

# MODELING THE IMPACT OF INDICATORS OF SMALL BUSINESS AND PRIVATE ENTREPRENEURSHIP ON THE LEVEL OF WELL-BEING OF THE POPULATION

*Toshaliyeva Saodat Tokhirovna*

*Doctor of philosophy (PhD) in economic sciences, associate professor*

*Termiz State University*

*Abdurakhmanov Abdulaziz Makhmudovich*

*A student of economics*

*Termiz State*

*University*

**Annotatsiya.** Maqolada Legatum aholi farovonligi indeksiga kichik biznes va xususiy tadbirkorlikning sanoat tarmog'idagi hajmi ko'rsatkichining ta'siri modellashtirilgan. Modellashtirishda chiziqli, eksponentsial va darajali tenglamalardan foydalanilgan. Eng maqbul model tuzilib, aholi farovonligini ifodalovchi Legatum indeksining 2023 yilga qadar ko'rsatkichlari prognoz qilingan.

**Kalit so'zlar:** model, Legatum farovonlik indeksi, kichik biznes, xususiy tadbirkorlik, regressiya, chiziqli model, eksponentsial model, darajali model

## МОДЕЛИРОВАНИЕ ВЛИЯНИЯ ПОКАЗАТЕЛЕЙ МАЛОГО БИЗНЕСА И ЧАСТНОГО ПРЕДПРИНИМАТЕЛЬСТВА НА УРОВЕНЬ БЛАГОСОСТОЯНИЯ НАСЕЛЕНИЯ

*Тошалиева Саодат Тохировна-*

*Доктор философии по экономическим наукам (PhD), доцент*

*Термезский государственный университет*

*Абдурахмонов Абдулазиз Махмуд ўгли*

*Студент экономического факультета*

*Термезский государственный университет*

**Аннотация.** В статье моделируется влияние показателя размера малого бизнеса и частного предпринимательства в отрасли на индекс процветания Legatum. При моделировании использовались линейные, экспоненциальные и степенные уравнения. Составлена оптимальная модель и прогнозируются показатели индекса Legatum, представляющего благосостояние населения, до 2023 года.

**Ключевые слова:** модель, Индекс процветания Legatum, малый бизнес, частное предпринимательство, регрессия, линейная модель, экспоненциальная модель, экспоненциальный модель

**Modeling the impact of indicators of small business and private entrepreneurship on the level of well-being of the population**

*Toshaliyeva Saodat Tohirovna-*

*Doctor of philosophy in Economic Sciences (PhD), dotsent*

*Termez State University*

*Abduraxmonov Abdulaziz Maxmud o'g'li*  
*A student of economics*  
*Termiz State University*

*Annotation. The article modeled the effect of the size indicator of small business and private entrepreneurship in the industrial sector on the Legatum Population Welfare index. In modeling, linear, exponential and graded equations were used. The optimal model has been compiled and the Legatum index, which represents the well-being of the population, is projected to be by 2023.*

*Keywords: model, Legatum welfare Index, Small Business, Private Enterprise, regression, linear model, exponential model, level model*

