

The novelty of scientific results is that an approach to the study of the agricultural market and the stable development of structural parts has been developed. In addition, the method of adjusting the single tax rate, based on natural and climatic features of the regions.

7. ECONOMIC INSTRUMENTS OF THE STATE TO STIMULATE THE DEVELOPMENT OF THE AGRICULTURAL MARKET

Global climate change today, which is affecting the planet, has a negative impact on the effectiveness of agricultural land and water use. In this regard, it is important to improve theoretical-methodological foundations for the sustainable development of the agrarian market and its components. World experience shows that there are objective problems that can not be fully solved by free markets in terms of market relations and well-established free economic relations, while establishing an inter-

sectoral trade turnover balance in the agrarian sector. In addressing such economic problems, the government's economic or administrative levers are influenced primarily by the regulation of market development through economic instruments. This is primarily a matter of agricultural support. The need for this approach is as follows:

- strong impact of objective natural-economic factors on sustainability of agricultural product markets (supply and demand, stability of average prices);
- absence of market prevalence in farming and dekhkan farms in agriculture compared to other sectors of the agrarian sector;
- A high level of capacity building of agricultural production and at the same time relatively low production profitability;
- The existence of a sharp imbalance in the growth rate of products in inter-sectoral commodity exchange, which is interconnected in the agrarian sector.

Taking into account the above, the system of economic support for the development of the agrarian market of the state should be primarily aimed at addressing the following important socio-economic tasks:

- legal, organizational, economic and financial incentives of the agricultural products markets to provide the population with adequate quantities of food, quality and relatively low prices;
- Providing material and technical resources directly to agricultural producers, introduction of financial support measures;
- Implementation of economic coordination of exports and imports of agricultural products, agribusinesses and agro-services, diversifying the structure of agricultural production and crop cultivation;
- Implementation of a policy of preservation of the short-term in certain directions in the domestic agrarian product market and in some areas of continuous protection;
- Encouraging the development of infrastructure facilities on the basis of territorial infrastructure to ensure effective implementation of the agrarian market, etc.[8]

Market sources for the domestic market, which are exporting the necessary material and technical resources for the agricultural sector, or marketable resources for the domestic market, are offering expensive resources to the domestic market in the agricultural product market, with the rapid growth of resources required for agriculture. Failure to comply with the eligibility requirements of the agreements on the provision of material and technical resources and the financial condition of the service providers, the level of availability of qualified specialists, and the agreement on the provision of services between the various sectors, reduces the effectiveness of the

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agribusinesses and agro services markets. [9] At the same time:

- Adaptation of the lending system to the needs of agribusiness and service providers in ensuring balanced agricultural development;
- Development of a system of preferential long-term lending for strengthening short-term and material-technical base of state-owned enterprises for the production of farms;
- The need to expand the supply opportunities of agricultural producers in the leasing market and assortment of leased equipment, even though leasing companies are developing;

- widespread use of incentive mechanisms and tax incentives in the system of taxation of the agrarian enterprises;

- ensuring that the agrarian sector's insurance system operates in strict accordance with the requirements of farmer and dehqan farms; [3]
- Problems of solving the problem of development of the agrarian market are a lot of problems, such as the legal basis of the export of agricultural products produced by farms, the need to improve the customs procedures, etc.

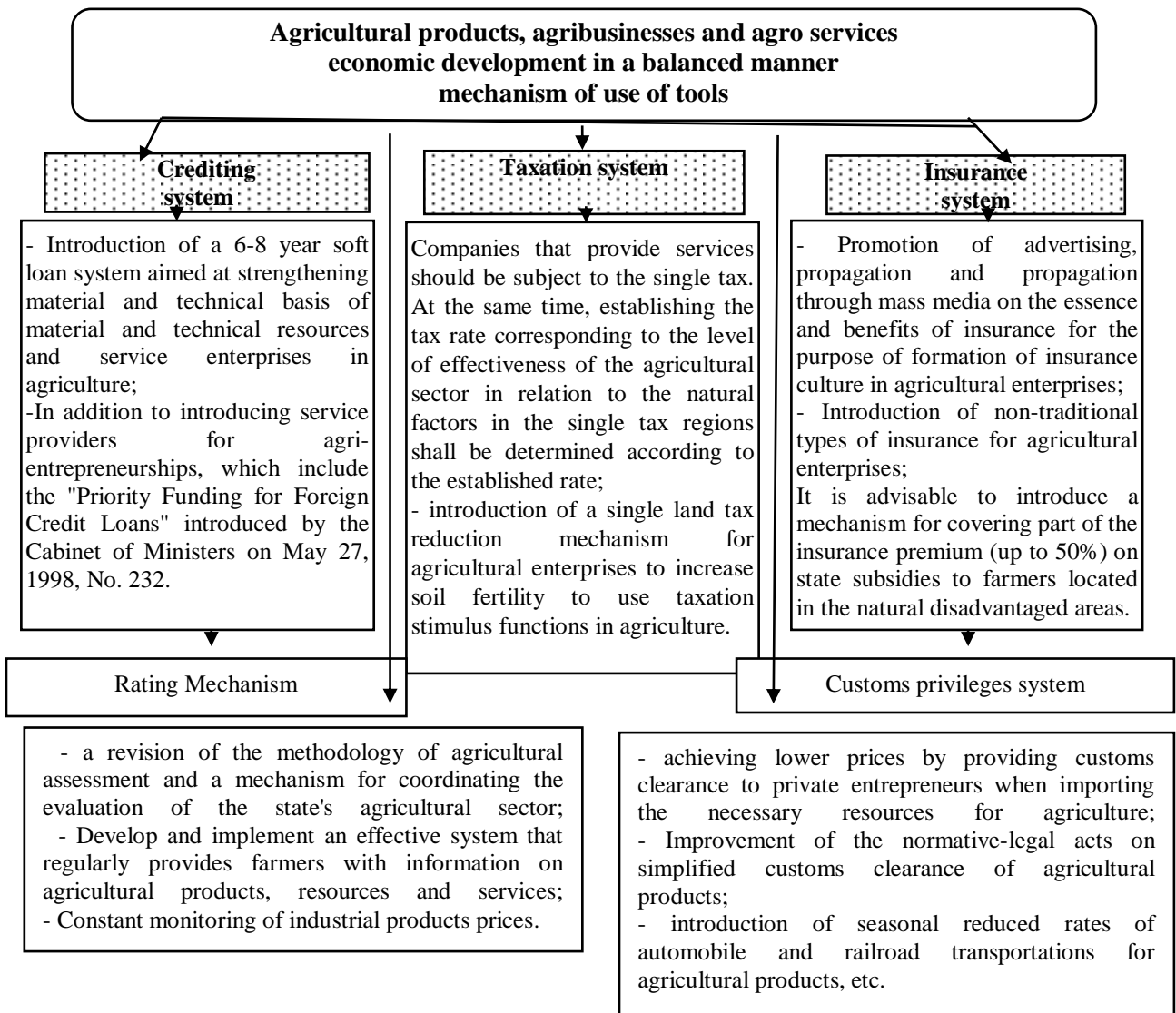


Fig.1. Balanced development of the agricultural market state coordination directions

8. MECHANISMS FOR THE DEVELOPMENT OF AGRICULTURAL PRODUCTS AND AGRIBUSINESS MARKETS

Since 1999, the introduction of the single land tax for agricultural enterprises in our country has

resulted in a number of improvements in the taxation of agricultural enterprises. [4] However, together with the financial and technical resources, supply and service enterprises will be exempt from value-added tax for a specified term, however, necessary for some

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types of farm products (introduction of excise tax on oil products, mineral fertilizers) have an impact on the development of the agricultural sector. Therefore, agricultural products, and market reforms affect the balanced development of the state system of instruments as taxes, insurance, lending and evaluation mechanisms are required (Figure 1). [11]

In the improvement of the system of taxation of enterprises producing and supplying agricultural products, it is advisable to:

- introduction of a differentiated system for the introduction of a single taxation system for enterprises providing services to farmers and dekhkan farms. The only tax areas related to environmental and climatic factors of the effective tax rate in accordance with the level of the fixed rate should be changed.

For example, in the Republic of Karakalpakstan, businesses serving less than Andijan region are less likely to pay taxes. Because the port associated with the problem of the Aral Sea environmental issues, land reclamation, water scarcity, etc. adversely affect the economic situation of farms. [10]

This should facilitate the farming economy through service delivery systems. Therefore, the following methodology is recommended for the farmers and dekhkan farms to use a differentiated system for the introduction of a single tax system. At the same time, it was noted that the only tax the agricultural sector of natural factors associated with the formation of the regions in accordance with the level of efficiency of the tax rate compared to the national rate for the changes. The most effective way to influence the latest economic outcomes in natural factors is to select the simplest indicators for data collection and calculation. [5]

As an indicator:

- an average officially approved soil ballooning of irrigated agriculture lands in the regions;
- It is desirable to select an average annual vegetation period in the region. The above features have a major impact on the level of efficiency of agricultural production factors, and researchers them the opportunity to gather information to identify high.

9. THE METHOD OF ADJUSTING THE SINGLE TAX RATE BASED ON THE NATURAL AND CLIMATIC FEATURES OF THE REGIONS

The methodology, understood as a set of methods applied in any area of human activity, as applied to the analytical evaluation of a complex research object-the regional economy-includes various approaches, techniques, rules and requirements that should guide the analysis process. At present, an increasing number of specialists are beginning to realize that in the conditions of

information explosion experienced by the present civilization, considerable attention should be paid to methods of orientation in the actual material of science, methods of its application. And from the point of view of practical application, the method must correspond to its properties, such as efficiency, clarity and clarity, reliability, etc. In the field of methodological analysis are problems of people's daily lives, their communication and behavior in the process of life. The task of methodology is the elucidation, construction and transformation of schemes of social activity. To date, more (in comparison with the private-scientific methodology) is a general scientific methodology, within which a systemic approach, a modeling method, has been extensively studied.

The methodological basis for the analysis of the development of the region is formed by a paradigm that believes that the region is not a strictly autonomous object, but a multifunctional organism that develops on the basis of vertical (center-region) and horizontal (interregional) interactions included in the system of world economic ties. Thus, the analysis and forecast of territorial development as interacting backbone structures should be built into the overall strategy of the country's social and economic development. This aims at the inevitable search for the unity of regional and Russian economic policies aimed at overcoming spatial inequalities: differences in the volumes of the gross regional product per capita that are reflected in the level and conditions of life, in employment and unemployment, in the rate of development of individual regions, in conditions for entrepreneurial activity, etc.

The level of economic development of the region is the result of the previous historical development of reproductive processes on the territory in the system of nation-wide division and integration of social labor. First of all, a method of retrospective analysis of the most important socio-economic indicators should be used to determine the level of economic development of the region achieved.

The soil scarcity of irrigated agricultural land areas and the average annual vegetation period for regions are estimated by comparing them with different coefficients. In this:¹

- to turn the regions of irrigated agriculture into a ratios of mean soil fertility rates($TБ_K$):

$$TБ_K = \frac{BT_B}{BBYT_B} \quad (1)$$

here:

¹Source: author`s elaboration.

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BT_б - irrigated agriculture crops in the separate provinces field balls, ball (ball);

ББУТ_б - irrigated agriculture crops in the provinces. Republic of the country in the field of ground balls. The average arithmetic mean in the circle (ball).

When conveying an average annual vegetation period to a regional coastal (УВД) area by region:

$$УВД_{д} = \frac{ВД_{д}}{ХБВД_{д}} \quad (2)$$

Where:

ВД_д- is the annual vegetation period in the area of the separate province duration, (days);

ХБВД_д - irrigated agriculture crops in the provinces. Republic of the country in the field of

ground balls. Average arithmetic indicator in the circle (days). Indicators calculated on the basis of Formula 1 and 2 serve as the basis for further calculations for each respective region.

At the next stage, the average indicator for each region is calculated by dividing the average soil rate of irrigated agricultural lands and the average annual vegetation period coefficient (Table 1).

Based on the recommended methodology, it is possible to see that the service providers have a 5% unified tax rate for the country, depending on the region's natural and climatic characteristics. In particular, the single tax rate on the Republic of Karakalpakstan can be at least 4.2 percent, but not 5 percent.[7]

Table -1

The single tax rate is the natural and climatic zones features based on the properties

Administrative zones	Top fields of cultivation, (ball)	Vegetation period duration, (days)	Ground balloon coefficient	Vegetation period coefficient	An average indicator for the ballooning and vegetation period	Correction coefficient	Single tax rate, (%) = 5.0 stratification
Republic of Karakalpakstan	41	195	0,75	0,93	1,68	0,84	4,2
Andijan	57	210	1,04	1,01	2,05	1,03	5,1
Bukhara	50	205	0,91	0,98	1,89	0,95	4,6
Jizzakh	51	210	0,93	1,01	1,94	0,97	4,9
Kashkadarya	51	225	0,93	1,08	2,01	1,01	5,1
Navoi	53	205	0,96	0,98	1,94	0,97	4,9
Namangan	59	210	1,07	1,01	2,08	1,04	5,2
Samarkand	57	205	1,04	0,98	2,02	1,01	5,1
Surkhandarya	56	225	1,02	1,08	2,10	1,05	5,3
Syrdarya	52	210	0,95	1,01	1,96	0,98	4,9
Tashkent	59	210	1,07	1,01	2,08	1,04	5,2
Fergana	56	210	1,02	1,01	2,03	1,02	5,1
Khorezm	53	195	0,96	0,93	1,89	0,95	4,6
Average	55	208,8	1,00	1,00	1,0000	×	×

Source: author's calculations.

10. CONCLUSIONS AND RECOMMENDATIONS

The change in the uniform tax rate for agricultural service providers based on the natural

and climatic features of the regions will be indirectly economically stimulating for agricultural enterprises due to the decline in services prices:

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- the introduction of a single land tax reduction mechanism for the agricultural enterprises to increase the fertility of the cultivated lands and the use of meliorative activities at the expense of its net profit, for the widespread use of the stimulating function of the agricultural tax system;

- exemption from customs duties, equipment, spare parts, equipment, technology imported from foreign countries for the purpose of strengthening and continually updating the material and technical basis of service enterprises;

- the state should establish mechanisms for regulating the process (minimum and maximum) on technical equipment, spare parts, fuel and lubricants

and other industrial products;
- It is desirable for farmers to introduce a practice of recovering penalties at the expense of tax debts from non-farm farms, but not for timely payment for products transferred under the government order;

- It is necessary to abolish social benefits to the wage fund for farms producing crops within the state order because of the specific features of agriculture, natural and climatic conditions, the farmer's ability to make a permanent income, Implementation of the aforementioned measures is crucial in the sustainable development of the agrarian market and its components.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

STATE SUPPORT OF SMALL BUSINESS AND PRIVATE ENTREPRENEURSHIP

Abstract: *In this paper, the role of small business and private entrepreneurship in the national economy is based on scientifically-based trends. The analysis of the share of small business and private entrepreneurship in the country's gross national product and gross regional product has been analyzed. Also, the role of small business and private entrepreneurship in the region's economy has been studied in Andijan Region and its development outlook for 2017-2021 has been studied.*

Key words: *small business, private entrepreneurship, gross national product, gross regional product, labor, employment, support for small businesses and private entrepreneurship, small business development.*

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Introduction

Today, small businesses and private entrepreneurship have a special place in the national economy. Many theoretical and practical research shows that small businesses have many advantages over large businesses in the economy.

In recent years, a number of laws, decrees and resolutions on the modernization and diversification of production have been adopted and are being consistently implemented in order to create and further liberalize our economy on a completely new basis, improve its legal foundations.

Indeed, the underpinning of the ongoing economic reforms in the country is aimed at further development of small business and private entrepreneurship, the creation of liberties and transforming them into the leading power of the economy.

The development of small business and entrepreneurship in the conditions of modernization of the economy has a significant impact on macroeconomic stability.

As the President of our country Sh.Mirziyoev emphasized, "This is the further development and protection of private property and entrepreneurship". [2]

Research Methodology.

The paradigm of the research was interpretive approaches, and logical conclusions were drawn through deductive thinking. In the research process, methods such as scientific abstracting, analysis and synthesis, and systematic approach were used. The information required for the research was derived from secondary data in the form of quality data and statistical data.

Literature review.

The owner of the Nobel Prize, M.Yunus said that the focus should be focused on the social impact of lending to small businesses. After expanding the financial viability of businesses, they raise the demand for loans at market rates [7]. F.Allen [4] and D. Gail recognize the existence of two systems for SME financing activities - a system based on a bank-based system and a fiscal market-based system. In our view, this conclusion by F. Allen and D. Gail is an important practical issue for transition economies. This is because first of all, in these countries, commercial banks have a leading position in the system of small business crediting; Secondly, there is no possibility for small businesses to attract resources through the securities market. According to Shanel-Reyno and Blua, good relationships between small and medium-sized enterprises with major businesses increase their access to commercial banks loans. Because large enterprises analyze that they can



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meet market demands before entering business relations with small and medium enterprises. It also monitors the status of small and medium-sized enterprises, which is a major business partner. The scientific findings of J.Shanel-Rein and E.Blua are based on the analysis of the experience of the developed countries and are therefore reliable. Their researches are based on a clear analysis of data and serve as a basis for the fact that large business plays an important role in the development of small and medium-sized businesses.

According to MakNoton [6], the function of liquidity supply for agricultural producers is a product of the future. But if there is a drought, they will not be able to harvest the desired crop. Therefore, future crops should be protected from drought, natural disasters. D.MakNoton's conclusion is in line with US and Western European practice. In our opinion, substantiation of the possibility of applying the scientific conclusions of economist scientists aimed at further development of small business subjects in the practice of the republic plays an important scientifically-practical role.

Analysis and results.

As the experience of countries that have reached a pre-eminent position in the world economy, they have raised the standard of living of the population through the development of small business and private entrepreneurship. For example, the share of small and medium-sized businesses in the gross domestic product of the EU countries is 67%, in Germany - 65%, in the USA - 52%. In Japan, 80% of the employed population, in the countries of the European Union - 70% work in the small business and private business.

Taking into account the experience of the developed countries of the world, Uzbekistan pays much attention to the development of small business and entrepreneurship as one of the strategic directions of economic reforms.

Every citizen of Uzbekistan has the right to carry out entrepreneurial activities by creating, buying or selling or reorganizing enterprises. To carry out its activities, the entrepreneur has the right to attract on a voluntary basis the property and funds of other legal entities and individuals, independently employ and dismiss employees and is obliged to pay taxes from their incomes.

Forms of entrepreneurship:

- private (private) business;
- Entrepreneurship with the involvement of hired labor;
- collective or joint venture, carried out by several citizens and legal entities.

A real estate market was established in the republic, and small businesses were sold to citizens at auction and on a competitive basis.

