IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

Assessment of the Impact of Small Business in Industry to Socio-Economic Development of Khorezm Region

Salaev Jasurbek Kamilovich
Doctoral Student, Urgench State University, Uzbekistan

Abstract: *In this paper, conducted econometric analysis to estimate role of industry in socio-economic development of Khorezm region is given. Coefficient of elasticity for assessing role of industry on GRP was used. Based on the results, scientific-practical proposals and recommendations were developed to increase role of industry on socio economic development and added value.*

Keywords: Gross Regional Product, Industry, Value Added, Small Business, Employment, Real Income, Modelling, Coefficient Of Elasticity.

I. INTRODUCTION

Industrialization, which became the center of structural change as a result of the industrial revolution, increased production and employment at an unprecedented rate, resulting in high income growth [1]. This, in turn, justified the fact that industrial development is an important direction for achieving sustainable economic growth. The results of many scientific studies show that there is a strong correlation between the industrial production and the growth rate of GDP [2].

Therefore, the development of policy measures aimed at increasing the volume of industrial production on the basis of increasing the general productivity of all sectors and ensuring sustainable development was formed as one of the main directions of ensuring socio-economic development. Governments are paying special attention to the issue of speeding up this process on the basis of providing a favorable environment for the development of the industry.

Quantitative indicators of small business entities in the field of industry in Khorezm region have a high growth rate. But on the other hand, its relative indicators, in particular, the value of the product per subject at constant prices, tend to decrease in the following years, which makes it necessary to identify the factors affecting it and evaluate their impact. Because the development of the industry is important in ensuring social and economic development and stability in the region.

II. LITERATURE REVIEW

Small business and industry are the source of economic growth and sustainability. Survival and activeness rate are main indicators of small business development [3]. As well as the role of industrial policy in future of manufacturing [4], therefore the importance of manufacturing in economic development [5] and employment [6] studied and substantiated by several researches. Small and medium enterprises (SMEs) are a noteworthy driver of economic development [7], being vital to most economies across the world, particularly in developing and emerging nations [8]. Investigating barriers to small business growth and development in transition environment [9], defining determinants of small firm survival [10] is the perspective way of sustainable development. That's why in this paper we try to estimate role of small business in industrial sector in socio-economics development of the region.

III. METHODOLOGY

In this paper used secondary data and scientific observation, analysis and synthesis, inductive and deductive analysis methods, scientific abstraction, regression analysis, correlational analysis, causal analysis, comparative and dynamic analysis.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

IV. ANALYSIS AND RESULTS

The role of industry in ensuring socio-economic development in Khorezm region was analyzed by econometric tools. That is, the effect of industry in ensuring the growth of the aggregate index representing the socio-economic development of the region, GRP evaluated using the coefficient of elasticity. Based on the results of the analysis, the following model was developed.

$$Ln(RYHM) = 5{,}4 + 0{,}4 * Ln(RIND)(1)$$

Here: RYHM - the real value of the gross regional product created in the Khorezm region (in 2010 prices); RIND – real value of industrial products produced in Khorezm region (in 2010 prices);

Number of criteria are cited to justify the adequacy of this model (Table 1). According to the results, all coefficients of the model are adequate according to the Student's test, and the p-value of them is less than 0.0001, which indicates high reliability. In addition, the coefficient of determination is 0.98, which shows that most of the changes in GRP created in the region are accounted by industry. The Durbin-Waton statistic is 1.6 (DL=0,97, DU=1,33)and substantiated there is no autocorrelation problem.Based on the results of the aforementioned analysis, it can be noted that a one percent increase in the production of industrial products in the region ensures a 0.4 percent increase in GRP.It can be seen that the development of industry is one of the important directions in ensuring social and economic development in the region.