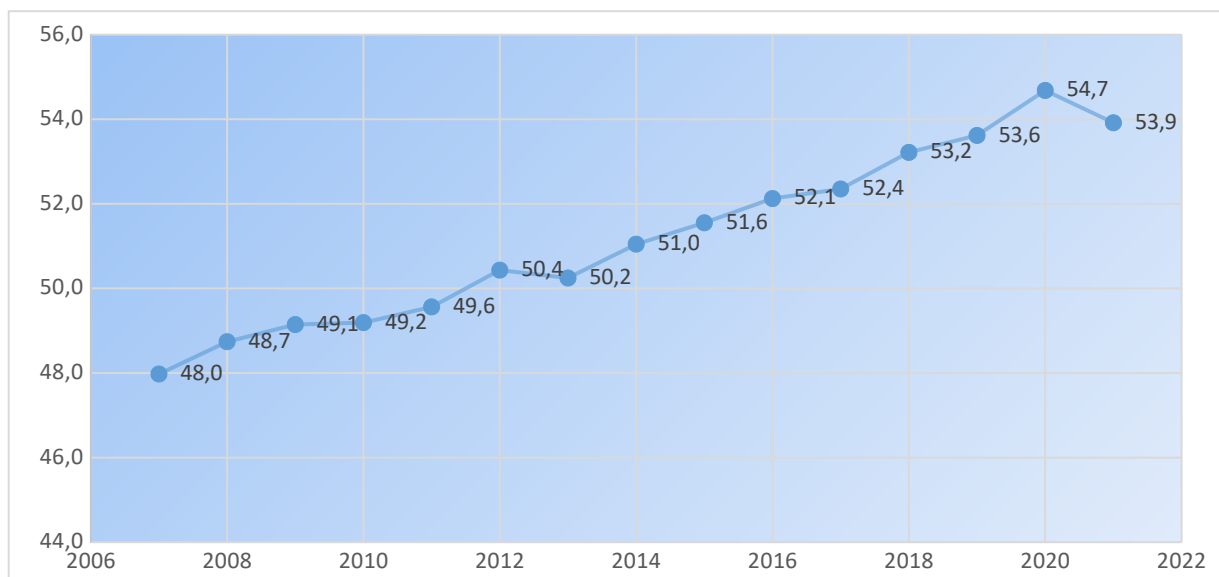
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At the current stage of socio-economic development, one of the urgent and problematic issues in the republic is the formation of a system for evaluating the effectiveness of state social policy. In practice, various indicators are used to assess the well-being of the population.

The main goal of the socio-economic development of the society is to achieve the well-being of the population. From the point of view of the World Bank, the goal of achieving population welfare is to increase the income of the bottom 40 percent of the population. Without sustainable economic growth, it is difficult to improve the living standards of the poor. However, economic growth alone is not enough to achieve prosperity. To improve overall welfare, growth must be inclusive – that is, it must reach the disadvantaged sections of the population[9].

The well-being of the population, on the one hand, is determined by the structure and level of their needs for various social benefits, which are constantly changing, and on the other hand, it is determined by the opportunities to satisfy the needs, the situation in the market of goods and services, the income of the population, and the wages of workers[1].

According to the Legatum welfare index, in 2021, the Republic of Uzbekistan took 100th place and the index value was 53.9. In 2021, it increased by 9 points compared to 2010, and by 6 points compared to 2015. The highest figure (98 places) was reached in 2020 (Figure 1). In addition, 27 high ratings were achieved in terms of social capital and 50 in terms of health. The top 5 places in the rating are occupied by the developed countries of the world, Denmark, Norway, Sweden, Finland, and Switzerland. Among the CIS countries, Kazakhstan took 64th place, Kyrgyzstan took 90th place, Tajikistan took 110th place, and Turkmenistan took 108th place. The lowest place in the rating was occupied by the country of South Sudan, occupying 167 places.



**Figure 1. Indicator of the Legatum Welfare Index of the Republic of Uzbekistan for 2007-2021<sup>1</sup>**

It should also be noted that the order of the President of the Republic of Uzbekistan dated 02.06.2020 No. PF-6003 "Improving the position of the Republic of Uzbekistan in international rankings and indexes and introducing a new mechanism of systematic work with them in state bodies and organizations" According to the Decree, measures to reflect the indicators of the republic in indicators such as the Legatum welfare index have been determined.

#### **Analysis of literature on the topic**

In 2015, the UN General Assembly adopted a document reflecting 17 sustainable development goals aimed at improving and protecting the well-being of the countries of the world. The 2030 Agenda for Sustainable Development sets the goal of ending poverty and creating healthy lifestyles for the peoples of the world, peace, prosperity and opportunity for all[15].

The concept of "quality of life" was first used by JK Galbraith in his scientific research, and he evaluated this concept as the same as the concept of "standard of living" [16]. In addition, J.K. In his scientific research, Galbraith studied economic growth and its effects on the environment, and in his writings he justified the ecological consequences of economic growth on the environment and the quality of human life.

P.D. The concepts of quality of life and standard of living are widely used in Kosinski's scientific research. But they are not the same concept. According to him, the "standard of living" reflects the level of meeting the needs of the population and its development. The concept of "quality of life" defines various (economic, social, ecological) living conditions and the state of people's use of social opportunities created by society[18].