Currently, large and small enterprises are functioning simultaneously in the economy of Uzbekistan, and activities based on personal and family work are being carried out. The sizes of the enterprises depend on specificity of branches, their technological features, from action of scale effect. There are industries associated with high capital intensity and significant volumes of production, and industries that do not require large-scale enterprises, but, on the contrary, it is their small size that is preferable.

The possibility of the effective functioning of small forms of production is determined by a number of their advantages in comparison with large-scale production; proximity to local markets and adjustment to customer needs; production in small batches, which is unprofitable for large firms; elimination of superfluous links of management, etc. Small production is promoted by differentiation and an individualization of demand in sphere of industrial and personal consumption. In turn, the development of small and medium-sized production creates favorable conditions for the recovery of the economy: a competitive environment is developing; additional workplaces are created; structural adjustment is under way; the consumer sector is expanding. The development of small enterprises leads to saturation of the market with goods and services, increasing the export potential, better use of local raw materials. Of great importance is the ability of small enterprises to expand the scope of employment, create new opportunities not only for employment, but primarily for the entrepreneurial activities of the population, the deployment of its creative forces and the use of free production facilities. The preferences, guarantees and rights provided for by the legislation of the Republic of Uzbekistan for small business entities are granted to the above-mentioned commercial organizations on the basis of their appeals to authorized organizations (state tax, customs authorities, state statistics bodies, banks, etc.) depending on the nature of benefits, guarantees and rights, with a written notification that they are subjects of small business. The responsibility for the reliability of the notification is the responsibility of the entities that submitted the notification [3]

By legally supporting small businesses and private entrepreneurship, they have become the dominant part of the economy. The development of small business and private entrepreneurship in the country, their share in the gross domestic product of the country has been rising (Table 1).

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Table-1.
Share of Small Business and Private Entrepreneurship in the GDP of the Republic of Uzbekistan

Кўрсаткичлар	2010 й.	2011 й.	2012 й.	2013 й.	2014 й.	2015 й.	2016 й.
GDP across the country	100	100	100	100	100	100	100
In particular, the share of small business and private entrepreneurship	62,3	64,5	62,4	63,0	63,6	64,1	64,1
Also, the share of small business and private entrepreneurship in GRP as a whole							
Republic of Karakalpakstan	63,6	66,0	63,6	64,0	64,5	64,6	57,0
Andijan region	54,7	56,3	57,0	57,5	59,4	61,4	66,0
Bukhara Region	52,5	54,0	54,6	55,8	56,1	56,5	56,9
Jizzakh Region	77,3	79,8	79,2	79,9	79,9	80,1	80,3
Kashkadarya region	55,0	56,2	51,4	51,4	51,5	51,6	51,7
Navoi Province	34,4	35,9	35,7	36,1	36,9	37,1	37,6
Namangan Province	76,0	78,7	78,4	79,5	79,7	80,2	80,3
Samarkand Region	73,6	76,2	75,9	77,1	77,4	77,9	78,0
Surkhandarya region	71,7	73,8	73,7	74,1	74,5	75,2	75,3
Syrdarya region	77,4	79,8	66,7	67,3	67,7	68,5	68,7
Tashkent region	54,7	57,2	54,6	55,3	56,2	56,7	57,1
Fergana Province	54,7	57,2	54,6	55,3	56,2	56,7	57,1
Khorezm Region	71,8	74,1	73,5	73,8	73,9	74,1	74,2
City of Tashkent	54,7	57,2	54,6	55,3	56,2	56,7	57,1

The table below shows that the share of small businesses and private entrepreneurship in the country's GDP increased by 1.8 percent in 2016, compared with 2010, reaching 62.3 percent in 2010 and 64.1 percent in 2016. If we analyze these indicators by regions, the share of small business and private entrepreneurship in the gross regional product will increase in Namangan region (76.0% in 2010, 80.3% in 2016) and Jizzakh region (77.3% in 2010, 80 in 2016 , 3 percent). Here the lowest indicator is in Navoi region (34.4% in 2010, 37.6% in 2016). [11]

It should be noted that President of our country Sh. Mirziyoev's nomination "Year of Support for Active Business, Innovation Ideas and Technology" by 2018 will allow us to further develop small business and private entrepreneurship, introduce

innovative ideas and technologies in the country, and further expand their share in the country's GDP. [3]

At the same time, creation of favorable business environment for wide development of small business and private entrepreneurship, one of the priorities of the Movement for further development of the Republic of Uzbekistan in 2017-2021, the strict prevention of illegal interference by state, law enforcement and supervisory agencies you need to get it. [1]

Nowadays, under the Cabinet of Ministers of Uzbekistan, the State Fund for Support of Business Development was established. The decree was signed on 17 August by President Shavkat Mirziyoyev.

Among the objectives of the fund are strengthening of legal mechanisms for protecting and guaranteeing the activities of private entrepreneurship, introducing new instruments for

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their state support, expanding access of business entities to credit resources, stimulating the creation of new jobs and further improving the financial and banking system of the republic. [10]

Besides that, in Uzbekistan, the Guarantee Fund for the Development of Small Business in the form of a joint-stock company was established, the corresponding Decree of the President of the Republic of Uzbekistan was signed on February 10 this year.

One of the main founders of the fund is the State Committee for Competition, among other fund shareholders there are the Association of Banks of Uzbekistan, the Chamber of Commerce and Industry, as well as a number of major banks and insurance companies.

The guarantee fund was created to further improve the business climate and accelerate the development of entrepreneurship.

Currently, one of the main obstacles to obtaining a bank loan by small business entities is a lack of collateral, which is the most common reason for refusing to provide a loan.

The solution of this problem will be contributed by the Guarantee Fund, designed to provide banks with loans to small business entities, in a part not covered by collateral.

The guarantee fund is intended to provide banks with loans to small business entities in the part not covered by a pledge up to 50% of the loan amount, but not more than 100 000 US dollars.

The Guarantee Fund also provides consulting assistance to small businesses on the terms of allocation of bank loans, and also helps them in the creation of high-tech and innovative industries.

The main objective of the fund is to provide small businesses with financial support in national and foreign currencies through commercial banks.

The sources of the fund's resource base are:

➤ the initial contribution to the fund in the form of money from the Guarantee Fund of Small Industrial Zones in the city of Tashkent and the Guarantee Fund for the Development of Small Business in the amount of \$ 50 million and 100 billion soums, respectively, followed by the abolition of these funds;

➤ means of the state budget of Uzbekistan within the limits of the approved annual appropriations for these purposes, and in 2017 for the formation of the resource base of the Fund - 100 billion soums;

➤ part of the annual net profit of the Central Bank, sent to the state budget of Uzbekistan;

➤ loans (loans) and grants of international financial institutions, foreign government organizations and other donors involved in the implementation of tasks assigned to the Fund and others.

The Fund will provide guarantees and compensations for commercial bank loans, as well as resources for commercial banks to finance projects:

➤ in agriculture, primarily aimed at creating energy-efficient greenhouses, the development of livestock, poultry, fisheries, rabbit breeding, beekeeping, viticulture and horticulture, including intensive gardens;

➤ in the sphere of processing agricultural products, creating an infrastructure for storage of fruit and vegetable products and logistics centers associated with its transportation;

➤ on arrangement and repair of common areas in multi-apartment houses, carried out by private owners' partnerships and management companies and others. [12]

According to the US Small Business Administration, there are currently 13 million smaller companies in the United States, 2.3 million in the UK and more than 6.5 million in Japan. In the leading industrial countries, the annual growth rate of new smaller firms is as follows: UK - 1.1%, France - 1.5%, GFR - 3%, and the USA - 8%. In Germany, Great Britain, Italy, Japan, the United States, small businesses account for 2/3 of the new jobs that are relatively productive. According to various estimates, around half of the country's population is small in the small business world. In EU countries, 72% of the total number of small businesses in the country is operating, making 63% - 67% of GDP, which is 78% in Japan and 52% - in Japan, 55% in the United States, 54% 50 -: - 52%. There are less than 100 employees in 98% of Japanese facilities. In America, 95% of enterprises have less than 100 employees. This means more than 9972,000 businesses. It is these companies that have a real revival, and 500 largest enterprises have been investing \$ 6 million since 1973. lost their jobs [8]. Employment in small businesses is characterized by relative flexibility, variability in terms of different circumstances, and securing secondary employment. For example, in Germany, the "affiliate entrepreneur" is a phenomenon. In their major businesses, the more unemployed are their own small businesses. This is especially true for lawyers, accountants and auditors. There are also large corporations that allow employees to work at home regularly. In such a case, there is a vast field of development for individual entrepreneurship. Banks, insurance companies, and financial institutions - most of them are almost in the middle of the night. Because "rackbearer" is at work in the daytime, he may have to spend the night at remittances, insurance, or some kind of consultation [9].

Conclusion

As a result of analyzes and researches, it is predicted that the share of SE entities in the GDP of

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Uzbekistan will be 64.4% in 2017, and by 2021 it will reach 65.7%. Also, as a result of regional studies, it is possible to note that in recent years, the share of these entities in Andijan region is noticeably rising, ie by 2016 it amounts to 66.0%, and by 2021 it is forecasted to increase to 74.7 points.

In our opinion, it is expedient to implement the following measures to further develop small business and private entrepreneurship in our country and to achieve this tendency:

- Promote awareness of the concept of entrepreneurship among the population of the country, as a result of which it is necessary to engage in several types of activities to increase the incomes of the population;

- Improving infrastructure in rural areas and creating opportunities for entrepreneurial activity, taking into account the fact that the majority of the population lives in rural areas;

- allocation of preferential credits from commercial banks with the purpose of further development of small business and private entrepreneurship, wide introduction of advanced innovative technologies;

- Increasing the volume of exports of products created by small businesses and private entrepreneurship, simplifying the process of documentation related to them;

- further simplify the financial and tax reporting submitted by small business and private entrepreneurship, and to create greater freedom for their efficient operation.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

ACTUAL PROBLEMS OF STATE REGULATION OF AUDITING ACTIVITY AND ORGANIZATION OF TAX AUDIT

Abstract: The article is devoted to actual problems of state regulation of auditing activity and organization of tax audit. For this purpose, the main functions, tasks and significance of audit activity and its specific features have been analyzed. Important components of state regulation of audit activity are considered. Optimization of the main mechanisms of tax audit organization under current conditions is justified. The current issues on improving the mechanisms of state regulation of audit activities and organization of tax audit in the context of growing global economic influences are generalized.

Key words: audit, audit activity, tax audit, state regulation of audit activity, effectiveness of tax audit mechanisms.

Language: English

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Introduction

In professional literature, the "audit framework" concept is mentioned quite often (in different variations), but the definition of it has not found its reflection yet. Current legislation also does not articulate the concept of the "audit framework" nor determine its structure. The audit framework peculiarity lies in the fact that these activities are performed not only by state authorities but also by non-state institutions. The latter consist of professional associations (autonomous organizations of auditors, i.e. non-governmental and non-profit institutions created on the basis of membership in order to provide conditions for auditing), public organizations, as well as audit organizations and individual auditors who develop company standards. The term "audit framework system" was defined making allowance for the system analysis of legislation and scholarly literature on this issue.

We are of the opinion that this concept means a conjunction of interrelated functions carried out by state authorities, non-state professional and public associations, as well as audit organizations and individual auditors, in adopting the legal regulations within their competence, which are related to the issues of economic actors' relations with regard to the provision of auditing services.

This definition combines main features of the

analyzable concept: the system ("a conjunction of interrelated functions"), the regulation ("in adopting the legal regulations"), and "audit activities" ("the provision of auditing services"). Herewith, it shall be understood that under auditing services we imply the actual auditing services accompanying the audit itself and other services related to audit activities.

It should be noted that the current procedure for adapting international standards in the form of national standards in Azerbaijan has its disadvantages. Thus, the first-hand source of international standards fulfilled in English has no legitimate power over the territory of the country. And any translation is not correct enough despite however carefully it's done. The domestic development, agreement, approval, and enactment of auditing rules (standards) scheme often "lags" from international standards-analogs. Taking into account the necessity of standards' application in practice, the existing order raises concerns because it admits an interpretation of audit norms and principles that is different from the generally accepted one.

Materials and Methods

A tendency of an increasing volume of requirements for audit organizations and individual auditors was revealed through the analysis of main changes in the sphere of audit activity's state



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regulation. A present-day historic period of audit development is characterized by an implementation of the national concept of transition to self-regulation. In this regard, we propose a new "span of control" term in relation to the analyzed sphere, with the help of which the necessity for measures taken by the state are conditioned by a significant increase in the number of "players" in the audit market and audit-related services.

From the perspective of methodical thoughts and theories of the audit, the clearly differentiated concepts of "audit activity" and "audit"; a significantly expanded scope of requirements for audit organizations and auditors; a legislator's approach changed to the auditing services market players that can perform mandatory annual audits; an introduced list of information and documents that do not constitute an audit secret, as well as its disclosure mechanism; the included regulations for disciplinary actions to audit organizations and individual auditors – should all be considered as the most significant transformations of the legislation on audit activities.

The analysis of audit framework functions has revealed that the subsystem of government regulation is unjustifiably limited by the activities of only one executive body within the framework of the current legislation. The activities of other authorities (legislative, executive, judicial), which adopt statutes and other regulations, such as laws that operate on the territory of the country, would also be necessary to include in this area.

An analysis of the foreign countries' current experience in audit framework (for example the United States and Western European countries) has led to the conclusion that a rapid emergence of new phenomena and tendencies (such as "revenue management" and "aggressive accounting") served as the main reason for the modification of the regulatory bodies' functions and significant tightening of the regulatory standards themselves. The emergence of international standards-analogs, regulating the quality of audit and related services in detail, is due to the reaction of the professional community to the users' "crisis of confidence" over financial statements and auditors' reports. Accepted in Azerbaijan standards correspond to international analogs and represent a detailed internal quality manual addressed to audit organizations and individual auditors. In connection with the introduction of such standards in the Republic, it is believed that our country, to a certain extent, was able to consider a negative experience of its colleagues and take regulatory measures in order to prevent similar tendencies in the future. Thus, the analysis of the acts of standards in Azerbaijan show a significant tightening of requirements for audit organizations and auditors on the part of regulatory bodies. In this regard, we observe a partial shift in emphasis in the audit framework system for

examination and emergence of a "revisionary" audit.

During the analysis of the main statutes that regulate auditing activity in a number of the former USSR's countries-republics the following was established:

- In comparison with other countries, Azerbaijan is characterized by a more late formation of a system of legislative audit framework. This, undoubtedly, is the main factor restraining the application of the practice of rules for audit framework. It also caused a realization of a limited volume of functions on the part of regulatory bodies in the 1990s of the last century;

- Being one of the first countries-republics of the former Soviet Union, Azerbaijan has radically changed its regulation system in the sphere of interest, having transferred most of the functions to autonomous organizations;

- The legislation on audit activities of the FSU countries (except Russia) contains a classification of auditing services types and also provides for the priority of international treaties over national-level acts in the field of audit activity, which, at the same time, proves the necessity of the development of measures on audit framework system's improvement by consolidating the principle priority of international standards with direct effect;

- The legislation of many countries does not limit the list of vital terms of a treaty on the provision of auditing services with regulations on the procedure for terms and conditions of payment and the amount of monetary reward, as well as the timing of the services delivery period. In our opinion, this list should also be completed with other conditions, taking into account the specifics of the auditing services' provision, in order to ensure the full implementation of audit organizations' as well as individual auditors' functions;

- Certain aspects of the audit framework in the countries of the former Soviet Union is proposed to be used in our country:

- Limit the possibility of carrying out the work by an individual - an auditor in an audit organization;

- In view of the socio-economic significance of certain economic actors' categories - audited persons, a mandatory annual audit should also be determined for users of subsoil assets, as well as juridical entities that enter into investment contracts providing for various benefits;

- Commencement of proceedings in the bankruptcy is considered to be the basis for setting a compulsory audit, taking into account the public capacity of the insolvency officials' activities, which is confirmed by the decision of the highest court;

- Considering the increased volume of requirements for audit organizations and individual auditors, at the stage of developing a general plan and audit program, afford them a right to conduct a prior acquaintance with the constitutive corporate

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documents, as well as accounting records and financial statements of the economic entity;

- Introduce a law on the responsibility of economic entities for avoidance of compulsory annual audit;

- In order to identify a clearer "boundaries of responsibility" for audit organizations and individual auditors for their work results, define a concept and criteria for assessing the materiality level in the law "On Auditing activity".

Analyzing the functions of implementing the mandatory audit as an instrument for providing the economic resilience of the State, it can be established that for 10-15 years in terms of legislation there was a concept, according to which the mandatory audit could be conducted exclusively by audit organizations. While not having an opportunity to carry out an audit of socially relevant economic entities, individual auditors were excluded from this market segment. And despite the fact that the validity of this legislative provision was criticized by representatives of the academic community and the audit profession, the accuracy and its compliance with the Basic Law was confirmed by the highest court. In support of these conclusions, we can say that "by ensuring the implementation of the constitutional right to information in the field of business and economy based on the principle of equality of arms and contractual relationship, competition and risk, statutory accounting is considered to be one of the guarantees of the single market and the unity of economic territory". In this regard, the issues of providing the economic resilience of the State, the necessary presence of reliable accounting statements of socially relevant economic entities and guaranteeing the high quality of auditing services, which at that time could be provided only by audit organizations that had certified specialists and were obliged to insure their professional responsibility, became key arguments in favor of the decision to keep the controversial legislative provision in force.

In this aspect, special attention should also be given to the issues of improving the tax audit in the country. So that, ensuring the sustainable development of the national economy is entirely dependent on the state regulation of the economy and the efficient tax policy. Ensuring continuity of financial stability and budget revenues in the country, development of the real sector of the economy are impossible without efficient financial and tax control mechanisms [1;2;3]. Tax audit, one of the key tax control mechanisms, plays an important role in achieving these goals. From this point of view, the development and application of efficient activity mechanisms of organizing tax audits and the state regulation system are of paramount importance.

Market economy is mainly regulated by tax

mechanisms. And accordingly, the role of tax administration and tax audit which has a significant impact on the central position and recycling process in the development of the market economy, is increasing in the economy. There is a need for deep researches in the field of tax identification of the directions of finding and improvement of existing problems in the sphere of organizing tax audit and its state regulation in the modern period [4;5;6]. In the mid-and long-term perspective, acute debates on the development of audit activity and its state regulation affairs in the field of scientific and practical fields in the country need to conduct research in the field of analysis and resolution of these problems [7;8;9]. During the review of this issue, the main point is the appearing of the necessity of ensuring country's transition to a new stage of economic development and financial stability, as well as development of efficient mechanisms of financial and tax control. To achieve this goal is possible only in the condition of creating a more transparent, effective tax audit and audit technology for all economic entities in the country [10;11;12].

Conclusion

In our view, the following measures to increase the effectiveness of the mechanisms of organizing tax control in separate areas in Azerbaijan may be the impetus for significant advances in this area in the medium and long term perspective.