Table I: The Results of the Regression Analysis Performed on the Assessment of the Impact of Industry on GDP

Model 1: OLS, using observations 2010-2021 (T = 12)

Dependent variable: l_RYHM

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	5.44216	0.144114	37.76	<0.0001	***
l_RIND	0.399586	0.0197990	20.18	<0.0001	***

Mean dependent var	8.343258	S.D. dependent var	0.219557
Sum squared resid	0.012706	S.E. of regression	0.035646
R-squared	0.976038	Adjusted R-squared	0.973641
F(1, 10)	407.3192	P-value(F)	1.96e-09
Log-likelihood	24.07613	Akaike criterion	−44.15225
Schwarz criterion	−43.18244	Hannan-Quinn	−44.51131
rho	0.076433	Durbin-Watson	1.656746

This is one of the most important aspects that justify the objective necessity of industrial development is the importance of the sector in creating products with high added value. Therefore, special attention was paid to the relationship between the gross added value created in the region and the added value created in the industrial sector.

$$Ln(RVAD) = 5{,}0 + 0{,}5 * Ln(RVADIN)(2)$$

Here: RVAD – the real volume of gross added value created in Khorezm region (in 2010 prices); RVADIN – Real volume of added value created in industry in Khorezm region (in 2010 prices);

The necessary criteria for justifying the adequacy of this model are also given in the form of a table (Table 2).

Table III: Results of the Regression Analysis on the Assessment of the Impact of the Added Value Created in the Industry on the Gross Added Value

Model 4: OLS, using observations 2010-2021 (T = 12)

Dependent variable: l_RVAD

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	5.01304	0.142493	35.18	<0.0001	***
l_RVADIN	0.556520	0.0240445	23.15	<0.0001	***

Mean dependent var	8.304699	S.D. dependent var	0.216542
Sum squared resid	0.009452	S.E. of regression	0.030744
R-squared	0.981675	Adjusted R-squared	0.979843
F(1, 10)	535.7092	P-value(F)	5.12e-10
Log-likelihood	25.85148	Akaike criterion	−47.70296

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

Schwarz criterion	−46.73314		Hannan-Quinn	−48.06202
rho	−0.064260		Durbin-Watson	2.029878

According to the information presented in the table, the developed model is adequate for all criteria and can be used to draw conclusions from the results of this model. According to the results of the model, it was determined that a percent increase in the real volume of added value in the industry increases the gross added value in the region by 0.5 percent. The fact that the coefficients determined on the basis of both models are different, that is, the second coefficient has a relatively high value, justifies the importance of the industry in creating high added value. The creation of products with high added value is an important source of increasing employment and income, as well as a number of economic indicators.

We will also look at the impact of industrial development in the region on population employment and real income based on regression analysis (Table 3).

The criteria cited for justifying the adequacy of the developed models substantiate their adequacy. According to the obtained results, the coefficients of elasticity, which represent the effect of the amount of products produced in the industrial sector and the added value on employment, have a small value. However, the coefficient of elasticity of real income per capita in the region, according to the amount of products produced in the industrial sector and the added value, is 0.55 and 0.78, respectively.

Table IIIII: Results of Regression Analysis on Assessing the Impact of Industrial Development on Population Employment and Real Income in Khorezm Region

№	Model	t-statistics	R^2	MAPE
1.	$\ln(EM) = 5{,}71 + 0{,}11 * \ln(RIND)$	b_1=62,82 b_2=9,04	0,89	0,27
2.	$\ln(EM) = 5{,}59 + 0{,}16 * \ln(RVADIN)$	b_1=54,14 b_1=9,14	0,89	0,26
3.	$\ln(RPRINC) = 4{,}17 + 0{,}55 * \ln(RIND)$	b_1=13,53 b_2=13,00	0,94	0,64
4.	$\ln(RPRINC) = 3{,}57 + 0{,}78 * \ln(RVADIN)$	b_1=10,68 b_2=13,79	0,95	0,65

Here: EM – the number of employees in Khorezm region (thousand people); RPRINC – real income per capita in Khorezm region (thousand soums, 2010 prices);

These results provide an opportunity to assess the impact of industrial development in the region on population employment and real income. However, it does not allow to assess the impact of small business entities in the industrial sector. Low share of small businesses in the industry, justifies to look through the impact of the change in the number of small business entities in the industry on social economic indicators. A correlational analysis was carried out to assess the impact of on number of small business entities in the industry the main socio-economic indicators in the region (table 4).