V.T. According to Shishmakov, the concept of "quality of life" includes not only the level of consumption of material goods and services, but also the satisfaction of spiritual needs, the state of health, the life expectancy of the

<sup>1</sup> It was compiled by the author based on the data of the British Legatum Institute analysis center.

population, human living conditions, moral and psychological climate. It is considered as a generalizing socio-economic category containing [17].

Currently, the term "quality of life" is actively used in discussing issues of human development, determining the level of inequality, as well as comparing the well-being of the population between countries [15].

In the analysis of the quality of life of the population, general indicators reflecting the level of socio-economic development of the region are used. The level of well-being of the population can be expressed in indicators such as the size of the national income, real income per capita, as well as the unemployment rate and various indices. One such indicator is the Legatum Prosperity Index. The Legatum Prosperity Index is a comprehensive indicator of the British think tank Legatum Institute, which evaluates the achievements of the countries of the world in terms of their well-being and development. The research has been conducted annually since 2006. The index is compiled on the basis of many different indicators combined in three directions, reflecting various aspects of society and parameters of social well-being. These are: open society; openness of the economy; people's capabilities. The ranking of each country is determined by calculating the weighted average of these indicators, each of which is defined as the basis of well-being. Indicators are based on statistical analysis, social research and expert assessments of survey participants. The statistical data used in the rating were obtained from the UN, World Bank, ICT, WTO and other global organizations and international think tanks [3].

Assessing the level of well-being of the population is a complex process due to the large number of factors affecting it. T.V. Ignatov [11] tried to use the criteria for assessing the welfare of the population used by the World Bank in his research. Ayvazyan S. A. [10] developed a methodology for assessing the quality of life of the residents of the region based on the use of an integral index.

The problem of determining the relationship between the level of well-being of the population and economic indicators is one of the current research directions. Barro RJ, Banerjee AV, Duflo Ye. [14] studies are devoted to assessing the impact of inequality on economic growth. Based on the analysis of data on a group of countries, Duarte, Simcotekmes M., Andrade J. S. [15] recommended using the quantile regression method in their research to assess the relationship between the level of well-being and economic indicators.

In various literature, the factors affecting well-being are classified based on different approaches and different methodologies have been developed. S.A. Balashova and E.O. Nakhatakyan [5] developed a well-being index based on the systematization of the existing methodologies by systematizing the widely used global well-being indices, analyzing their level of relevance and evaluating the relationship with traditional socio-economic indicators. O.A. Kislitsyna [6] analyzed the approaches to measuring the level of development and the quality (welfare) of the population's lifestyle and highlighted their importance. The author has also developed an integral index of well-being [6]. Fundamental approaches to

measuring the level of social well-being of regions were discussed in the researches of M.V. Smirnov [8].

Despite the many methods of assessing well-being, the issue of determining the factors affecting it remains relevant.

### **Research methodology**

Analysis of the validity of the influence of the indicator of the size of small business and private entrepreneurship in the industrial sector on the Legatum population welfare index, verification of the completeness of its components, between the resulting and factor indicators based on linear, exponential and rank equation econometric modeling quantitatively and qualitatively scientific assessment of dependence, as well as development of the forecast parameter of the Legatum index, which represents the well-being of the population, until 2025 based on the constructed econometric model.

### **Analysis and results**

As mentioned above, several factors are the basis for the formation of the Legatum welfare index. From an economic point of view, it is important to assess the impact of the size of small business and private enterprise on the industrial sector. After all, small business and private entrepreneurship play a central role in the development of society, providing employment to the population, and ensuring the well-being of the population.

For this purpose, the indicators of 2010-2021 were selected for correlation regression analysis. In it, the welfare index of the Republic of Uzbekistan according to Legatum was determined as a result indicator, and the size of small business and private entrepreneurship in the industrial sector as a factor indicator (Table 1).