1. Rapidly developing construction sector in the Republic of Azerbaijan increases demand for construction materials of local importance every day. The report on construction material of local importance produced by the taxpayers is presented to municipalities pursuant to Article 217.3 of the Tax Code and the calculated mining tax is paid to the local budget (municipality budget) under Article 217.5 of the Tax Code.

When we review statistical indicators for the production of construction materials of local significance, we witness no realities. Thus, the production of goods of local significance, we witness incompliance with the reality. So that, based on statistical indicators, production of the products on construction materials of local significance is estimated slightly more than 1,600,000 tonnes (approximately 1000,000 m³) across the country in 2015, and less than 1,300,000 tonnes (approximately 800,000 m³) in 2016.

Our society conducted monitoring on 8-10 January 2018 to study production capacity and actual production of carers operating in Guba and Khachmaz regions. According to the results of monitoring, there are 50 gravel quarries in Guba and Khachmaz districts of Karachay, Valvala and Gudyalchay, of which 41 are currently operating at full capacity. Gravel quarries having weak production produce approximately more than 25,000



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m³ per month and gravel quarries having strong production capacity produce materials of approximately 60,000 m³ per month. Totally, over 1700 thousand m³ of material is produced by the gravel quarries. Given the average loss of 15% of the raw material during the production, it shows that more than 2,000,000 m³ of raw materials are removed from the surface of the earth through crushed quarries.

Based on the monitoring results and calculations, only the Guba and Khachmaz districts produce more than 24,000,000 m³ of construction materials annually. It can be concluded from here that more than 24,000,000 manats should be collected in Quba and Khachmaz regions alone. Taking into consideration the gravel, stone and sand quarries operating in other regions, this figure will increase dramatically.

The above-mentioned data show that the country's annual production (about 1,000,000 m³) mentioned in statistical indicators is less than the monthly production volumes of crushed quarries operating only in Guba and Khachmaz regions.

The reason for such a serious difference is the fact that the collection of the mining tax is the responsibility of the municipalities. Mining tax collection and submission of reports should be transferred to the Ministry of Taxes distinctly so as not to avoid large amounts of funds to be collected for the state budget.

As a mechanism to control the production of quarries, we propose to integrate the meters into the base of Ministry of Taxes, which will register the production of quarries, and the meters belonging to "Azerishig" OJSC, which are constructed in parishes by using pure electric energy.

2. The list of the settlements stipulated conducted in only cashless form is mentioned in the article 3.4 of the Law of the Republic of Azerbaijan about "on

Cashless Settlements". We propose to add some additions to that list:

- writing in such manner: "Payments to touragents and travel ticket sellers" by changing the text of the article 3.4.9.

It should be noted that the only touragents were made payments in the current law. If travel tickets are sold within the tourpackages, the touragents will be made payments via the bank. However, the sale of only travel tickets is carried out by those touragents in cash form. Its' reason is that touragent's activity covers only the sale of tourpacket.

3. In terms of wholesale sales of excise goods, it should be noted ensuring wholesale sale of alcoholic beverages and tobacco products in cashless form is regulated by relevant decrees and orders. Mention of carrying out such settlements in cashless form in the law of Azerbaijan Republic about "cashless settlements" will have an impact on taxpayers' more serious approach to their settlement.

4. Regarding payments to independent auditors and audit firms, it should be noted that, based on the Law "about Audit" being in force in 1999, taxpayers must ensure that their independent financial statements are audited by an independent auditor. From that time penalties for avoiding mandatory audit are intended in the "Code of administrative offenses". According to the relevant decree of the President of the Republic of Azerbaijan dated on May 03, 2017, the Chamber of Auditors has the authority to draw up a protocol on these fines. After that decree, notification letters were sent to many taxpayers by the Chamber of Auditors. The real situation indicates that auditors' involvement in auditing will increase from 2018. This, in turn, will lead to a decrease in the quality of the audit. Cashless payment for auditor services will have an impact on auditors' honesty in auditing.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

IMPROVEMENT OF INVESTMENT ATTRACTIVENESS OF NON- EFFICIENT SECTORS OF THE ECONOMY OF AZERBAIJAN

Abstract: The increase of investment attractiveness of the non-oil sectors of the Azerbaijani economy are studied in the article. The key problems and factors that hamper the investment attractiveness of the non-oil sectors have been examined with this purpose. The important components of increasing the efficiency of investment activities in the country are considered. The structure of the added value in the non-oil sector of Azerbaijan for 2017 in certain spheres of the country's economy is considered. The general structure of added value in the non-oil sector of Azerbaijan for 2017 for certain areas of activity is analyzed. In addition, the structure of capital investments in various spheres of the non-oil sector, growth dynamics of the non-oil sector, volume and distribution of foreign investments in the Republic of Azerbaijan in the spheres of economy and activity for 2011-2017 are examined. At the end of the article, recommendations and proposals to increase the investment attractiveness of the non-oil sectors of the Azerbaijani economy are prepared and made.

Key words: Azerbaijan Republic, non-oil sector of Azerbaijan's economy, investment attractiveness of non-oil sectors, problems of increasing investment attractiveness, improving the mechanisms of investment attractiveness in modern conditions.

Language: Russian

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ПОВЫШЕНИЕ ИНВЕСТИЦИОННОЙ ПРИВЛЕКАТЕЛЬНОСТИ НЕНЕФТЯНЫХ СЕКТОРОВ ЭКОНОМИКИ АЗЕРБАЙДЖАНА

Аннотация: В статье исследовано повышение инвестиционной привлекательности нефтегазовых секторов экономики Азербайджана. С этой целью рассмотрены ключевые проблемы и факторы, мешающие повышению инвестиционной привлекательности нефтегазовых секторов. Рассмотрены важные компоненты повышения эффективности инвестиционной деятельности в стране. Рассмотрена структура добавочной стоимости в нефтегазовом секторе Азербайджана за 2017 год по отдельным сферам экономики страны. Анализирована общая структура добавочной стоимости в нефтегазовом секторе Азербайджана за 2017 год по отдельным сферам деятельности. Кроме того, рассмотрена структура капитальных вложений в разные сферы нефтегазового сектора, динамика роста нефтегазового сектора, объем и распределение иностранных инвестиций в Азербайджанской Республике по сферам экономики и деятельности за 2011-2017 годы. В конце статьи подготовлены рекомендации и даны предложения по повышению инвестиционной привлекательности нефтегазовых секторов экономики Азербайджана.

Ключевые слова: Азербайджанская Республика, нефтегазовый сектор экономики Азербайджана, инвестиционная привлекательность нефтегазовых секторов, проблемы повышения инвестиционной привлекательности, совершенствование механизмов инвестиционной привлекательности в современных условиях.



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Introduction

За последние десятилетия в Азербайджане проводятся полномасштабные работы по усовершенствованию структуры экономики страны и обеспечению форсирования использования потенциала ненефтяных секторов. Дело в том, что Азербайджан, осуществляя крупные международные и региональные энергетические и транспортные проекты, существенно повысил свою конкурентоспособность и имидж на международной арене. Кроме того, последовательной реализацией нефтегазовых ресурсов на мировых рынках, страна постепенно укрепляет свои валютные резервы и усиливает свои финансовые потенциалы. Однако негативные последствия последнего финансового кризиса в мире, который начался с конца 2008-го года, отрицательные влияния которого присутствуют и по сей день, показали, что любая страна мира незастрахована от нестабильности финансовых и экономических колебаний мира и нуждается в более надежной системе экономического развития страны. Исходя из угроз глобального масштаба и создавшихся реальных условий за 2015-2016 годы, когда Азербайджан испытывал финансовые трудности из-за неоднократного снижения цен на нефть, которая является основным экспортным направлением страны, потребовалось серьезное вмешательство структур экономики и его регулирования. При этом необходимо было решить группу серьезных проблем на ближайшую перспективу:

- Экономика Азербайджана должна диверсифицироваться путем расширения деятельности ненефтяных секторов страны, отличающихся особенностью создания добавочной стоимости;

- Обеспечить модернизацию традиционных ненефтяных секторов экономики страны, таких как металлургический, химические и нефтехимические отрасли, промышленное машиностроение и приборостроение;

- Повысить эффективность и долю структуры экономики страны легкой и пищевой промышленности, где обеспечение занятости и усиление продовольственной безопасности страны имеет большой потенциал;

- Форсировать потенциал преимущественных новых ненефтяных секторов экономики страны, например сфера туризма, в которой присутствуют большие резервы расширения перечня туристических услуг и обеспечения их в течение года;

- Обеспечить развитие рынков технологии и инновации в Азербайджане и тем самым повысить потенциал сектора информационной коммуникационной технологии с учетом реализации человеческого потенциала и интеллекта;

- Наконец, с целью обеспечения масштабного финансирования и интенсификации потока инвестиционных вложений в разные сферы ненефтяных секторов экономики страны требуется повысить инвестиционную привлекательность с учетом совершенствования законодательной базы, механизмы и инструментарию инвестиционной деятельности.

Materials and Methods

Следует подчеркнуть, что Указом Президента Азербайджанской Республики от 6-го декабря 2016 года, утверждены Стратегические Дорожные Карты по национальной экономике и основному сектору экономики [1]. В настоящее время проводятся усиленные работы по реализации основных стратегических целей данной стратегии, где вопросы и проблемы развития ненефтяных секторов страны считаются одними из приоритетных целей. Отметим, что доля ненефтяного сектора в структуре экономики страны с каждым годом увеличивается. По итогам 2017 года в ненефтяном секторе экономики Азербайджана создана добавочная стоимость на сумму свыше 44 млрд. манат или примерно 25,9 млрд. долл. США, которые по отношению к аналогичному показателю 2016 года имеют рост на 2,7 %. Удельный вес ненефтяного сектора в ВВП страны составил 62,8 % [2;3;4]. Интенсивно развиваются такие ненефтяные сектора, как транспорт и складское хозяйство, строительство и торговля.

На Рисунке 1 дано распределение созданной добавочной стоимости в ненефтяном секторе Азербайджана за 2017 год по отдельным сферам экономики страны.

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Рисунок 1. Структура добавочной стоимости в нефтегазовом секторе Азербайджана за 2017 год по отдельным сферам экономики страны, % (Разработано авторами на основе материалов Министерства Экономики и Промышленности Азербайджанской Республики. <http://economy.gov.az>).

Структура добавочной стоимости в нефтегазовом секторе Азербайджана за последние годы совершенствуется, в основном за счет тех отраслей экономики, которые отличаются высоким потенциалом саморазвития и создания новых узлов переработки. В Азербайджане с каждым годом особо стремятся к использованию имеющихся возможностей интенсификации развития отдельных сфер нефтегазового сектора и

преимущественно в промышленных сферах, осуществляются целевые мероприятия и государственные программы [5;6].

На Рисунке 2 отражены показатели общей структуры добавочной стоимости в нефтегазовом секторе Азербайджана за 2017 год по отдельным сферам деятельности.

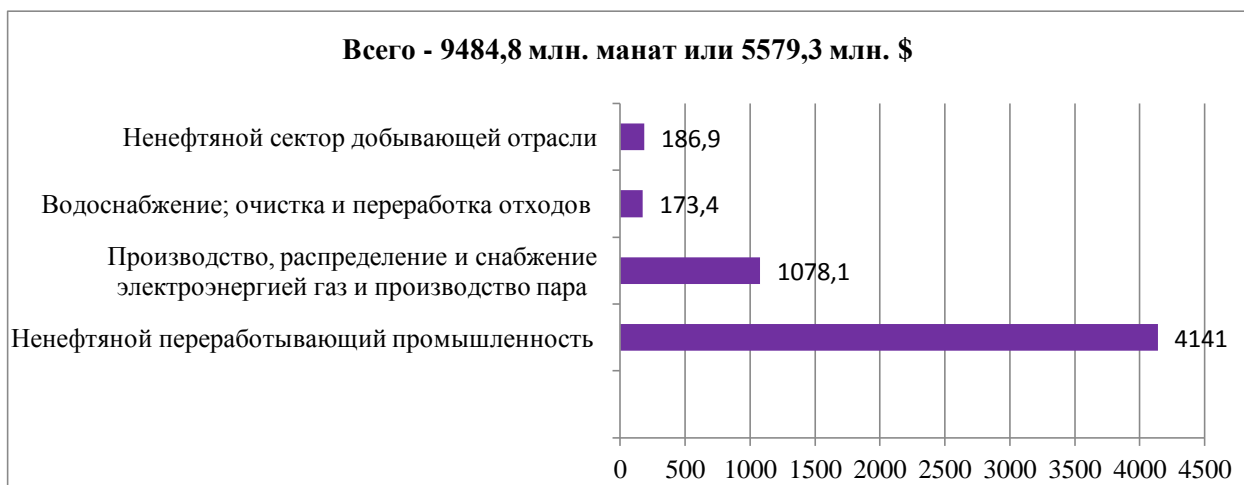


Рисунок 2. Общая структура добавочной стоимости в нефтегазовом секторе Азербайджана за 2017 год по отдельным сферам деятельности, млн. долл. США (Разработано авторами на основе материалов Министерства Экономики и Промышленности Азербайджанской Республики. <http://economy.gov.az>).

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Отметим, что за 2017 год с целью развития нефтегазового сектора страны осуществлены капитальные вложения на сумму 7102,2 млн. манат или 4177,8 млн. долл. США. На Рисунке 3

дана структура капитальных вложений в разные сферы нефтегазового сектора Азербайджана по итогам 2017 года.

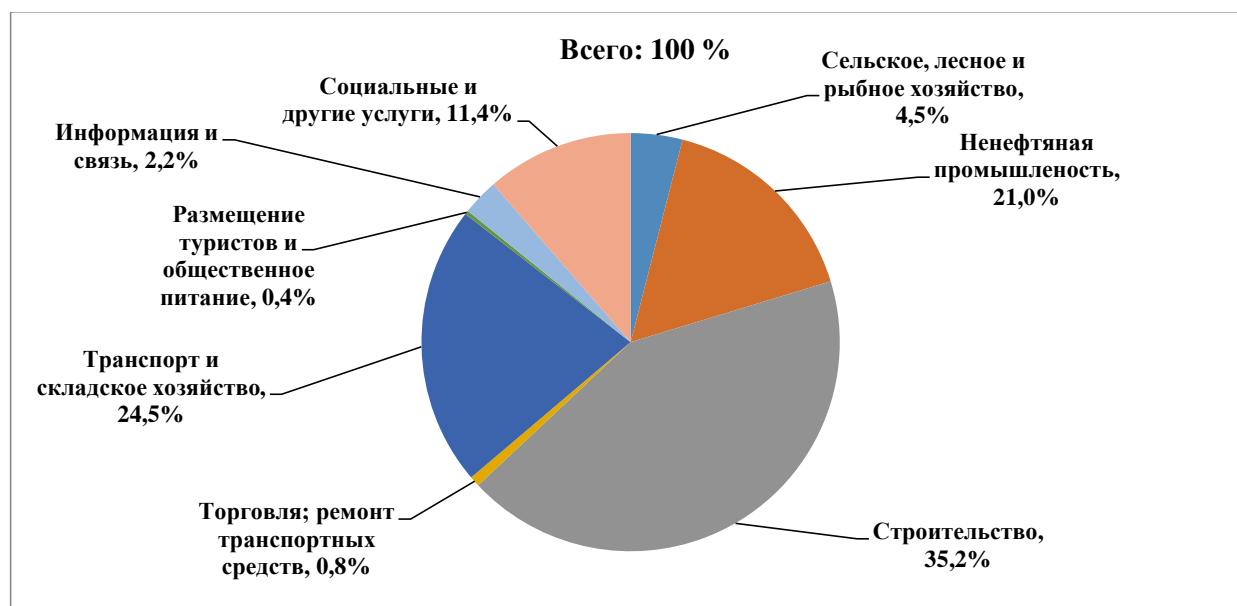


Рисунок 3. Структура капитальных вложений в разные сферы нефтегазового сектора Азербайджана по итогам 2017 года, в % (Разработано авторами на основе материалов Министерства Экономики и Промышленности Азербайджанской Республики. <http://economy.gov.az>).

На Рисунке 4 отражена динамика роста нефтегазового сектора в Азербайджанской Республике за 2005-2017 годы.

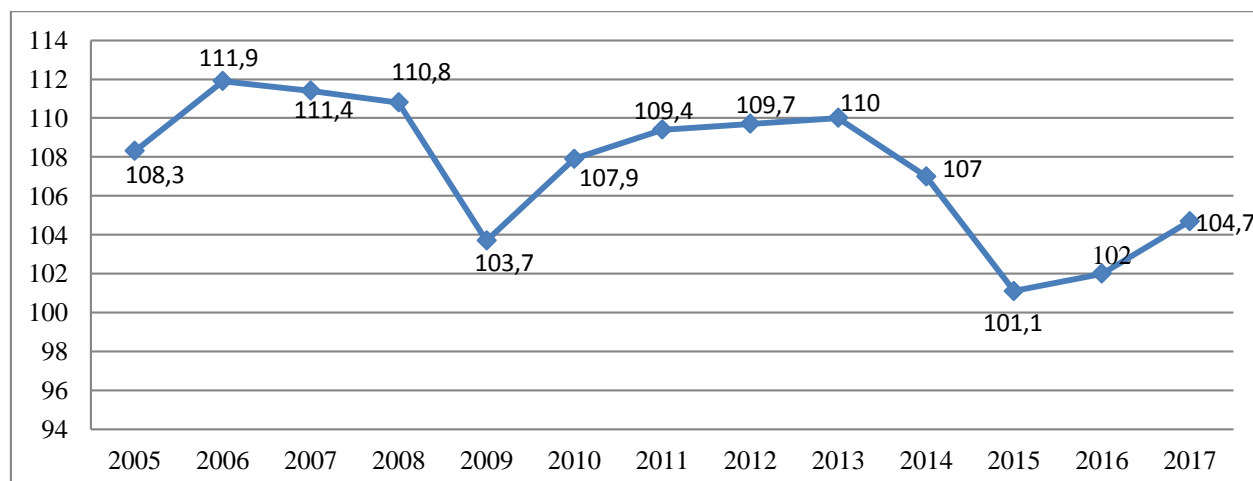


Рисунок 4. Динамика роста нефтегазового сектора в Азербайджанской Республике за 2005-2017 годы, в % к предыдущему году (Разработано авторами на основе материалов Министерства Экономики и Промышленности Азербайджанской Республики. <http://economy.gov.az>).

Как видно из Рисунка 4, после падения роста нефтегазового сектора Азербайджана, начиная с 2012 года и продолжая до 2015 года, за последние 2 года наблюдается восстановление темпа роста нефтегазового сектора, который считается стратегической целью Азербайджана по

минимизации влияния нефтяного фактора в целом экономики страны.