Here, two cases are considered, that is carried out comparative analysis of the effect of the indicators representing the results of the activities of small business entities and the indicators of small business entities in the industrial sector. It can be observed that the effect of the total small business entities and small business entities in the field of industry on all indicators is high. However, as with all indicators, the impact on employment was found to be relatively weak. It should be noted that the influence of inactive small business entities on socio-economic indicators was found to be positive and high.

In addition, it can be observed that the impact of number of closed small businesses is positive but weak. Based on the results, it was found that the positive and negative indicators representing the activities of small business entities in the region had a growth rate. Only high growth rates in positive indicators serve as the basis of development in the field. In our opinion, it is necessary to develop measures to reduce or decrease the growth rate of economic indicators, to determine the factors affecting them.

As a result of research, it was found that industrial development has an impact on gross regional product and gross added value, on the other hand, the real volume of industrial production and the effect of added value in industry on population employment have a very low value. Therefore, the impact of important indicators representing the activity of

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

small business entities in the industrial sector on GDP and gross added value was evaluated using the coefficient of elasticity determined using regression analysis (table 5).

Table IVV: Correlational Analysis Results on Assessing the Influence of Small Business Entities in the Industrial Sector on Socio-Economic Indicators

	RHAIM	***RVAD***	***RVADIN***	***EM***	***RIND***	***RPRINC***	***RSB***	***RSBIND***	***ACSB***	***ACSBIND***	***NACSB***	***NACSBIND***	***NEWSB***	***NEWSBIND***	***CLSB***	***CLSBIND***
RYHIM	1,00															
RVAD	1,00	1,00														
RVADIN	0,99	0,99	1,00													
EM	0,87	0,87	0,81	1,00												
RIND	0,98	0,98	0,99	0,80	1,00											
RPRINC	0,97	0,97	0,96	0,83	0,97	1,00										
RSB	**0,87**	**0,87**	**0,89**	**0,54**	**0,88**	**0,83**	1,00									
RSBIND	**0,88**	**0,88**	**0,90**	**0,56**	**0,90**	**0,86**	1,00	1,00								
ACSB	**0,86**	**0,86**	**0,89**	**0,54**	**0,88**	**0,83**	1,00	1,00	1,00							
ACSBIND	**0,88**	**0,88**	**0,90**	**0,57**	**0,90**	**0,86**	1,00	1,00	1,00	1,00						
NACSB	**0,85**	**0,84**	**0,88**	**0,50**	**0,89**	**0,84**	0,97	0,97	0,96	0,97	1,00					
NACSBIND	**0,85**	**0,85**	**0,89**	**0,50**	**0,89**	**0,84**	0,98	0,98	0,97	0,97	1,00	1,00				
NEWSB	**0,87**	**0,87**	**0,87**	**0,65**	**0,89**	**0,85**	0,94	0,95	0,94	0,94	0,91	0,92	1,00			
NEWSBIND	**0,89**	**0,89**	**0,88**	**0,66**	**0,89**	**0,88**	0,96	0,97	0,96	0,97	0,93	0,93	0,99	1,00		
CLSB	**0,40**	**0,40**	**0,42**	**0,26**	**0,35**	**0,28**	0,40	0,38	0,41	0,39	0,25	0,28	0,26	0,28	1,00	
CLSBIND	**0,43**	**0,43**	**0,46**	**0,24**	**0,39**	**0,31**	0,49	0,47	0,50	0,47	0,33	0,36	0,33	0,36	0,98	1,00

Here: RSB – number of registered small business entities; RSBIND – the number of registered small business entities in industrial sector; ACSB – number of active small business entities; ACSBIND - the number of active small business entities in industrial sector; NACSB - number of non-active small business entities; NACSBIND - number of non-active small business entities in industrial sector; NEWSB – number of newly established small business entities; NEWSBIND - number of newly established small business entities in industrial sector; CLSB - number of closed small business entities; CLSBIND – number of closed small business entities in industrial sector;

To justify the adequacy of each developed model, given Student's criterion and coefficient of determination. Also, taking into account the low Durbin-Watson index in the developed models, we found it appropriate to present it as well. According to the results of Student's criterion, the coefficients of all models are adequate, but it can be observed that the coefficient of determination has a slightly lower value. The coefficient of determination, which expresses the effect of closed small business entities in industry, justifies the fact that the relationship is almost non-existent.