**Table 1**

**Legatum Prosperity Index of the Republic of Uzbekistan and the size of small business and private entrepreneurship in the industrial sector of the Republic <sup>2</sup>**

| <b>Years</b> | <b>Legatum Prosperity Index (point)</b> | <b>The volume of small business and private entrepreneurship in the industrial sector (billion soums)</b> |
|--------------|---|---|
| 2007         | 48,0                                    | 2432,4  |
| 2008         | 48,7                                    | 3489,5  |
| 2009         | 49,1                                    | 5072,3  |
| 2010         | 49,2                                    | 10132,9   |
| 2011         | 49,6                                    | 13586,8   |
| 2012         | 50,4                                    | 17114,6   |
| 2013         | 50,2                                    | 23312,0   |
| 2014         | 51,0                                    | 30907,0   |
| 2015         | 51,6                                    | 39643,5   |
| 2016         | 52,1                                    | 50654,5   |

<sup>2</sup> Author development based on research results

|      |      |          |
|------|------|----------|
| 2017 | 52,4 | 61367,8  |
| 2018 | 53,2 | 87962,0  |
| 2019 | 53,6 | 83344,2  |
| 2020 | 54,7 | 103020,8 |
| 2021 | 53,9 | 121719,2 |

Correlation-regression analysis was conducted in Microsoft Excel software. The results of the regression analysis are given in Table 2.

**Table 2**

**Correlation-regression analysis results<sup>3</sup>**

| T/r | Model type and regression equation                     | Approximation reliability coefficient | Fisher F test | Student's t test                 |
|-----|--|---------------------------------------|---------------|----------------------------------|
| (1) | Exponential<br>$y = 48,995 e^{9,864 \cdot 10^{-07} x}$ | $R^2 = 0,9141$                        | $F = 138$     | $t_a = 802,49$<br>$t_b = 11,76$  |
| (2) | Linear<br>$y = 48,975 + 5,075 \cdot 10^{-07} x$        | $R^2 = 0,9201$                        | $F = 149$     | $t_a = 204,27$<br>$t_b = 12,24$  |
| (3) | Logarithmic<br>$y = 35,168 + 1,583 \ln x$              | $R^2 = 0,9219$                        | $F = 153$     | $t_a = 27,01$<br>$t_b = 12,39$   |
| (4) | Level<br>$y = 37,379 x^{0,031}$                        | $R^2 = 0,9293$                        | $F = 170$     | $t_a = 149,84$<br>$t_b = 13,071$ |

From the data of Table 2, it can be seen that all models are significant according to Fisher's F test at  $\alpha=0.05$  level, and their parameters are statistically significant according to Student's t test. It is known that the coefficient of determination is the part of the variance of y explained by x. The bigger it is, the better. From this, it follows that polynomial model (4) is more suitable for the economic process than other models according to the coefficient of determination ( $R^2=0.9718$ ).

For the purpose of forecasting, we created an exponential trend equation for the factor sign:

$$x = 2704,4 e^{0,277 t} \quad (6)$$

(6) it was found that the exponential trend equation and all its coefficients are statistically significant at  $\alpha=0.05$  according to Fisher's F criterion and Student's t criterion, and its coefficient of determination is higher than other significant trend models.

**Table 2**

**Exponential trend equation and its coefficients<sup>4</sup>**

| Years | Legatum Prosperity Index (point) | The volume of small business and private |
|-------|----------------------------------|--|
|-------|----------------------------------|--|

<sup>3</sup> Author development based on research results

<sup>4</sup> Author development based on research results

|             |      | <b>entrepreneurship in the industrial sector<br/>(billion soums)</b> |
|-------------|------|--|
| <b>2022</b> | 54,7 | 227 512,2  |
| <b>2023</b> | 55,1 | 300 132,7  |

### **Conclusions and suggestions**

Having systematized well-being indices, we can say that the results of correlation-regression analysis based on the objective-subjective approach allow for the most accurate assessment of national well-being. They minimize the positive and negative features of objective and subjective approaches, and are widely used both for annual comparisons of countries and for analyzing the dynamics of indicators within a given country. Therefore, it is considered the most appropriate method for analyzing the well-being index of the Legatum Institute within the framework of an objective-subjective approach.

Based on the econometric analysis, a strong correlation was found between the size of small business and private entrepreneurship in the industrial sector and the prosperity index of the Republic of Uzbekistan according to Legatum. The reason for this is that the higher the volume of industrial production, the higher the standard of living of the population.

The relationship between the welfare index and the size of the business in the industrial sector is very close for all groups of countries, and this evaluation method can be used at the level of the country and region.