Однако для эффективности любой сферы нефтегазового сектора обуславливают комплексные и долгосрочные фундаментальные мероприятия по обеспечению интенсификации

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развития производства и услуги, расширения структуры производства и перечня услуг и все эти мероприятия требуют серьезных финансовых вложений. В режиме бюджетных ассигнований и небольшого объема собственных средств в хозяйственных структурах и предприятиях нефтяных секторов не позволяет осуществлению серьезных инвестиционно-инновационных проектов, и обеспечить модернизацию сфер деятельности за счет применения новейших технологий и в том числе инновационных функций. И поэтому требуется активизация работы с иностранными

компаниями, в том числе потенциальными инвесторами по привлечению иностранных инвестиций. За 2004-2017 годы в экономику Азербайджана вложено 230 млрд. долл. инвестиционных ресурсов, однако преимущественно большой объем вложенных инвестиционных ресурсов направлен в нефтегазовый сектор, то есть в добывающую отрасль.

На Рисунке 5 отражен объем и распределение иностранных инвестиций в Азербайджанской Республике по сферам экономики и деятельности за 2011-2017 годы.



Рисунок 5. Объем и распределение иностранных инвестиций в Азербайджанской Республике по сферам экономики и деятельности за 2011-2017 годы (Разработано авторами на основе материалов Государственного Статистического Комитета Азербайджанской Республики. <http://stat.gov.az>).

Как видно из Рисунка 5 нефтегазовый сектор считается менее инвестиционно привлекательным, чем нефтяной сектор страны. В нефтегазовой отрасли Азербайджана объем иностранных инвестиций за последний 7 лет остался на стабильном уровне, хотя в 2017 году наблюдалась тенденция уменьшения. Несмотря на финансовые колебания и трудности во всем мире, за последние годы в нефтегазовый сектор Азербайджана ежегодно вкладывались примерно 10 млрд. долл. США. Однако объем вложенных иностранных инвестиций в разные сферы нефтегазового сектора экономики страны остался на низком уровне и более того, в 2017 году объем вложенных инвестиций уменьшился свыше, чем 2 раза и составил лишь 813 млн. долл. США. Этот факт показывает, что нефтегазовый сектор экономики Азербайджана не является более привлекательным с точки зрения активного вложения инвестиционных ресурсов и в связи с этим, на наш взгляд, требуется коренное

изменение существующих механизмов развития нефтегазового сектора и обеспечение их инвестиционной привлекательности [7;8]. Необходимо подготовить и обосновать более крупные и эффективные инвестиционные проекты по модернизации и развитию отдельных сфер нефтегазового сектора экономики страны [9;10;11]. Требуется интенсификация начатых крупномасштабных работ по применению новейших технологий, ряд традиционных и перспективных отраслей промышленности, таких как металлургия, химия и нефтехимия [12;13;14;15].

Conclusion

В ближайшей перспективе потребуются, немалые усилия для повышения инвестиционной привлекательности нефтегазовых секторов экономики Азербайджана и считаем целесообразным учесть нижеследующие вопросы:

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- необходимо совершенствовать существующие механизмы развития нефтегазового сектора экономики Азербайджана с учетом новых глобальных экономических вызовов и происходящих событий в мире;

- нуждается в совершенствовании важные механизмы инструментальной инвестиционной

деятельности, требуется создание инвестиционных фондов их региональных структур и обеспечить активное взаимодействие государственных органов, субъектов бизнеса и финансовых организаций по повышению инвестиционной привлекательности в разных сферах нефтегазового сектора Азербайджана и т.д.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

ROLE OF STATE REGULATION IN THE DEVELOPMENT OF THE AZERBAIJAN REPUBLIC STOCK MARKET

Abstract: The article determines the main problems in this area based on the analysis of the process of formation and development of the stock market of the Azerbaijan Republic which have led to a false front capital market. The author also explores the emergence and development of the stock market in foreign and post-Soviet countries and reveals their distinctive features and defines ways to apply stock market regulation in local conditions in order to increase the effectiveness of the stock market activity in Azerbaijan

Key words: Azerbaijan Republic stock market, stock market infrastructure, investment mechanism of the real sector of economy, joint-stock activity, stock market monopolization.

Language: English

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Introduction

The stock market is an integral element of the financial system of many advanced economies. It is a means of attracting investment to the 'real' economy of manufacture, production, and service sectors. This financial market mobilizes financial resources in any modernized economy, develops potential scientific-technological progress, spurs innovation and drives economic growth. The stock market serves as a market sorting mechanism for the capital flow into the most promising economy sectors and the transformation of inert savings into dynamic investments.

Materials and Methods

Histories of the formation and subsequent development of stock markets, both foreign and domestic bear out the conclusion that self-regulating mechanisms are not justifiable and the state regulation of this field becomes necessary. Recent waves of financial crises on a global scale once again proved the failure of self-regulating mechanisms of the stock market in overcoming crisis situations and eliminating the consequences [1;2]. The problem of state regulation of the stock market is currently important. Despite the fact that in many post-Soviet countries the infrastructure of a stock market has been created, and its economic, organizational and legal principles has been formed, these stock

market(s) do not adequately realize their functions in attracting investments for the development of the respective national economy(s) [3;4].

After the global financial crises, many economists have come to the conclusion that financial markets again need a rigid framework for their operation. The crisis has also resulted from the ubiquitous deregulation (weakening or even lack of regulation) of financial markets.

The process of formation and development of the stock market in foreign countries differs significantly from the practice of the post-Soviet countries. The main differences are that in most foreign countries the stock market was formed under the influence of the development of joint-stock activity, and the growing demand for capital stimulated tough competition between issuers for investors' financial assets [5]. But in the post-Soviet countries, even at the present time, the mechanisms of healthy market competition are still not sufficiently formed. The stock market in most post-Soviet countries is at the stage of formation and is unduly monopolized.

The main characteristics of the stock market in Azerbaijan may be summarized as follows:

1. Underperformance of the self-regulating mechanism;
2. Imperfection of state regulation of the stock market;



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3. Mistrust of potential and domestic investors in securities market instruments (mainly due to the imperfection in regulatory and legal framework, establishing administrative and criminal liability for offences in this field of human activity);

An analysis of trends in the development of the domestic securities market showed that this market has a number of significant problems. First, it is highly speculative. Secondly, the stock market is characterized by a high concentration of issuers' capitalization and exchange turnover, this factor does not allow the market to effectively perform the function of an investment generator for economic development [6]. Thirdly, the domestic stock market is very monopolized, since the largest market participants account for about 80% of the total exchange turnover of securities

Most investments into the real sector of Azerbaijan's economy are transformed as revenue transferred from the oil sector, which turns the state into the main investor in the investment market. The state, acting as the main participant of most major investment projects and the main holder of controlling interests in many joint-stock companies, creates additional risks and threats to financial stability of most large issuers. In the event of a drop in energy prices and a reduction in government revenues, the financial situation of many issuers will worsen, which will create a crisis situation in the country's stock market [7;8].

Precisely because of the drawbacks in the field of weak state regulation, speculative flows dominate the domestic stock market. Since acting as a money generator, the stock market can generate a fictitious capital from nothing. In the usual turnover of capital in the economy, money consistently passes through all stages of the cycle. On the self-regulating stock market there are shortened money turnovers, which occur mainly between contractors and do not reach the issuers. That negatively affects the increase in the real national wealth. Those speculative factors in the stock market allow by artificially manipulating domestic financial flows and mixing fictitious and real capital to use it for the purpose of distributing labor products. It results in the generation of fiat money, violation of the trade balance and acceleration of inflation in the economy of the country.

Many researchers are in favor of the paradigm of active state regulation of the stock market. This regulation cannot be limited only by monitoring compliance with the requirements of legislation by professional participants of the stock market. That is, we are talking about strengthening state regulation of the stock market. The domestic stock market for the period of its formation and development has not turned yet into an effective mechanism for investing into the real sector of the economy. To do this, first of all, it is necessary to determine the strategic ways

of formation and development of the domestic stock market, and we must bear in mind that government intervention into the sensitive mechanism of the stock market should be strictly limited to the need. Measures and the degree of state influence on the stock market should be justified and clearly predicted.

In the strategic plan, it is necessary to form a domestic stock market, which will serve as an effective mechanism for attracting and redistributing capital in the economy, and it will also stimulate domestic investment activity and strengthen the country's position in the global capital market.

The domestic stock market should be as open to the individual investor as possible and be attractive to issuers of stock. The stock market should be regarded as a complex intertwining of two interrelated processes: the accumulation and acquisition of income from the exploitation of production capital. Here, the object of research is the financial flows that characterize both these processes. The main elements of these flows are formed based on the indicators of investment costs and net income.

The development of the domestic stock market is adversely affected by many unresolved problems. These factors do not allow turning the stock market into an efficient mechanism for attracting investments into the real sector of the economy. Among these problems we should especially highlight the lack of tools to combat the use of insider information. The domestic stock market is an insider oriented one, where there is a possibility of good earnings, by obtaining in advance confidential information about the activities of issuers or large investors. Advanced economies fight tough against such practices. In the Azerbaijani legislation, there is no consensus to establish a ban on the use of insider information and determine ways to counteract this activity; yet conversely and incongruously there is a significant and regulatory requirement bureaucracy for the registration of emissions leading to a decrease in operational efficiency in the process of preparing for the issuance of securities. Therefore, there are cases when issuers, having made a decision to issue bonds, receive all necessary permits, while the situation on the debt market has changed dramatically, and it is no longer profitable to place this bond.

Some researchers have determined by 5 principles of state regulation of the stock market as follows:

1. legality; or governed by the rule of law;
2. unity or coherence;
3. openness or transparency;
4. independence or autonomy in self-regulation
5. responsibility; or accountability

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These principles allow for a stable yet flexible constant development and improvement of all elements of regulatory activity in accordance with changes in the political and economic situation in the country.

Researchers distinguish two basic models of building an organizational and economic regulatory mechanism: on a sectorial and functional principle. [9;10]

The stock market in comparison with other financial markets - is a more complex object of state regulation. Since there is a wide variety of types of securities. Each of them has a specific technology of functioning. And also, the degree of risk of operations with securities in comparison with currency and money operations is higher. Since the stock market has a large number of participants (legal entities and individuals) and the variety of interrelations between them, differences in their economic and legal status, etc. In this case, the state regulation of the stock market should be aimed at reducing the overall risk of the stock market.

When considering the growth rates of the securities market, it is possible to trace the development of a dynamic process of the stock market, and the development of the domestic stock market gradually provides large alternative opportunities for attracting and placing money. This creates the prerequisites for improving state regulation of the stock market.

Improvement of the stock market regulation should be aimed at an optimal combination of early warning of crises and risk assessment of emerging new risks. First of all, it is necessary to analyze and forecast the threats that contribute to the onset of risks, which are called risk factors.

At the moment, the system of state regulation of the domestic stock market is characterized by the distribution of regulatory powers among several state bodies. There is no legally fixed mechanism of interaction of the State Committee for Securities of the Republic of Azerbaijan with other government securities market regulators - the Central Bank, the Chamber for Control over Financial Markets and the Ministry of Finance of the Republic of Azerbaijan. Uncoordinated actions of these bodies negatively

affect the integrity of state regulation of the stock market.

Conclusion

As a result of the fragmentation of powers and the low level of interaction between regulatory and supervisory bodies, the efficiency of regulation decreases, an overlapping of functions arises, and there is no uniform state policy to regulate the domestic stock market: These factors do not allow to effectively counteracting to unlawful processes in the stock market.

Being one of the main elements of the institutional system of the stock market, self-regulating organizations should theoretically contribute to the efficient functioning of the securities market by increasing the level of regulation of market participants through interaction with state bodies. But these organizations are not the main regulators of the market, they do not use the existing powers to implement regulation of professional market participants.

An analysis of the regulation systems of the stock markets in advanced economies such as the United States and Great Britain, allows for the conclusion that regulators with the legal status of a state agency or a professional association are effectively performing their functions. The experience of the United States can be used to effectively operate the stock market. Here, the state regulation body of the stock market is given broad powers to conduct special investigations with respect to professional market participants. This allows the state to more effectively combat such violations as market manipulation, the use of insider information, the legalization of shadow revenues or money laundering. A mega-regulator of the financial market would eliminate the disunity of state regulation and the experience of the United Kingdom on the formation of a single body that would regulate all participants of the financial market, may be used.

A synthesis of the Azerbaijan stock market regulatory framework is needed to increase the efficiency and effectiveness of the domestic stock market.

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**SECTION 19. Management. Marketing. Public
administration.**

ANALYSIS OF INSTITUTIONAL REGULATION OF MACROECONOMIC DYNAMICS

Abstract: Directions of institutional regulation of macroeconomic dynamics in the modern period are examined in the article. For this purpose, the mechanisms of functioning and development of the processes of institutional transformations are considered. The rational use of resources requires state regulation of macroeconomic processes is noted. The factors of macroeconomic activity of the state in the transformed economic system are considered too. The specific conditions of state activity in Azerbaijan connected with the economy heterogeneity are analyzed. Recommendations and suggestions of solution of institutional regulation problems of macroeconomic dynamics with fiscal and monetary policy are given in the end of the article.

Key words: institutional regulation, financial stability, macroeconomic dynamics, fiscal and monetary policy, mechanisms of regulation, macrofinance priorities.

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Introduction

In modern conditions, the available theoretical knowledge and methodological base for studying macroeconomic problems is insufficient to explain the mechanisms of functioning and development of the processes of institutional transformations. These processes in each national economic system have their own specific features, a distinctive algorithm and development scenarios that often contradict the basic principles of economic thought. In developed countries and countries that are at the stage of transformational processes, tendencies and patterns are observed that go beyond the framework of well-established concepts and theoretical schemes. That is what causes the emergence of an acute need for complementation and a significant expansion of the theoretical and methodological base of principles of formation and functioning of the macroeconomic system.

Materials and Methods

Achieving sustainable economic growth, stability of the national economy, rational use of resources requires state regulation of macroeconomic processes. Each stage of development of the national economic system and the changes that occur in it cause an adequate change in the macroeconomic

theory as well. Since deep knowledge in the area of determining the conditions, factors and mechanisms of the impact of these measures on the national economy is required in order to develop and implement effective measures of state regulation [1;2;3]. Changes that occur in the economic system of states bring about new phenomena and concepts in the field of macroeconomic regulation. At this stage, a deep and comprehensive understanding of their place and essence is required for theoretical economic science. There is a need of a theoretical-methodological definition and justification of such categories as: "Macrofinance stability", "macroeconomic dynamics regulation", "institutional mechanism", etc. At the same time, modern economic theory in the countries with transition economies pays more attention to current economic processes and events, moreover, the theoretical base is rather vague, there is often a blind copying of western theories and models, the underdevelopment of organizational and legal mechanisms, and so on [4;5;6]. From this point of view, such basic problems as, models of the economy, the role of the state, the formation and development of institutions and fiscal and monetary regulation in conditions of spontaneity of macroeconomic processes become more relevant.



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At the moment, the sphere of regulation of economic processes does not possess any integral conceptual basis and a single scientifically grounded theoretical model for regulating macroeconomic dynamics, where the new features of the national institutional system would be taken into account. In our opinion, the main directions and areas of scientific research that need new theoretical and methodological approaches are the following: institutional regulation in unbalanced systems; mechanism of its impact on macroeconomic dynamics; increase in the effectiveness of macroeconomic regulation by improving the institutional environment. The generalization and systematization of economic theory in the specified areas will provide an opportunity to identify macrofinance priorities and a set of government regulation measures and increase the effectiveness of institutional regulation of the national economy at the macro and micro level. In this context, it is worth paying particular attention to the following problems and theoretical directions:

- the state macroeconomic policy in conditions of cyclical fluctuations;
- peculiarities of institutional regulation in conditions of instability;
- the influence of institutions on cyclical processes and financial stability;
- transformation of institutions in order to ensure macroeconomic stability.

We will consider the factors of macroeconomic activity of the state in the transformed economic system. The economic system at the present stage is characterized by the complexity of the institutional structure, increased dependence on internal interactions of subjects, openness and non-linearity of development. It should be noted that the defining property of the modern economic system at the present time is its heterogeneity, as a result of evolutionary development. Transformed economic systems are characterized by non-evolutionarily arising irregularity or heterogeneity. The heterogeneity of the economy becomes apparent in the elements of the system (subjects, objects, connections, coordination), micro and macro levels and the nature of the economic space and has an impact on the content of the functions and the structure of macroeconomic entities and the state. Transformed and dynamically developing economic system leads to the expanding of the state functions:

- a) objects heterogeneity -increases the importance of control over the supply of goods and the formation of channels for their provision;
- b) subjects heterogeneity - requires clarity of interrelationships and conjugation of rules, selection restrictions and activity conditions;
- c) space heterogeneity - increases the state's attention to maintaining the integrity of the economy;

d) microprocesses heterogeneity - puts forward the task of developing a mechanism that takes into account the non-representativeness of decisions of market interrelation participants.

The heterogeneity of the economy is of conceptual significance and is revealed, on the one hand, through the property of high adaptability of the economic system, and on the other, through strengthening the importance of regulation and the mechanism for regulating private interests, respectively through increasing the role of the state in the economy. The expansion and change in the functions of the state is reflected in its structure [7;8]. Transformed and dynamically developing national economic systems are characterized by the tendency to decentralize the organizational structure, which provides sufficient conditions for the state to fulfil its functions under conditions of instability and transformation. The authorities structure decentralization causes the need for functions distribution and internal interests coordination, and determines the multicomponent nature of the state's impact on the economy [9;10;11]. All this as a whole determines the peculiarity of macroeconomic activity, the content of which can be represented in the form of a theoretical model based on the use of structural-functional and spatial approaches. The scope of the proposed model covers the aggregate level of national economy and the level of its subsystems.

The model of macroeconomic activity of the state reflects:

- ✓ the impact of the government on the economy through participation in the formation of aggregate demand (Keynesian platform);
- ✓ the complex multilevel impact of the state on macroeconomic parameters through fiscal flows of central and subnational levels (flows generated by different levels create a vertical structure of macroeconomic impact, and impulses between subsystems of the economy, as a consequence of state activity, form amplifying or weakening cumulative horizontal "effects");
- ✓ the spatial heterogeneity of the concentration of fiscal impulses and regional non-equivalence of the final activity of the state;
- ✓ the differentiation of the government functions into basic, stabilizing and equalizing, affecting both the real sector and the internal organizational interactions of the state's organizational structures;
- ✓ specification of the mechanism for realizing the activity, depending on the equilibrium or non-equilibrium mode of operation;
- ✓ the multidimensionality of measuring the results of the state's activities, which can be assessed using simultaneous analysis of national and regional consequences.

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The developed model of macroeconomic activity is based on the introduction of a new category - "pure fiscal flow", which is viewed as an institutionalized component of aggregate demand.

To justify the applied aspects of the theoretical model, the following points can be expressed:

- ✓ the ability to identify the type of each fiscal stream that receives subsystem elements (positive, neutral, negative);
- ✓ identifying the causes of different fiscal conditions in the regions;
- ✓ determination of the fiscal impact limiters specific to each subsystem;
- ✓ a quantitative assessment of the strength of fiscal growth or recession generators in the regions.

It is necessary to determine the specific conditions of state activity in Azerbaijan connected with the economy heterogeneity, which is manifested in the heterogeneity of resources and the inequivalence of the obligations of the state's structural units and the heterogeneity of the impact borders and the impact space.

It is necessary to identify the patterns of fiscal and monetary regulation of a dynamically developing and transformable economy. It should be noted that the macroeconomic activity of the state is a scientific abstraction, the form of manifestation in the budgetary sphere is fiscal regulation, and in the monetary sphere - the monetary one. For transformational economic systems and in conditions of decentralization of the organizational structure of the state, the system of goals, structure and mechanism of fiscal and monetary regulation becomes more complicated. Priority positions in the area of targets are taken by economic growth and the balance of financial indicators. The structure of regulation becomes more complicated. The effectiveness of fiscal and monetary regulation depends on the theoretical basis, in which the models of macroeconomic equilibrium and models of the non-equilibrium functioning of the economy can be used. In heterogeneous economy, macroeconomic equilibrium conditions become more complicated: it is necessary to take into account not only the aggregated parameters, but the conditions for achieving equilibria in local subsystems as well. This is due to the spatial distribution of state actions. The sources of imbalances in heterogeneous economy can be:

- ✓ intra-structural disorder;
- ✓ non-equilibrium situations in the dominant regions;
- ✓ imperfection of the institutional mechanism.

Fiscal and monetary regulation in non-equilibrium systems requires taking into account the processes of self-organization during the restoration of the economic order. The technology of fiscal and monetary regulation and their mechanisms are

specified depending on the functional regime of the economy. In non-equilibrium medium, both unified and selective impact is required. The latter assumes the detection of spheres of dosed fiscal and monetary impulse, taking into account cumulative factors and timely renewal of macroinstitutions. Fiscal regulation, combined with monetary influence, is able to provide "fine-tuning" of the heterogeneous economy. Both fiscal and monetary regulation should take into account the fact of spatial heterogeneity. To do this we should examine the model that reflects the fiscal and monetary conditions of equilibrium in the regions. The functionality of the model is that it should allow optimizing the fiscal and monetary efforts of the centre and sub-centres to achieve a long-term equilibrium of the economy. Applied value of the model is that it:

- ✓ identifies fiscal and monetary limitations specific to each region;
- ✓ allows to develop the measures of economic stabilization and direction of liquidation of existing discontinuities of regions from the potential level;
- ✓ allows to predict the consequences of fiscal and monetary actions.

The system approach allows analysing the factors, limitations, regularities and mechanism of the passage of fiscal impulse at the level of the national economy and in conditions of spatial concentration of state actions on a separate segment. The influence of institutions on the process and the results of fiscal regulation. From this point of view, we can formulate a new direction of institutional macroeconomics - the study of institutions of fiscal and monetary regulation. In this context, it can be claimed that:

- ✓ institutions are a form of macroeconomic processes and influence the implementation of these processes in the order of the reverse impact;
- ✓ the aggregate of institutions can be structured by the elements, instruments of fiscal and monetary impact and by the nature of the impact on the economy (institutional structure and institutional environment);
- ✓ the impact of institutions can be assessed by analysing institutional decisions that facilitate or prevent from achievement of targeted macroeconomic parameters;
- ✓ losses from institutional inefficiency are quantifiable in the form of deviations of actual parameters from potentially possible ones.

The content of the institutional mechanism through which fiscal regulation is implemented can be defined as consisting of the institutional structure of the state and the institutional environment that develops with respect to macroeconomic entities of the national economy as a whole and to the subjects of its separate segments (regions). The institutional environment is a system of specific institutions that

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form the basis for decision-making by business entities or their aggregated groups regarding production, distribution, exchange and consumption. The institutional structure of fiscal and monetary regulation is a set of basic legislative norms and organizations, procedures and rules, through which standardization of the choice and activity of the state is ensured. In the modern conditions of the Azerbaijan Republic, the institutional structure takes the form of a national model of budgetary and monetary regulation.

Comparative analysis of existing institutional models of budgetary and monetary regulation and determination of their macroeconomic consequences allows to assess the degree of their applicability under dynamically changing conditions, to identify areas of borrowing and individuality in improving institutions. Structuring of models of budgetary and monetary regulation will provide an opportunity to allocate support blocks, on the basis of which a national-specific variant of the national model of the institutional mechanism can be assembled. In our opinion, the main directions of the formation of the institutional mechanism are as follows:

- ✓ the choice of the model of incomes distribution and expenses differentiation,
- ✓ the use of the model of a combination of vertical and horizontal alignment,
- ✓ selection of the construction of both vertical and horizontal alignment.

The institutional mechanism of fiscal and monetary regulation has a general theoretical content that is revealed through types of institutions, their functions, the nature of the impact on the economy and the patterns of evolution. Macroeconomic aspects of the institutional mechanism of fiscal and monetary regulation are manifested through the influence of the organizational and legal forms of the state on the components of aggregate supply and demand, investment and money supply. The impact of fiscal and monetary institutions can be assessed by analysing their evolution in the context of:

- 1) institutional changes in procedures and laws;
- 2) transformations of the institutional structure;
- 3) macroeconomic consequences.

Specific impact of institutions is disclosed on the basis of the analysis of the current institutional mechanism of a particular country on

macroeconomic parameters. The influence of institutions is determined on the basis of the analysis of the results of budgetary, inter-budgetary and monetary regulation, taking into account institutional forms. The analysis covers the study of the impact of institutions on the change in the material structure of the flow of goods in the economy, their impact on reproduction processes and the ability of the economy to preserve integrity and stability. The systematization of institutional elements of budgetary, inter-budgetary and monetary regulation in the context of the comparative analysis of developed and transformational countries makes it possible to single out the general and the specific, trace the differences in macroeconomic consequences, and identify perspective directions for institutional improvement.

Conclusion

The institutions of fiscal and monetary regulation of the Azerbaijan Republic are characterized as conservative and subject to the "chrood effect", the desire for Western isomorphism, and acting by "deviating effect relative to the initial macroeconomic goals." The institutions should be transformed in order to improve the effectiveness of fiscal actions and monetary measures. The studies show that instability accumulation is observed in the economy of Azerbaijan, which is associated with macro and institutional inefficiency in fiscal and monetary regulation, and this is manifested in the failure to observe objective macroeconomic restrictions in providing fiscal and monetary measures. Institutional structure and institutional environment are not adequate to the conditions of the heterogeneous economy and the tendency of decentralization of the state organizational structure. The institutes of budgetary and monetary regulation are not built into the general mechanism of fiscal and monetary measures. The spontaneous nature of the formation of institutions and their annual change create elements of disorder, contribute to the growth of chaotic processes and lead to the accumulation of critical signs and the persistence of a threat to financial stability in the economy. The solution of these problems is seen in the institutional design of fiscal institutions adequate to the heterogeneous national economy.

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SECTION 9. Chemistry and chemical technology.

INVESTIGATION OF GRANULATION PROCESS AND INFLUENCE OF INTENSIFYING ADDITIONS ON STRENGTH OF SUPERPHOSPHATE GRANULES

Abstract: The possibilities of improvement of the qualitative indices of superphosphate fertilizers with use of intensifying additions boron (B_2O_3) and calcium (CaO) oxides with ammonium hydroxide (NH_4OH) favoring decrease of porosity and increase of granules strength are considered. The mass-exchange problem of moistening of granules has been solved, the dependence of thickness of moistening and strength on granule porosity has been determined.

Key words: superphosphate, granulation, moistening, diffusion, porosity, strength.

Language: English

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1. Introduction

Granulation processes of powdery materials find a wide application in various areas of chemical, food, pharmaceutical and metallurgical industry. The important properties of the prepared granules are physical-chemical (size, density, porosity, thermal stability) and rheological properties (fluidity, strength, hardness, blocking). The blocking of granules has been connected with their consolidation in a layer under action of own weight and is determined by a character and moisture absorption capacity from environment at cooling, storage and transportation of mineral fertilizers [1,2]. In this connection, at an estimation of physical-mechanical properties of granules of fertilizer it is important to take into account a moisture absorption at cooling and storage, connected with hygroscopicity of a material of a granule and one can consider as one of the estimated characteristics of quality. It should be noted that as a result of moisture absorption from environment only an insignificant part of near-surface layer is moistened (to 5-10%) which leads to a strength loss, connected with formation of a surface loose structure and favoring to destruction and form deformation, and also to blocking, i.e. to adherence of granules and formations of lumps under action of weight of overlying layers. With the aim of an exception of these phenomena it is necessary to

decrease a degree of moisture at the expense of porosity which is reached by use of various mineral additives or surface-active substances [3-8].

It should be noted that these phenomena essentially influence on granule strength a value of which, except other parameters, depends on granule porosity. This dependence is expressed by various formulae presented in works [4,5].

$$\frac{d \ln (\Delta - \Delta_0)}{dC_d} = k_0 \frac{\Delta}{C_d^2} \quad (1)$$

In works [9-11] the empirical equations for determination of granules strength are presented.

$$\Delta = \Delta_0 \exp(-b\varepsilon), \quad [9] \quad (2)$$

$$\Delta = \frac{1 - \varepsilon}{\varepsilon} \frac{F}{a^2}, \quad [10] \quad (3)$$

$$\Delta = 3.7(1 - \varepsilon)^4 \frac{F}{a^{3/2} m^{1/2}}, \quad [11] \quad (4)$$

here F – average strength per unit of area of cross-section, m – characteristic dimension. The reduced dependences (2)– (4) show that with decrease of porosity a granules strength is increased.

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The purpose of this investigation is the improvement of qualitative and quantitative indices by use of various additions (boron oxide (B_2O_3) and calcium oxide (CaO) with ammonium hydroxide (NH_4OH) for decrease of their porosity and increase of strength and also enrichment of superphosphate granules by additional elements (nitrogen, manganese).

2. Model of natural moistening of granules

At cooling, transportation and storage of superphosphate granules a natural moistening takes place, and a moisture penetration depth depends on a granule structure porosity, moisture content in air, a size of granules, etc. The natural moistening of porous structure is the mass-exchange process and at low values of Peclet $Pe = \frac{VR}{D} \ll 1$ and Fourier numbers $Fo = \frac{D_0 t}{R^2} \ll 1$ for spherical granule is described by an equation of a view

$$\frac{\partial C}{\partial t} = \frac{D_*}{r^2} \frac{\partial}{\partial r} \left(r^2 \frac{\partial C}{\partial r} \right) \quad (5)$$

$$r = R, t > 0, C = C_S; \quad t = 0, C = C_0;$$

$$r \rightarrow \infty, C = C_0$$

where C, C_0, C_S – current concentration and moisture concentration on granule surface and in flow capacity. Using a set of experimental investigations according to the determination of effective diffusion coefficient in porous media [12], one can prepare empirical dependence of a view [13]

$$\frac{D_*}{D_0} = 0.62 \varepsilon + 0.28 \varepsilon^{4.4} \quad (6)$$

At $\varepsilon < 0.55$ an expression (6) taking into account pore tortuosity η_d passes into linear dependence (fig.1) of a view.

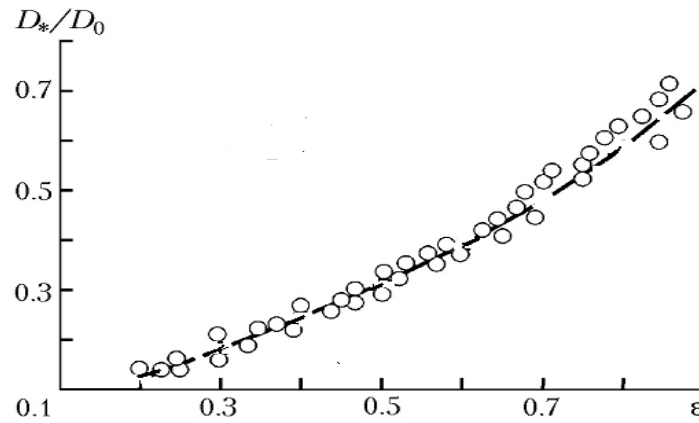


Fig.1. Change of effective diffusion coefficient depending on porosity (points – experimental data [12]).

$$\frac{D_*}{D_0} \approx 0.62 \varepsilon \eta_d \quad (7)$$

A solution of equation (5) at given boundary conditions and insignificant values of Fourier number can be prepared as

$$\frac{C(r,t) - C_S}{C_0 - C_S} = \text{erf} \left(\frac{R-r}{2\sqrt{D_0 t \varepsilon \eta_d}} \right) \quad (8)$$

here $\text{erf}(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-x^2} dx$ – error integral, a

value of which is changed within the ranges from 0 to 1 at $x \rightarrow \infty$. Full quantity of a moisture, transferred in time t_S we'll define as

$$J = - \int_0^{t_S} D_* \frac{\partial C}{\partial r} \Big|_{r=R} dt = 2(C_S - C_0) \left(\frac{t_S D_*}{\pi} \right)^{1/2} \quad (9)$$

From this equation, having lowered the elementary transformations, we'll define average transfer rate as $J_S = \frac{J}{t_S}$ and comparing with general mass transfer through surface unit $J_S = K(C_S - C_0)$, we'll define mass-transfer coefficient as

$$K = 2 \left(\frac{D_*}{\pi t_S} \right)^{1/2} \approx \frac{D_*}{\delta} \quad (10)$$

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here δ – moisture penetration depth, which we'll define from (10) taking into account (7) as

$$\delta \approx 2(\pi t_s D_*)^{1/2} = 2.8(D_0 t_s \varepsilon \eta_d)^{1/2} \quad (11)$$

The equation (11) can be transformed to a view

$$\frac{\delta}{R} \approx 2.8 Fo^{1/2} (\varepsilon \eta_d)^{1/2} \quad (12)$$

where $Fo = D_0 t_s / R^2$ – Fourier number. As follows from the equation (12), a moisture thickness depends on medium porosity, the more porosity, the more deeply a moisture penetrates into granule volume $\sim \varepsilon^{1/2}$. Based on the equation (12) and condition

$j = D_* \frac{\partial C}{\partial r} \Big|_{r=R}$, we'll define an expression for Sherwood number as

$$Sh = \frac{2}{\sqrt{\pi \varepsilon \eta_d}} Fo^{-1/2} \quad (13)$$

The numerous experimental and practical results [13-15] showed that the molecular diffusion coefficient of a moisture in porous media is fluctuated within the ranges of $D \approx 10^{-9} - 10^{-12} \text{ m}^2/\text{s}$. Under the conditions that $R = 2 \times 10^{-3} \text{ m}$, $\varepsilon = 0,3 - 0,5$, one can estimate a number $Fo = 0.01 - 0.03$ and layer thickness of a granule moistening equal to $\delta/R \approx 0.1 - 0.3$.

Thus, as a result of moistening, a granule surface becomes friable and loses strength, which leads to a deformation, to surface deterioration and adherence of granules. First of all, such state has

been connected with moisture effective diffusion depending on porosity of structure. Naturally, to decrease granules strength loss at storage and for providing of constant strength it is necessary to prepare granules with the consolidated structure or to use defined additions to binding agent which as a result of crystallization at their drying, favor a strengthening of bonds between particles of a powder and, hammering in pores, decrease a granule free volume. As follows from the equations (2) – (4), by decrease of porosity or degree of moistening an increase of strength and yield of qualitative granules can be reached.

3. Experimental investigation of influence of additions on granules strength

A choice of the corresponding addition in the form of organic or inorganic compounds should be carried out on the basis of the following reasons: **a)** used compound should be completely dissolved in binding agent (in water); **b)** its crystallization in drying process should provide a formation of the additional «bridges» between particles of powder and decrease of free volume in granule; **б)** to improve qualitative and quantitative indices of the marketable products. On this basis, the influence of mixture of boron (B_2O_3) and calcium (CaO) oxides with ammonium hydroxide (NH_4OH) on composition and physical-chemical properties of the granulated superphosphate has been investigated under laboratory conditions. The experimental investigations were carried out in laboratory drum granulator with diameter 12 cm, length 80 cm, angular rotation rate 30 min^{-1} and degree of filling equal to 15% (fig.2).

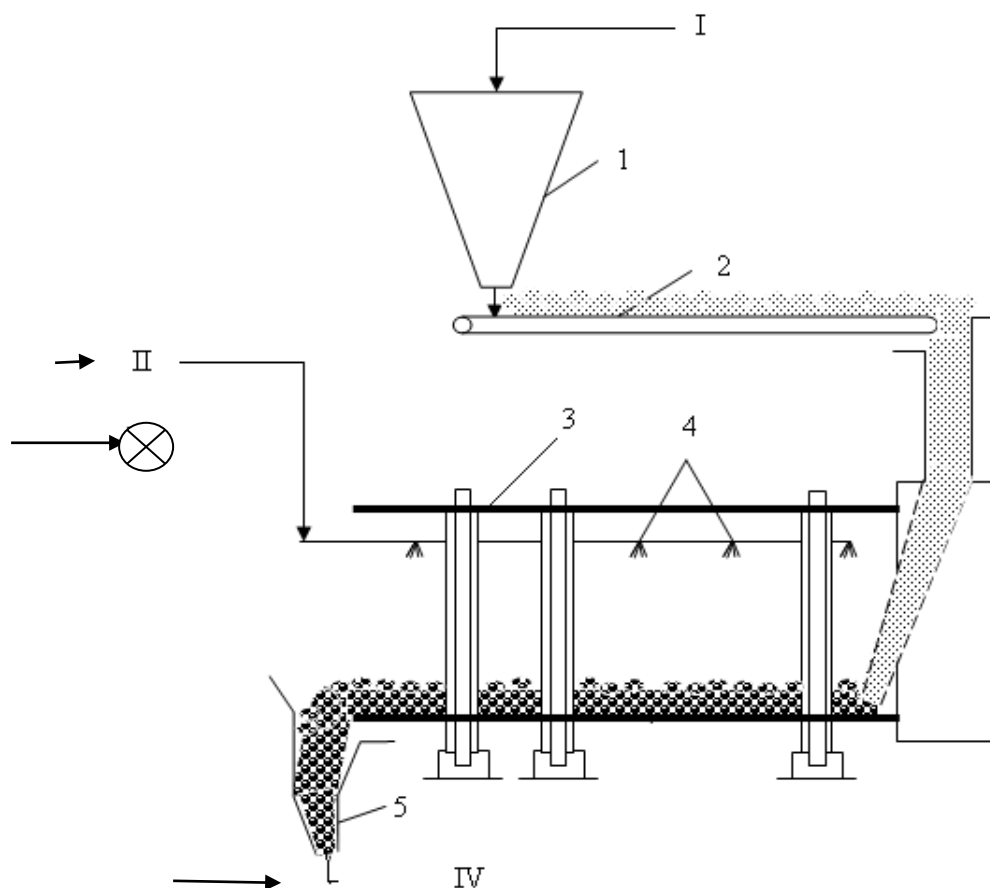


Fig.2. Scheme of laboratory facility of granulation of powdered materials in drum apparatuses: 1 – bunker for particulate powders; 2– transporter; 3– rotating drum apparatus; 4– jets; 5–bunker; I– powder feed line; II– feed of binding substance; III– additions feed; IV– moisture granules in drying apparatus.