Thus, Legatum's well-being index can be used to assess national well-being, as it represents an appropriate assessment of the well-being of countries, taking into account socio-economic indicators.

The approaches presented in the article are an important step towards analyzing the validity of the impact of the indicator of the size of small business and private entrepreneurship on the Legatum index of population well-being, the success of further research in this area, subjective perception of well-being and can be seen by forming a complex index that combines objective indicators of social development.

### **References**

1. Aliyev B. Qudrat va farovonlik omili / "Oriental Renaissance: Innovative, educational, natural and social sciences"
2. Scientific Journal Vol 2. Iss. 3. 2022. URL: <https://cyberleninka.ru/article/n/qudrat-va-farovonlik-omili>
3. Дригайло Д. Процветание на 69 месте. «ЭГ» выпуск №92 (2391) <https://neg.by/novosti/otkrytj/procvetanie-na-69-meste/>
4. Britaniyaning Legatum Institute tahlil markazining ma'lumotlari asosida muallif tomonidan tuzildi.
5. Балашова С.А., Нахатакян Е.О. Систематизация подходов к оценке социально-экономического развития стран по индексу благосостояния //

Вестник РУДН. Серия: Экономика. 2017. №2. URL: <https://cyberleninka.ru/article/n/sistemizatsiya-podhodov-k-otsenke-sotsialno-ekonomicheskogo-razvitiya-stran-po-indeksu-blagosostoyaniya>

6. Кислицына О.А. Подходы к измерению прогресса и качества жизни (благополучия) // Экономический анализ: теория и практика. 2016. №10 (457). URL: <https://cyberleninka.ru/article/n/podhody-k-izmereniyu-progressa-i-kachestva-zhizni-blagopoluchiya>
7. Кислицына Ольга Анатольевна Национальный индекс качества жизни (благополучия) как инструмент мониторинга эффективности социально-экономической политики в России // ЖИСП. 2017. №4. URL: <https://cyberleninka.ru/article/n/natsionalnyy-indeks-kachestva-zhizni-blagopoluchiya-kak-instrument-monitoringa-effektivnosti-sotsialno-ekonomicheskoy-politiki-v>
8. Смирнов В.М. Индекс социального прогресса в системе измерителей социального развития России и её регионов // Проблемы экономики и юридической практики. 2017. №6. <https://www.vsemirnyjbank.org/ru/news/feature/2013/05/08/shared-prosperity-goal-for-changing-world>
9. Айвазян С.А., Степанов В.С., Козлова М.И. Измерение синтетических категорий качества жизни населения региона и выявление ключевых направлений совершенствования социально-экономической политики (на примере Самарской области и ее муниципальных образований) // Прикладная эконометрика. 2006. № 2. С. 18—84.
10. Игнатова Т.В. Национальное благосостояние: концепции, модели, методы оценки. Ростов н/Д: Изд-во СКАГС, 2007.
11. Asheim G. Green National Accounting: Why and How? Department of Economics. University of Oslo. 1999.
12. Barro R.J. Inequality and Growth in a Panel of Countries. Journal of Economic Growth. 2000. Vol. 5. No. 1. Pp. 5—32.
13. Banerjee A.V., Duflo E. Inequality and Growth: What Can the Data Say? Journal of Economic Growth. 2003. Vol. 8. No. 3. Pp.267—99.
14. Duarte A., Simões M., Andrade J.S. The welfare state and economic performance: quantiles and nonlinearities. Applied Economics Quarterly. 2016. Vol. 62. No. 4. Pp. 267—294.
15. <https://unctad.org> - . United Nations, Treaty Series, vol. 1771, No. 30822. Преобразование нашего мира: Повестка дня в области устойчивого развития на период до 2030 года
16. Любовникова Д.О. Качество жизни: трансформация понятия, проблемы оценивания// Информационные войны. 2013. № 2 (26). С. 57-70.
17. Шишмаков В.Т. и др. Оценка и прогнозирование качества жизни населения городов России// Вестник/ NГИЕНІ. 2016. № 1 (56). С. 87-95.



18. Косинский П.Д., Вондарев Н.С. и др. Качество среды обитания и ее влияния на качество жизни населения региона/ Фундаментальные исследование. -2017.- №. 8-1. – S. 180-184.