To the drum apparatus for moistening of powdered superphosphate by means of the nozzles located in several points longwise, the binding agent with composition: B_2O_3 – 18-20%, NH_4OH – 6-8%,

CaO – 4-5%, water – 67-72% was given. The results of experimental investigations are presented below in Table 1.

Table 1. Dependence of physical-chemical indices and composition of the finished product (% mass) on quantity and composition of addition (B_2O_3 – 18–20%, NH_4OH – 6–8%, CaO – 4–5%, H_2O –67–72%).

Ratio of superphosphate and binding liquid	P_2O_5 (adopt.)	P_2O_5 (free)	N	B	H_2O	Δ , MPa	Yield, Q, %
1: 0.10	19.43	3.27	0.21	0.42	1.60	18.4	72.0
1: 0.15	19.40	2.92	0.30	0.58	1.82	20.9	78.3
1: 0.20	19.35	2.80	0.42	0.63	2.01	24.1	81.7
1: 0.30	19.30	2.26	0.55	0.80	2.11	25.2	86.7
1: 0.35	19.28	2.20	0.70	0.93	2.19	26.0	85.8
1: 0.40	19.07	2.18	0.89	1.12	2.35	23.3	68.4
1: 0.45	18.82	2.15	1.20	1.39	2.60	21.1	62.5
1: 0.50	18.34	2.12	1.31	1.50	2.89	19.2	59.2

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As follows from this table the most high strength of granules is reached at ratio of powdered superphosphate and binding agent (addition) at value of 1: (0,25–0,35). The limestone consumption is completely excluded, and an acidic superphosphate is neutralized by ammonia water constituent of moistening liquid. An increase of granules strength is explained by that B_2O_3 and CaO constituent of binding agent more strongly bind superphosphate particles at formation of granules, fill the pores and provides their fuller balling. Ammonia water constituent of moistening liquid reacts with free phosphoric acid; monoammonium phosphate constituent of powdered superphosphate and prepared in this case is crystallized. The forming crystalline structure of monoammonium phosphate is accompanied with formation of point defects, which favorably influence on the mechanism of formation of granules. Thus, the carrying out of the process in this interval of ratios of powdered superphosphate and moistening liquid allows to increase the granules strength to 25–26 MPa and to improve the qualitative characteristics of the end product due to its

enrichment by such nourishing elements as nitrogen and manganese.

4. Discussion and analysis of results

The mechanism of improvement of the qualitative indices of superphosphate fertilizers consists in addition of various components of mixture of boron (B_2O_3) and calcium (CaO) oxides with ammonium hydroxide (NH_4OH) to binding agent at formation of granules, which favors increase of granules strength in decrease of their porosity. The model of natural moistening of granules has been proposed; as a result of which the moistening thickness depending on porosity and Fo number has been estimated (12). Using experimental data [9-11], we'll dependence of granules strength on porosity as

$$\Delta = (0,008 + 9,6\varepsilon^5)^{-1} \quad (14)$$

with correlation coefficient equal to $r^2 \approx 0.9421$ (fig.3), i.e. with increase of granules porosity the strength is essentially decreased.

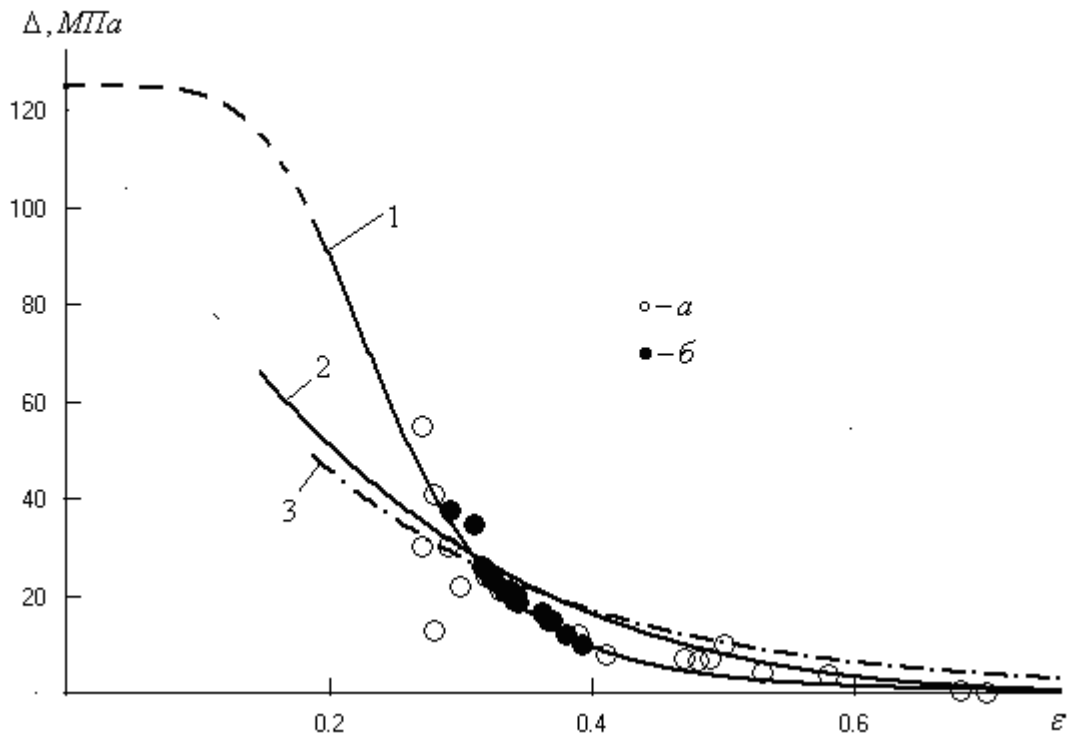


Fig. 3. Dependence of granules strength on porosity: 1– calculation on formula (11); 2– calculation on formula (4); 3– calculation on formula (2); a– experimental data of works [9-11]; b– experimental investigations of this work.

As follows from fig.3, the proposed equation (14) more precisely describes experimental values of strength than the expressions (2) and (4). In the same figure the results of investigations prepared

experimentally for superphosphate fertilizers are presented.

Based on results of Table 1 one can prepare a dependence between porosity and concentration of the binding agent as

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$$\varepsilon = 0,38 - 0,4C_d + 0,64C_d^2$$

$$\Delta = 9,5 + 104,3C_d - 168,3C_d^2$$

with correlation coefficient equal to $r^2 = 0,9525$.

Here C_d – total quantity of impurity (in mass parts).

A yield of the marketable qualitative product (granules with sizes 1-4 mm) and with high degree of strength can be determined on formula

$$Q = Q_0 + f(\Delta, C_d) \quad (15)$$

where $Q_0 = \frac{\pi \rho_g}{2} \int_{a_0}^{a_m} P(a) a^2 da$ – quantity of the

worked out granules with sizes $a_0 \leq a \leq a_m$ ($a_0=1mm$, $a_m=4mm$) without use of various additions,

$P(a, t)$ – granule distribution function on sizes and on time. In work [16] the function $P(a, t)$, characterizing evolution of granule distribution function in drum apparatus is determined on the basis of solution of Fokker-Plank equation and with use of the experimental investigations a practical value is restored. The function $f(\Delta, C_d)$ determines an

influence of strength and concentration of additions on total productivity of the apparatus and this expression can be prepared in empirical form on the basis of the experimental investigations. In particular, in works [4,5] this expression is non-linear function of a view $f(\Delta, C_d) = k\Delta^n$. However the

preparation of any deterministic description of yield dependence on concentration of additions or on strength presents large difficulties. Based on results of Table 1 a yield of the marketable fraction can be approximated as

$$Q = 37,2 + 441,0C_d - 1162,1C_d^2 + 715,6C_d^3$$

As follows from Table 1 at low ratios of powdered superphosphate and moistening liquid 1: (0,1–0,2) a use of addition becomes unreasonable, as far as a content of free P_2O_5 is increased, as ammonia water constituent of moistening liquid becomes insufficient for neutralization of free phosphoric acid and a quantity of B_2O_3 and CaO doesn't provide sufficient consolidation of granules. At higher ratios of powdered superphosphate and moistening liquid 1: (0,40–0,50) the granule formation is deteriorated and a yield of the marketable product falls essentially (fig.4).

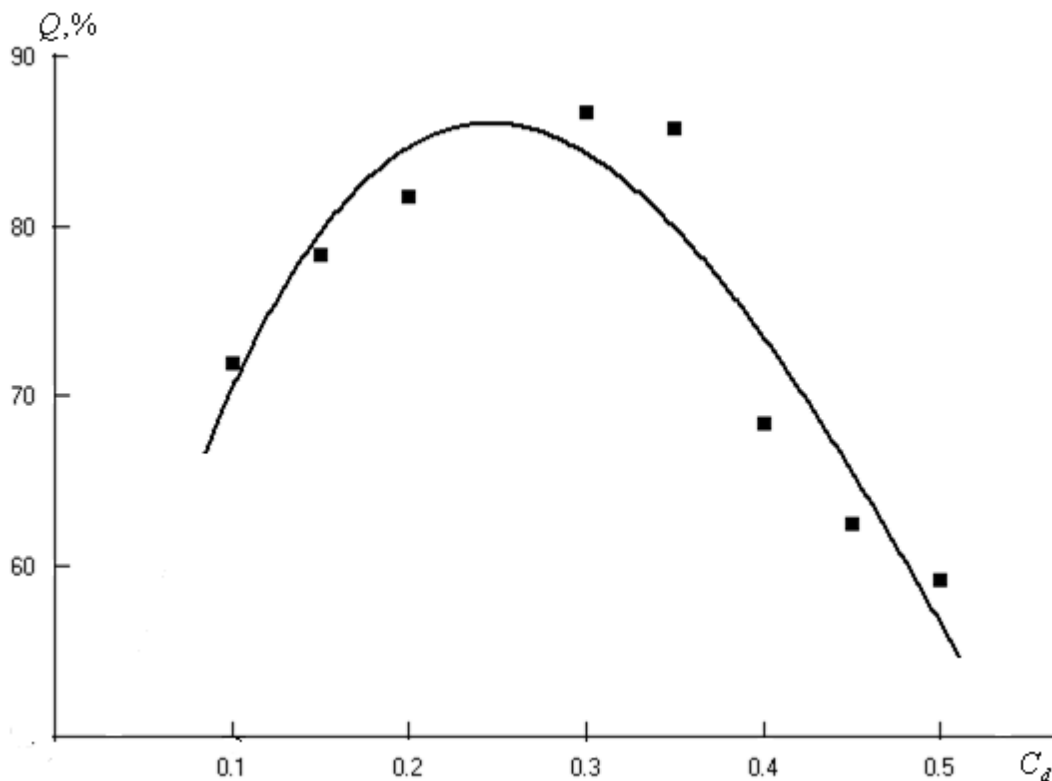


Fig.4. Dependence of yield of the marketable products on additions concentration

A yield of the marketable product passes through maximum and a maximum is reached at ratios of powdered superphosphate and moistening

liquid equal to 1: (0.30–0.35), which is the most optimal condition for carrying out of the process with use of the various additions. In these conditions the

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higher yield of the marketable product, having high strength and correspondingly, low porosity providing small moisture capacity is reached.

Conclusions

It has been established by study of ways of intensification of granulation process of powdery superphosphate with application of binding reagent – suspension of boron oxide (B_2O_3) and calcium oxide (CaO) in ammonia hydroxide (MN_4OH) that with application of this intensifying addition the prepared supersphosphate possesses improved physical-

chemical and mechanical properties, in this case a mechanical strength reaches 25,2-26,0 MPa and a yield of commodity fraction is 85,8-86,7%.

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Glossary

a	– size of granules;
C	– moisture concentration;
C_d	– additions concentration;
D_*	– effective diffusion coefficient;
D_0	– molecular diffusion coefficient;
K	– mass-transfer coefficient;
$P(a, t)$	– distribution function of granules on sizes;
R	– radius of granules;
t	– time;
Q	– yield of the marketable products;
ε	– granules porosity;
Δ	– granules strength;
η_d	– pore tortuosity coefficient of granules;
Fo-	Fourier number;
Pe-	Peclet number;
Sh-	Sherwood number.



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SECTION 31. Economic research, finance, innovation, risk management.

ASSESSMENT OF INSTITUTION OF HIGHER EDUCATION MANAGEMENT EFFECTIVENESS

Abstract: The article discusses the evaluation of the effectiveness of management of higher educational institutions. According to the author, the creation of a national innovation environment, as well as the activation of innovative activity of local higher educational institutions, becomes an objective necessity, and ultimately determines the relevance of this research.

Key words: innovation, innovation technologies, management assesment, training, tests, institution of higher education, knowledge management.

Language: English

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INTRODUCTION

The process of forming a strategic planning system that will shape future models of innovative development of priority sectors and sectors on the basis of long-term scenarios to increase the intellectual and technological capacities in our country will have an impact on the change in the activities of science hubs, including higher education institutions. Such institutions are transitioning to the final implementation of their activities on the basis of commercial law. Forming a system for the sale of scientific and innovative products in domestic and foreign markets in the existing conditions in the national academic institutions and higher education institutions is becoming an important prerequisite for increasing the effectiveness of the functional functioning of educational institutions and transition to market-based communication.

LITERATURE REVIEW

Scientific research on various issues related to innovation has become especially noticeable in the 60s of the 20th century due to the diversity of management concepts and the expansion of innovative activities in the world economy. Harvard University, Maracon Associates, McKinsey & Co., Stern Stewart & Co., a leading global scientific and research center in the field of higher education. (United States), University of Linford (USA), LEKConsulting, Price Waterhouse Coopers (United

Kingdom), Leibniz Institute of Agricultural Development in Transition Economies (Germany), Wageningen University and Research Center, Johannes Kepler University Linz (Austria) Cambridge, Bonch-Bruевич Telecommunications University, St.Petersburg State University, Macroeconomic Research and Forecasting Institute under the Cabinet of Ministers of the Republic of Uzbekistan, Tashkent State Economic University, Tashkent University of Information Technology (Uzbekistan).

Innovative activity in the field of higher education in the world, improvement of methodological bases of information technologies is being investigated in the following priority areas: innovation in the education system, human resources development strategy based on AS / DC competences, models, algorithms and software complex of mediation systems; the method of identifying documents in the education system, etc.

I.Ansoff, V.Altukhov, V. Fridyanov, F.I.Peregudov and others contributed to the solution of various problems of our time. P.V.Akinin, V.P.Bagov [5], M.Klarsha, A. Tikhonov and others made a worthwhile contribution to the search for solutions to pressing problems related to information technology in teaching.

K.V.Baldin, A.V.Belkov, L.Bjilyanskaya, Yu.S.Vasilev [6], N.P. Dronishinets [7], I.K. Makarova [11], S.K.Sergeev, V.B. Utkin VA



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Shapovalov and others. Studying some theoretical aspects of the question of the socio-economic efficiency of teaching D.E.Davydyants, M.I. Irodov [10], p. Razumov and others paid particular attention.

In recent years, research works on management and marketing in the market of education in the country, ICT development have been carried out in Uzbekistan. [4], A.N.Aripov, Sh.Zaynutdinov [8], N.Zokirova [9], M. Ikramov, K.Kurolov, H.Mukhitdinov, M.Makhkamova, M.Kosimova, A.Kucharov, D.Rakhimova [13], M.Saidov, S.G.Gulomov [15], B.Hodiev [14] and has been studied and reflected in research works, works, and articles of mature scholars.

At the same time, it should be noted that the issues regarding the establishment and development of scientific and innovative activities of higher education institutions have not been adequately addressed by experts and scientists. This aspect of the case encourages us to choose the topic of this research.

ANALYSIS AND RESULTS

The overall effectiveness of the governance process is a relative feature of a particular management process that reflects both the object of governance and the management functionality (the subject matter) of various quantitative and qualitative characteristics.

- When referring to the efficiency of the higher education system, it is understood that the expense of the student's capital development and the knowledge gained by the graduates are reasonable to meet the employer's requirements. The efficiency of the higher education institution (HEI) should be expressed through a system of indicators that will allow for a comprehensive assessment of its performance. [1] There are several approaches to assessing the effectiveness of higher education institutions, mainly focusing on assessment of the effectiveness of economic activity of the institution, assessing the quality of education for certification, accreditation and licensing, assessment of educational institutions, quality assurance of international standards possible. Managing this activity is managerial personnel. Based on a multidisciplinary approach, the assessment of the effectiveness of the educational process of the educational process requires the development of a comprehensive set of indicators for achieving the results achieved therein and the consideration of internal factors. There are several approaches to evaluating the effectiveness of the educational institution:

- Evaluating the effectiveness of economic activity - the OSI is assessed from the accounting, financial and economic point of view as an entity;

- Evaluation of educational process and quality of educational services for attestation,

accreditation, licensing of higher education institutions. This process is periodically held by competent authorities and bodies in accordance with relevant regulatory documents;

- Evaluating the rating of HEIs at which the effectiveness of institutions will be assessed on a specific basis to help the educational services consumers - parents, applicants, employers, and higher education institutions to choose the right choice;

- Qualitative assessment - the higher education institution is assessed and certified for the purpose of development and implementation of quality management ISO-9000. [2]

We also point to the factors that influence the effectiveness of governance in the educational institution. In fact, the effectiveness of the governance process depends on many factors. We divide them into conditional internal and external factors. It is clear that internal factors are only linked to the internal conditions of the educational institution. These include the qualifications of staff and professor-teachers, financial support of the institution, culture of the organization. External factors can also influence the effectiveness of the educational institution. These factors include the role of the institution, the policies of the local authorities, the social environment, and so forth. Positive and negative factors can be distinguished according to the impact on the plant. When positive factors lead to an increase in the management efficiency of the educational institution, the negative factors hamper the positive effect of productivity. There are some factors that affect the management efficiency of any educational institution. Among such universal factors are the following:

- the quality of the targets;
- The ability to achieve realistic targets, that is, their compatibility with the means of achieving the objectives;
- accurate assessment of the current situation; motivating the director and staff of the institution for the purpose;
- Potential and personal qualities of the head of educational institution;
- assessment of ratings, qualitative assessment of compliance with international standards.

Conclusions have been made by scholars on how to identify and develop the effectiveness of the management system. A dynamic programming approach is used to evaluate management efficiency in education systems. It is the mathematical modeling of the dynamics of the formation of knowledge in the applicant who attends a higher education institution, and attempts to link this process with the effectiveness of the corporate governance process. Higher education institutions' performance indicators, efficiency criteria, optimal decision-making methods are strictly mathematically

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comprehensible, and automation of data acquisition is required. The main disadvantage of this approach is that external factors have a significant impact on the formation of knowledge and the ability to automatically calculate these factors.

Based on the above approaches, the indicators used to evaluate the effectiveness of educational institutions can be divided into three interrelated groups.

1. A set of indicators that characterize the effectiveness of the management system, which is expressed through the results of public works and management costs. Examples of educational institutions include an increase in the number of graduates (product volume), scientific research, various grants, funds received from economic contracts, the volume of capital investments in projects, professional knowledge, skills and qualifications of professors and teachers.

2. A set of indicators that describe the content of the management process and its organization, including direct results and costs of managerial work. Costs of administrative expenses of the educational institution, such as current expenditures on maintaining the management apparatus, utilization of educational and technical facilities, maintenance of educational and technical buildings, training and retraining of managerial personnel, improvement of management system, accounting techniques and other means for acquisition of automation of management processes expenses are taken into account. In assessing the effectiveness of the management process, both quantitative and qualitative indicators are used. Performance, efficiency, efficiency, and reliability of the

management hardware can be listed as such. For example, automation of the department of higher education institutions facilitates the distribution of teaching materials, schedule of the educational process, the timetable, the timing of the control, and the control over the students' learning outcomes. At the same time, performance management, efficiency, flexibility, flexibility, reliability and reliability of the management apparatus will also improve.

3. The group of indicators describing the organizational structure of the office, its technical and organizational level. For example, the organizational units such as divisions and subdivisions such as divisions and subdivisions in the educational institution, the proper organization of the departments, the level of centralization of the management functions, the correctness of the general guidance on the organizational structure of the pro-rector, the accepted rules of management, job descriptions, the balance of rights and responsibilities can be included.

When assessing the staff of the higher education institution, they are implemented through a critical or positive decision - the employee's overall outcome includes identifying the level of professional qualifications of the employee, contributing to the level of achievement of the results and the definition given to him. Personnel assessment is one of the most important areas of governance, as its outcome serves as a basis for the analysis of employees' activities, training and dismissal.

In the management system, this situation can be summarized as follows:

For employees of higher education institutions
Know the leader's opinion about the ongoing business
Achieving the recognition of victories and victories
To be able to discuss issues related to achieving effective business performance
Discussion and consultation on achieving the level of professionalism
Describe and discuss your personal vision for development

The level of general development and special training of each professional is typically the result of technology, technology and production organization. In a modern economy, a narrow-skilled specialist is responsible for the changes that occur in the production process, and should be constantly upgraded to a competitive edge in the labor market, and even occupy new and relevant professions. This is also a process of increasing the effectiveness of the

For heads of higher education institutions
Opportunity to determine the cause and status of staff performance indicators
Opportunities for employees to study the business process and learning outcomes
The ability to work effectively and motivate the work of the employees, and the importance of their productive work
to change the working relationships in the community in a positive way
Determining the needs of the employee to identify and develop their potential

Governing System of Higher Education. The President of the Republic of Uzbekistan in 2015. On June 12, 2011, № 4732 "On measures to further improve the system of retraining and advanced training of managers and pedagogical staff of higher education institutions", the Resolution of the President of the Republic of Uzbekistan №PP-2909 "On measures for further development of higher

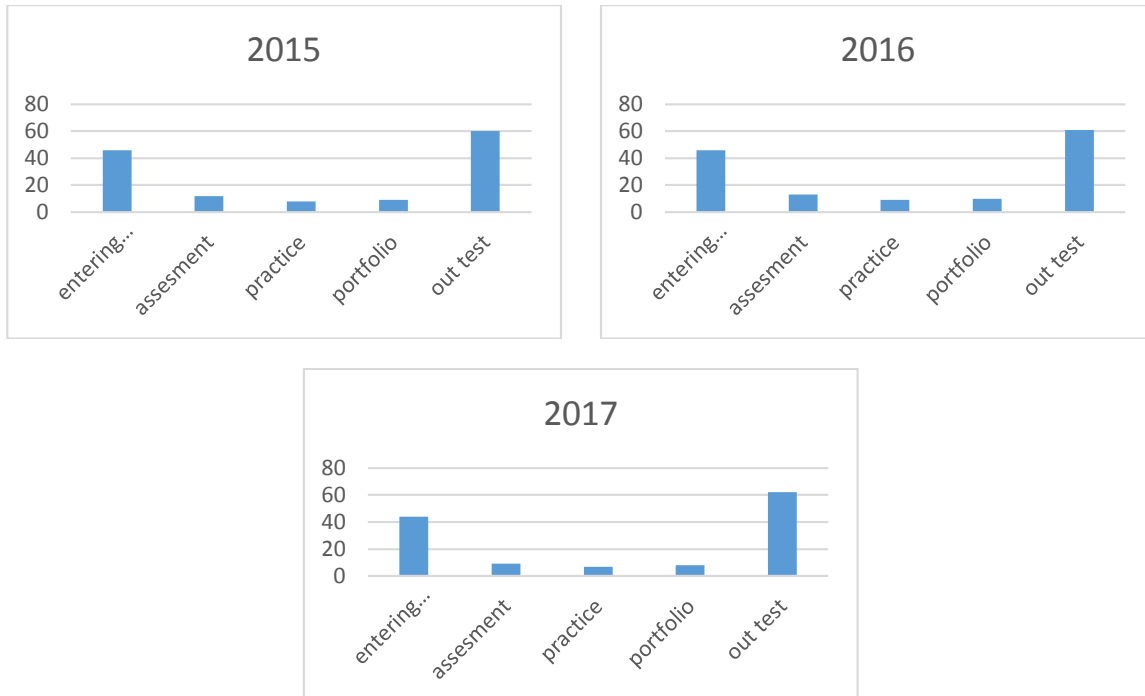
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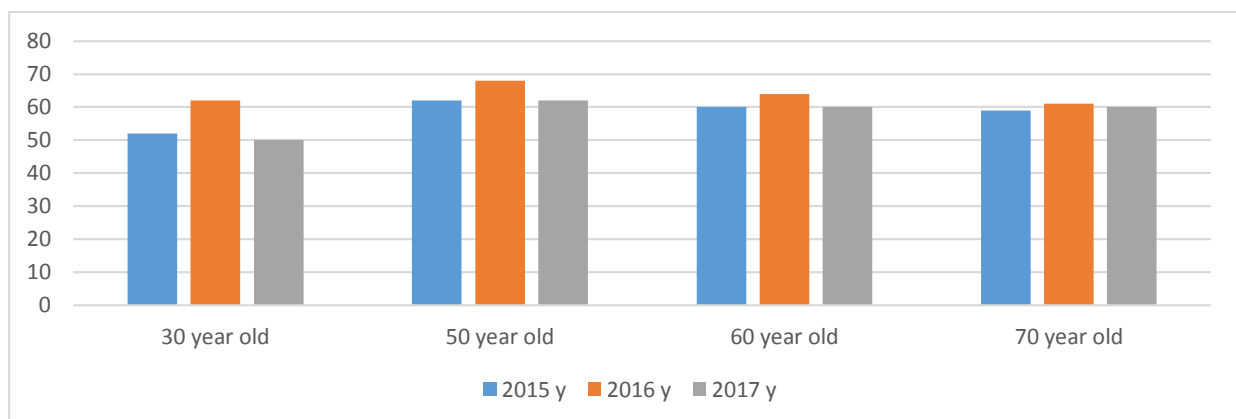
education" from April 20, 2017 The decision is fundamental to the higher education system.

To modernize the processes of improvement, retraining and advanced training on the basis of advanced foreign experience, systematic work is being carried out by the Ministry of Higher and Secondary Special Education, the Main Scientific and Methodical Center and the Network Centers under the Higher Education Institutions. These have been developed and monitored the process of

retraining and upgrading the managerial staff of the higher education system. Dynamics of the results of retraining and improvement of professional skill of pedagogical staff of higher education institutions using modern methods, based on the results of work to ensure the required level of training of highly-qualified personnel and the study of advanced international pedagogical experience are shown in Figures 1 and 2.



Picture 1. Average Growth Indicators for Years Listed by General scientific and methodical center Students [3]



Picture 2. The results of the outbreak test for young people in the General scientific and methodical center audience [3]

Training of managerial staff in the higher education system will be carried out through the provision of educational services. In the conditions

of the new market economy, managers of educational institutions define new priorities. Among them:

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1. Adaptation of the Higher Education System to the International Education Area.

2. Developing a qualitative student demanded by employers in the labor market, based on industry and industry indicators.

3. Innovative ideas approach to learning technologies.

4. Increasing the importance of the results of the research work of professors and students.

5. Informatization and control over managerial and educational activities.

6. Keeping human resources in line with the manpower policy, increasing emphasis on all aspects of managerial training of higher education institutions.

Reserve managerial positions in higher education institutions can be formulated on the following principles:

- Suitability and sufficiency (taking into account current and perspective needs of managerial staff reserve);

- Objective assessment and comprehensive assessment of the professional and personal characteristics of the candidates in the staff reserve;

- regular assessment of professional achievements, as well as implementation of individual plans for training personnel resources;

- Promoting promising candidate for administrative staff - professional development, meeting the needs of the education system, focusing on the age, health status and dynamic experience of work;

- Responsibility of acting managers for the formation and training of managerial staff;

- availability of information (transparent) on the performance of their activities when forming reserve of managerial personnel transparently;

- Absence of discrimination on various grounds (gender, ethnicity, nationality, etc.).

The main criterion for selection of candidates for the formation of managerial staff of higher education institutions is based on the analytical results of the Main Scientific and Methodological Center for Training and Retraining of Teachers and Advanced Personnel Higher Education System under the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan.

Result of the current position and the results of the assignment.

The candidate's desire to work in a new position, to work in this area, to support the current leader.

Age - 40-45 years old.

Structure of staff administrative personnel in higher education institutions is determined by the hierarchical distribution of executive duties. The highest part of the structure is the rector. As a rule, there should be pro-rectors in the Higher Education System's senior position. Deans of faculties of middle classes (directors of institutes of higher education). The structure of the sub-structural link in the management system is the department's chiefs, service or department manager. The availability of resources for higher education in higher education institutions enables staff to regularly prepare and participate in the practice, which reduces the time of professional adaptation of the new management, ensures the continuity of the management process of the HEI institution, the risk of errors in appointing a rector or vice-rector of the educational institution level decreases.

A key role in the selection of qualified management personnel in the higher education system is the evaluation of the staff. As a criterion for staff selection, there is a competence - a complex of knowledge, skills and abilities that will enable a person to achieve professional success.

CONCLUSIONS AND SUGGESTIONS

It is necessary to concentrate on scientific research work to solve the problems of scientific and technical developments in order to sharply increase the participation of professors, teachers, students and masters, to mobilize the existing scientific potential in the current scientific field.

It is necessary to create specialized scientific-research groups in the priority areas and to attract more talented students.

To modernize the material and technical basis of the University, it is necessary to accelerate the work on equipment, meeting the requirements of the time, organizing educational and scientific laboratories;

Expand the scope of research and innovation projects carried out jointly with the Ministry of Information Technologies and Communications of the Republic of Uzbekistan and industry enterprises;

It is necessary to fill the line of researchers with gifted youth and to increase the scientific potential of university professors and teachers.

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**SECTION 31. Economic research, finance,
innovation, risk management.**

PROBLEMS OF RISK MANAGEMENT INFLUENCING FINANCIAL STABILITY IN INSURANCE COMPANIES

Abstract: The problems of managing risks that affect financial stability in insurance companies in modern conditions are examined in the article. The nature and essence of risks in the activity of insurance companies and financial markets are analyzed. Appropriate and systematic measures to minimize the various risks of insurance companies to ensure financial stability are considered. The importance of strengthening financial stability is substantiated, taking into account the possible risks of rendering insurance services and developing strategic management mechanisms for their elimination. A classification of insurance risks and their impact on insurance companies are prepared. The relative exposure of insurance companies to risks in practice is considered. A number of recommendations and suggestions on the problems of managing risks that affect financial stability in insurance companies are summarized and made.

Key words: risks of insurance activity, assessment of risks in insurance companies, risk management in insurance companies, financial stability in insurance company, risk management, financial stability of the insurer.

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ПРОБЛЕМЫ УПРАВЛЕНИЯ РИСКОВ, ВЛИЯЮЩИХ НА ФИНАНСОВУЮ СТАБИЛЬНОСТЬ В СТРАХОВЫХ КОМПАНИЯХ

Аннотация: В статье рассмотрены проблемы управления рисками, влияющих на финансовую стабильность в страховых компаниях в современных условиях. Анализированы характер и сущность рисков в деятельности страховых компаний и финансовых рынков. Рассмотрены адекватные и системные меры по минимизации разных рисков страховых компаний для обеспечения финансовой стабильности. Обоснована важность укрепления финансовой стабильности с учетом возможных рисков по оказанию страховых услуг и разработке стратегических управленческих механизмов по их устранению. Подготовлена классификация страховых рисков и их влияние на страховые компании. Рассмотрена относительная подверженность страховых компаний рискам на практике. Обобщены ряд рекомендаций и даны предложения по проблемам управления рисками, влияющих на финансовую стабильность в страховых компаниях.

Ключевые слова: риски страховой деятельности, оценка рисков в страховых компаниях, управление рисками в страховых компаниях, финансовая стабильность в страховой компании, риск-менеджмент, финансовая устойчивость страховщика.

Introduction

В современных условиях при периодически повторяющихся финансовых кризисах остро стоит вопрос системного управления экономическим рисками, в частности, рисками в страховых компаниях. Страховые компании при этом являются одновременно объектом и субъектом управления рисками, вследствие чего

так важен эффективно организованный риск-менеджмент с целью обеспечения финансовой устойчивости и надежности страховой компании в конкурентной среде. Так, страхование как экономическая категория – это система экономических отношений, которая включает в себя совокупность методов и форм создания и формирования целевых фондов денежных



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средств с целью их использования для возмещения ущерба при возникающих рисках и в случаях оказания финансовой помощи гражданам при определенных событиях. По мнению ученого-экономиста И.Сиканевич, страхование является одним из стратегических секторов экономики вследствие того, что организация процесса жизнедеятельности невозможна вне создания и использования механизма компенсации потерь, произошедших из-за случайных событий. Так, в современное время страхование является финансовым стабилизатором экономики и дает возможность обеспечить компенсацию потерь и убытков, которые возникают в процессе общественного воспроизводства вследствие техногенных, социальных и природных катаклизмов без использования государственных ресурсов [1]. Из данных определений можно сделать вывод, что риск в системе страхования – это основополагающая категория, управление которой определяет место компании на страховом рынке и формирует ее финансовую

устойчивость. Следует отметить, что финансовая устойчивость страховой компании характеризуется группами основных факторов. В обобщенном виде это: достаточный собственный капитал (уставное капитал, сформированный за счет прибыли резервный капитал и нераспределенная прибыль), страховые резервы, размещение активов и перестрахование [2].

Materials and Methods

Рассматривая определение понятия «риск» считаем целесообразным отметить трактовку Т.В.Журко Согласно его мнению, риск – двумерная величина, которая характеризует вероятность и объем убытков, появляющихся вследствие неопределенности, сопровождающей деятельность организации [3]. Так, рассмотрим классификацию страховых рисков и их влияние на страховую компанию и относительную подверженность страховых компаний рискам, согласно оценке международной ассоциации страхового надзора (Рисунок 1, Рисунок 2). [4]:

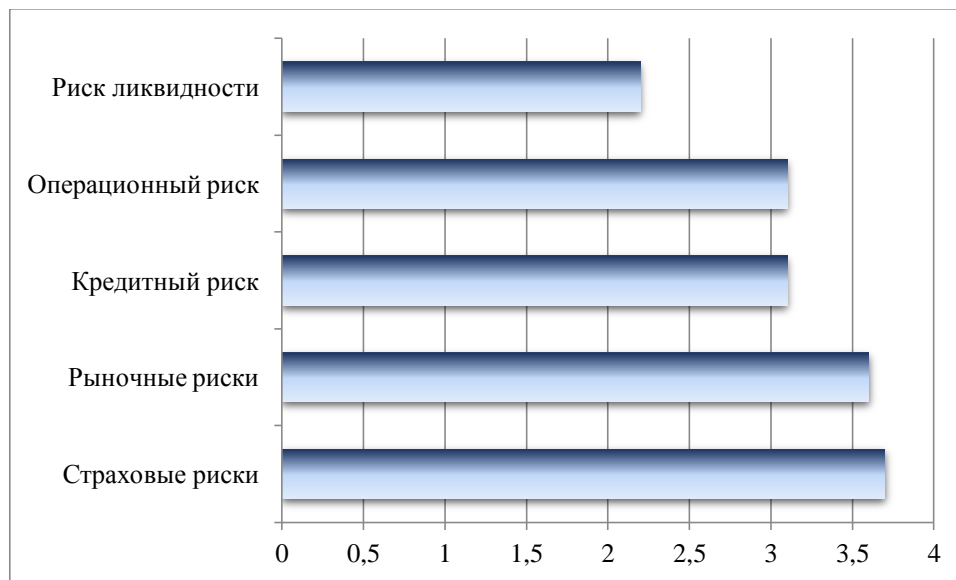


Рисунок 1. Классификация страховых рисков и их влияние на страховую компанию

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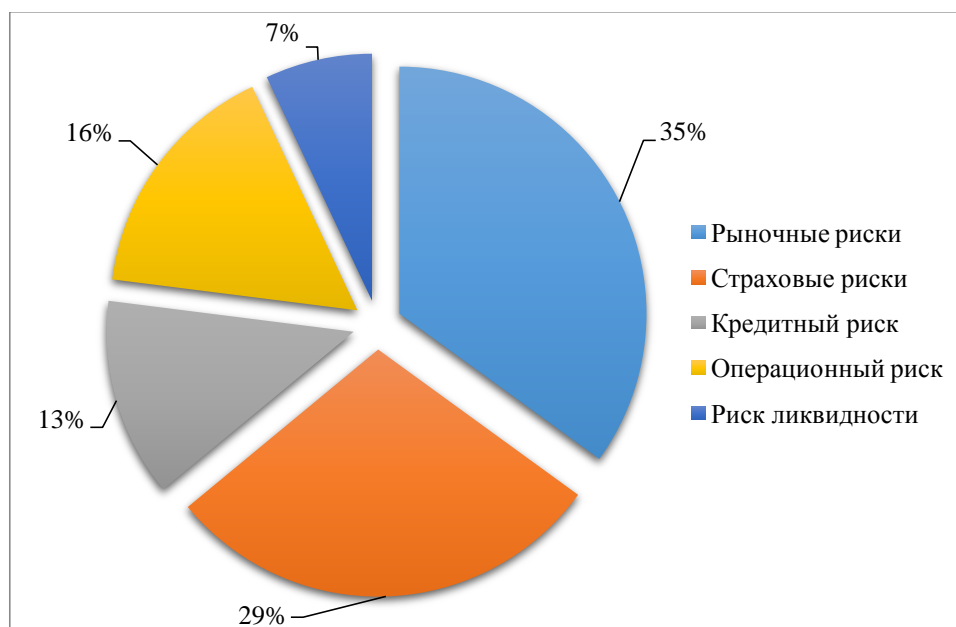


Рисунок 2. Относительная подверженность страховых компаний рискам (сайт IAIS).

Так, как видно из Рисунка 1 и Рисунка 2, риски для страховых компаний можно классифицировать в следующие: рыночные риски, страховые риски, кредитный риск, операционный риск и риск ликвидности. Рассмотрим их более подробно:

✓ рыночные риски - отрицательное изменение стоимости активов и пассивов страховой компании, подверженной рыночным изменениям.

✓ страховые риски – это риски вероятных потерь и убытков в случае неправильно выбранной стратегии по принятию и оценке рисков на страхование. Эта группа рисков делится, в свою очередь, на риск андеррайтинга (принятие для страхования нецелесообразных рисков или ошибка в выборе объекта страхования), риск снижения технических резервов (технические резервы – создаются из взносов страхования с целью выполнения компанией своих обязательств по договорам) и риск катастроф.

✓ кредитный риск – риск вероятных убытков вследствие невыполнения другой стороной своих обязательств.

✓ операционный риск – риск отказа внутренних систем, процедур и систем контроля, риск аварий, приводящие к финансовым убыткам компании.

✓ риск ликвидности – это риск убытков, возможных в ситуации, когда для удовлетворения требований по своевременным выплатам в наличии страховой компании окажется недостаточно активов.

Изучая классификацию рисков и числовые характеристики отдельных рисков, следует отметить, что наиболее часто встречающиеся

методы оценки различных рисков являются показатели Value at Risk (VaR) и Expected Shortfall (ES). VaR характеризует убытки в течении определенного заданного периода времени, которые не будут превышены с заданной вероятностью [5].

В управлении рисками, которые влияют на финансовую стабильность в страховой компании, основополагающая роль принадлежит страховщику и финансовой устойчивости его деятельности. Так, отмечается, что финансовая устойчивость страховщика – это его способность своевременно выполнять взятые на себя обязательства по договорам страхования при изменении экономической конъюнктуры и влиянии неблагоприятных факторов [6]. С помощью деятельности страховщика концентрируются значительные финансовые резервы в его руках, активно используемые в инвестиционном процессе. В свою очередь, надежность и эффективность размещения временно свободных денежных средств влияет на доходы страховщика и его платежеспособность. Отметим, что страховая компания как финансовый институт подвержена негативному влиянию рисков с двух сторон: с одной стороны, в процессе различных видов деятельности, в частности, инвестиционной, со стороны страховщика возникают финансовые риски, которые связаны с невозвращением инвестированных средств или неполным получением прибыли, с другой стороны, страховые компании подвержены так называемым «чужим рискам», т.е. риски, передающиеся посредством различных договоров страхования или перестрахования [7]. Здесь одним из наиболее методов управления рисками

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изменения финансовой стабильности страховщика в страховой компании является перестрахование, в основе которого лежит система перераспределения риска между страховщиками. Т.е. при перестраховании страховая компания, которая принимает на страхование риски, часть своей ответственности по ним передает на взаимнообговоренных условиях другим страховщикам [8]. Отметим так же, что страховщик обязуется выполнять условия, которые должны быть исполнены в течение длительных сроков (например, пенсионное страхование) или которые определяются с помощью теории вероятности (страхование автотранспортных средств, страхование последствий несчастных случаев и др.). Именно вследствие этого столь большое значение имеют факторы платежеспособности страховых компаний и обеспечения их финансовой устойчивости. Причем эти понятия существенно различаются между собой. Так, платежеспособность страховой компании – это ее способность полностью и своевременно выполнять финансовые обязательства, взятые на себя. Финансовая же устойчивость – это способность страховой компании в течение всего срока ее действия сохранять платежеспособность по страховым договорам в соответствии с внутренними и внешними условиями [9].

Что же касается нейтрализации разных рисков, появляющихся в процессе деятельности страховой компании, то здесь первостепенное значение отводится внутреннему риск-менеджменту. Так, понятие риск-менеджмент представляет собой комплекс мер, которые направлены на общее выявление, управление и искоренение действий различных рисков, препятствующих здоровому функционированию страховой компании [10].

Далее рассмотрим взгляды ученых-исследователей на оценку, управление и механизмы снижения влияния рисков на финансовую платежеспособность и устойчивость страховой компании в современной конкурентной среде. Так, Яранцева Е.А. в своих трудах исследовала методы оценки рисков, которые воздействуют на финансовую устойчивость страховых компаний. Ученый отмечает, что регулятор страхового рынка на сегодняшний день обладает небольшим инструментарием для контроля за показателями финансовой устойчивости страховой компании. В частности, он включает в себя 3 основных фактора: 1) контроль за правильностью создания резервов страхования; 2) контроль за соблюдением соотношения имеющихся в наличии средств и принятых на себя обязательств; 3) требования к структуре и составу активов, которые принимаются для погашения

средств страховых резервов и страховщика [11]. Другой исследователь, изучая вопросы комплексного управления рисками в страховых организациях, отметил, что в случае финансового риска возможны 2 исхода – положительный (дополнительный доход, прибыль и др.) и отрицательный (убытки, потери, ущерб и др.) и целями управления рисками в страховой компании являются минимизация отрицательного и максимизация положительного эффекта реализации риска [12]. Изучая эти же вопросы, исследователь Гуштеров Д.Х. пишет, что усложнение рисков ситуации обуславливает трансформацию механизмов риск-менеджмента. Так, в современных условиях риск не рассматривается как фрагментное негативное явление, а как неизбежный атрибут внешней среды. Следовательно, деятельность компании осуществляется в условиях глобальной финансовой неопределенности, причем устраняя одну неопределенную ситуацию, компания сталкивается с группой новых неопределенных ситуаций [13]. Рассматривая методологию управления финансами страховой системы, Морозко Н.И. утверждает, что недостаточная стабильность и динамичность развития страхового рынка – это следствие недостаточного уровня капитализации страховых компаний и неимением эффективного инструментария для создания надежной финансовой стратегии, которая создает условия для рационального управления денежным потоком, формирования надежной структуры капитала и др. [14]. В трудах других ученых-исследователей (Финогенова Ю.Ю., Задоянный А.А. и Бахчиева М.Н.) исследованы вопросы страхового риск-менеджмента персональных инвесторов, аспекты контроля платежеспособности в системе финансового мониторинга страховых предприятий и критерии механизма снижения финансовых рисков промышленного предприятия при формировании страховой защиты. Так, отмечается, что страховой риск-менеджмент персонального инвестора характеризуется созданием мотивации к приобретению инвесторами страхового покрытия, которое обеспечит защиту от рисков в долгосрочной перспективе [15]. Что касается финансового контроля финансовой стабильности страховой компании, то здесь важное значение отводится бизнес-аудиту как методу исследования и оценки платежеспособности страховой компании и др. [16]. Отметим так же, что управления рисками страховой компании затрагивает все направления ее деятельности, как тактические, так стратегические, так и операционные. Следовательно, управление рисками должно иметь комплексный и целенаправленный характер и ориентироваться на улучшение

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финансовой прочности и устойчивости компании на рынке страховых услуг [17].

Conclusion

Таким образом, обобщая все вышесказанное, можно отметить ряд выводов по управлению рисками, влияющих на финансовую стабильность в страховых компаниях:

- для успешного управления рисками компании необходимо разработать и внедрить концепцию финансового мониторинга страховой компании с учетом внутренних и внешних факторов;

- требуется создание организованной и надежной системы риск-менеджмента для противостояния неопределенности страхового рынка;
- имеется необходимость в повышении уровня капитализации страховой компании и создании соответствующего инструментария с целью создания надежной финансовой стратегии;
- и, наконец, необходим комплексный анализ конъюнктуры страхового рынка с целью своевременного реагирования изменениям его и возникающим рискам в современных условиях и др.

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**SECTION 21. Pedagogy. Psychology. Innovations
in the field of education.**

THE FACTORS OF BRINGING CHILDREN UP IN THE MOOD OF MATERIAL AND SPIRITUAL INTEGRATED LIFE IN THE FAMILY (As an example of primary school age)

Abstract: The article is devoted to the family and child upbringing, bringing up children in the mood of material and moral integrated life, its factors, the unique features of the phase of primary school and forming loyalty towards family customs.

Key words: family, child upbringing, the phase of junior school age, the integration of spiritual and moral life, moral maturity, the harmony of family, the union of education and upbringing, the discipline, guidance and example, customs, the loyalty towards traditions and conventions.

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Introduction.

The prospect of every country depends on forming all-sided mature, intellectually skilled generation and conducting education that can meet the demands of current time. The advancement of plenty of countries in the Globe scale in many aspects is considered to be the result of rapid social-economic development, the wide scale application of success of science-techniques and technologies into the education. This, in turn, has been lifting the education policy to the degree of one of the state policy by comprising an issue of producing people who adore their country and nation, loyal to the customs and traditions, has independent ideas, the one who is creative. The views of Uzbekistan, which has set great ambitions to achieve in the following years, have also been changing sharply. One of the single matters included in the Actions strategy for further development of the Republic of Uzbekistan in one of five solid directions which is "to bring up the young who are physically healthy, mentally and intellectually developed, can think freely, have firm practical point of view, loyal to country" and the reconstruction of the educational system on the principle of "educate the child from an early age" can be counted as the evidence of our thought [1].

Needless to say, the society is built on the integration of material and spiritual lives. This

conception is directly related to each other, and one of them cannot be exist without the other. The material life of the society is the maturity of individuals as people, food they need to live and their performance, clothes, accommodation, and the means of communication, material things, and the collection of material conveniences. Material production is the important and decisive condition of the life of society. It is obvious that the life of society will surely fall out of track if material things are not produced. It should be stated here that the materialistic life of society cannot exist without its spiritual life. The spiritual life of the society is usually understood to be anything ranging from the thinking, outlook, knowledge and intellect of people that make up the society, intellectual and spiritual-ethical outlook, science, education, arts, politics and law, educational institutions, mass media, and mental-creative, intellectual wealth of its stuff. The brilliance or regression of the spiritual life also leads to the brilliance or regression of material life. So, "The spiritual life of the society does not only impact on the spirituality of a person and the development of the nation, but it also teaches every person living in the society to respect himself and others, and to be respectful towards his language, religion as being an intellectual member of the society to some extent" [4:19].



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Certainly, the formation of a human behaviour starts from the family, in particular, the child develops will, habits, behaviour, and attitude towards the environment, creed and views. That is the reason why one cannot put forward any ideas on characteristics of a person and the factors that form them before intensively studying the conditions and opportunities of nurturing the child towards maturity. Nurturing the young generation is considered to be a complex and multi-edged process that any kind of educational elements form in the family initially.

The period of primary school phase is considered to be the stage that develops human foundation, prepares him to the independent life and directs to the particular aim among many age categories. As the child steps through the gates of the school the performance of study replaces his former performance of playing. Important changes occur in the life and performance of a child in this stage. The personal characteristics as firmness, will, independence and initiative which are considered to be notable begin to develop. They come to existence as a result of observing the actions of adults and environment. The child begins to learn to communicate with people around him on various performances and show his attitude. This will be handy for him to establish his own performance and personal attitudes efficiently in the future. The development of the characteristics of a child heavily relies on the family and the education provided by the parents, their reactions towards the actions of the offspring.

As the parents carry on their social duty, they act as a model for their children in various spheres of life such as loving the labour and its organizer, forming the feeling of respect, preparing them material and spiritual life, following social limitations, setting aim on marking the significance of his personal life, every kind of positive example on providing unification of word and performance and so on. It is honest that the nurture of a child in a material and spiritual integrated way is the insurance of the future. The growth of a child as pure and clearly loyal, highly developed in spiritual point of view is up to durable healthy spiritual atmosphere in the family and similarly, many other factors:

1. Toughness. It is natural that various demands are required which may vary from each other in terms of significance from different children. At the same time, several factors including respecting each other, strict disciplinary, the obligations of family members, shared believe, economization, punctuality, kindness, caring for family and other close people are of great importance on preparing the child to material and spiritual life. The enthusiasm towards the material and spiritual life can only be awakened up by setting certain demands to the child constantly, observing if the child is completing the tasks and how quality they

are, giving him positive or negative feedback, and proper stimulating him for his job. The demands and tasks assigned for the child are also increased in complexity as the child grows up. The child should be attempted to explain demands and wishes through evidences and avoided to give fake information to the child at the primary school age. The parents decrease their own respect in front of the child when they give the wrong reply, because they compare the answer got at home and the answer given by the teacher at school and this way they comprehend who is right and who is wrong. The fair limited toughness of parents is one of the most significant ways of gaining respect. The distribution of mental and physical responsibility for children according to their strength, ability, and interests checking the results on time develop the characteristics of toughness on children, consequently, they develop dedication towards the elderly people.

2. The intensity of education and raising. The education and raising are the product of intellect, at the same time, they are the most important factors to form and enrich the intellect. So, before changing the system of education and bringing up, it is impossible to develop spirituality, to waken up the interest towards the material life. In order to do this task, the first thing that every parent should do is see the picture of individual in the child. As a result of this simple action, the main target of both family and the educational system should be to raise the child with independent wide thinking ability, to bring him up as a mature person who can intellectually show his attitude towards certain matters. "If the intense raising performance of the parents serve to bring up good offspring, being undemanding and inattentive to this job leads to falling out of a track of the raising process. It is certain that various evils shall occur in the behaviour and actions of children" [5:259].

3. Regulation and discipline. Daily regulation and discipline are putting the life of the child into a routine. The union of regulation and discipline set in the family teaches the child to properly organize leisure time and labour, similarly, it directs to assist with the household works. This, in turn, has important position in today's marketing policy. "The attitude of marketing calls a person to lead an organized life, to think thoroughly as one does the job, challenges to be a competent. The market requires to treat everything with fairness, and to approach anything thinking the outcome thoroughly. The habits like unlimited generosity, munificence, if necessary, costliness, and inclination to uncounted expanse might be restricted to certain extent" [2:74]. Teaching the child to do tasks following regulations and disciplinary, in the first place, increases the value of the child in front of the parents, increases the self-belief of the child, secondly, it directs to economize time, accounting, and being economical. The child

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learns how to restrict his personal extra demands, and avoiding using time in vain.

4. Guidance and example. The “programs” of parents focused on the upbringing of a child is absorbed into the courage and spirituality of the offspring through family talks, guidance and advices, and clear action means and measures. The qualities as kindness-affectionate, togetherness, modesty, generosity, hospitality comes to existence in the company of family and slowly but surely shapes into the behaviour of the child. Teaching the child to respect the personality of a person and his praising his value, possessing feelings of friendship, common partnership, love towards labour, enthusiasm and demand for gaining vocation and knowledge, patriotism and familial relations, giving guidance on the aftermath of a good deed and the evil, honesty and dishonesty, the rules of behaving in a good manner, caring about health and the personal example of the parents in these ways forms the conceptions as the intention towards a certain goal, enjoying its enjoyment, foreseeing the result of the action on the primary school stage children. Thus, every kind of good deed, worthy action is done through guidance.

5. Loyalty towards the customs, traditions and rituals. Forming the conceptions of traditional customs, rituals, traditions and moral rites, and conceptions of toleration also depend on how well these conceptions are followed by the family members and the personal example of parents on children at the age of primary school. It is significant to wake up the feelings of being proud of family, ancestors, and the place where he was born and brought up, traditions of Homeland, nation, people, language, religion, and traditions which is done in the family. Thus, it is the demand of present day to count on modern factors and to base on national rituals, traditions, the heritage of great scholars and great parents on the upbringing of the young generation.

5. Labour distribution and organizing leisure time meaningfully. Properly conducting familial relationships is to organize the leisure time of family meaningfully, to perform planned work considering unique characters of each child, to organize a picnic, to go on a trip, to enjoy the company of family culturally, to do household works and so on. Each member of the family has the equal rights that no child should be given too much of liberty.

Every person has the ability of living on through doing some labours. If the child is aware of what is produced in the backyard, how is the income earned, and how to spend it well, this will provide togetherness of family and teach them how to care

for each other [6]. The proper and fair distribution of labour among family members develops various skills and expertise and the feature of industriousness. The correct distribution of the labour among boys and girls of the family according to their age, strength, taste, ability and interest develops the feeling of satisfaction from the result of work that they did, believing his power along with improved feeling of responsibility [7]. The child grown up doing various household tasks will grow up as a mature person who values the labour of other people who will use material wealth economizing [8]. If the parents are devoted to the family and spend the money earned by labour sensibly, the children will also develop the same habit which is important for his future life [9]. “Every child should understand that all food growing in the Mother Nature is the fruit of people’s work from the family, and contribute to this labour consciously [10]. The child shall value the fruits of work and their workers only when this happens. The prosperity, unity, partnership depend on the gained vocations by members and the fair distribution of labour” [6:209].

In conclusion, mature spirituality of every child formed in the family initially poses important role in material and spiritual life of society.

The followings have been concluded considering points mentioned above:

– the development of marketing economy largely depends on the spiritual-moral maturity, religion-belief and ideological-political degree of competence of the youth. Only the nation that posses high spirituality and culture can set itself free from the challenges and gains the most optional way of compromising probable arguments which might be faced in the near future;

– knowledge, talent, experience are formed as one of the solid aspects of material and spiritual maturity under a certain moral competence. The family is considered to be the foundation of the maturity that as a result of bringing children up in the mood of material and spiritual integrated life, his virtues of behaviour, culture, obligation and responsibility are examined under everyday life performance, and leads to reinforcement of conscience and fairness which are spiritual-moral qualities.

– the child can only reach the peak of maturity only when he counts on the heritage and experience of ancestors. It is one of the wishes of any kind of nation to preserve humanistic qualities, to care for spiritual-moral maturity of every person in the society, to waken up deep respect, looking up to rich cultural-spiritual and scientific heritage of our ancestors with great affectionate on children

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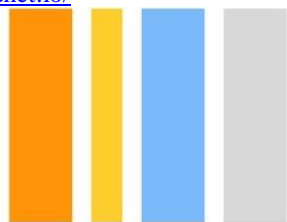
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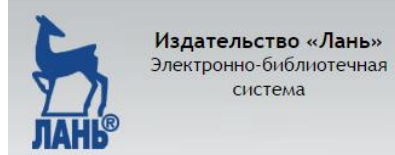
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