Table V: The Results of Assessing the Impact of Small Business Development in the Industrial Sector on GRP and Gross Added Value in Khorezm Region

№	Model	t-statistics	R^2	DW
1.	$\ln(RYHM) = 5{,}48 + 0{,}38 * \ln(RSBIND)$	b_1=8,75 b_2=4,73	0,76	0,56
2.	$\ln(RVAD) = 5{,}48 + 0{,}37 * \ln(RSBIND)$	b_1=8,87 b_2=4,73	0,76	0,56
3.	$\ln(RYHM) = 5{,}38 + 0{,}39 * \ln(ACSBIND)$	b_1=8,31 b_2=4,75	0,76	0,57
4.	$\ln(RVAD) = 5{,}38 + 0{,}39 * \ln(ACSBIND)$	b_1=8,44	0,76	0,57

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

		b_2=4,75		
5.	$\ln(RYHM) = 7{,}62 + 0{,}17 * \ln(NACSBIND)$	b_1=32,36 b_2=3,51	0,64	0,92
6.	$\ln(RVAD) = 7{,}60 + 0{,}17 * \ln(NACSBIND)$	b_1=32,61 b_2=3,49	0,64	0,93
7.	$\ln(RYHM) = 7{,}23 + 0{,}20 * \ln(NEWSBIND)$	b_1=31,14 b_2=5,26	0,80	1,08
8.	$\ln(RVAD) = 7{,}20 + 0{,}20 * \ln(NEWSBIND)$	b_1=31,44 b_2=5,26	0,80	1,07
9.	$\ln(RYHM) = 7{,}60 + 0{,}16 * \ln(CLSBIND)$	b_1=8,42 b_2=0,93	0,11	0,19
10.	$\ln(RVAD) = 7{,}57 + 0{,}16 * \ln(CLSBIND)$	b_1=8,51 b_2=0,94	0,11	0,19

To justify the adequacy of each developed model, given Student's criterion and coefficient of determination. Also, taking into account the low Durbin-Watson index in the developed models, we found it appropriate to present it as well. According to the results of Student's criterion, the coefficients of all models are adequate, but it can be observed that the coefficient of determination has a slightly lower value. The coefficient of determination, which expresses the effect of closed small business entities in industry, justifies the fact that the relationship is almost non-existent.

In addition, the coefficients of elasticity determined by the number of closed small business entities have a positive value, while in fact, theoretically, this coefficient should have a negative. We can observe the same situation in the coefficients representing the influence of inactive small business entities. The existence of multicollinearity or autocorrelation can be considered as reasons for the existence of such problems. Therefore, we will focus on the autocorrelation problem.

Based on the research period and the number of factors used in the model, we can determine the upper and lower values of the Durbin-Watson indicator from the table, that is, it was determined that DL=0,82 and DU=1,32. According to the results of the comparative analysis of the cited indicators for justifying the adequacy of the models representing the influence of inactive and newly established small business entities in the industrial sector corresponds to the range of upper and lower limits. It is difficult to say whether there is autocorrelation in this interval, because this interval called the indecision zone.In all other cases, the problem of autocorrelation was found to exist.

Based on the results of the analysis, it can be noted that the models in Table 5 cannot be used to assess the impact of small business entities in the industry on social and economic development. For this reason, eliminating the autocorrelation problem, the effect of small business entities in the industrial sector on GDP and gross added value was considered (Table 6).

Table VI: The Results of Assessing the Impact of Small Business Development in the Industrial Sector on GRP and Gross Added Value in KhorezmRegion

№	Model	t-statistics	R^2	DW
1.	$\ln(RYHM) = 1{,}39 + 0{,}07 * \ln(RSMIND) + 0{,}77 * \ln(RYHM)_{t-1}$	b_1=2,55 b_2=1,49 b_2=8,08	0,98	-2,2
2.	$\ln(RVAD) = 1{,}39 + 0{,}07 * \ln(RSBIND) + 0{,}77 * \ln(RVAD)_{t-1}$	b_1=2,55 b_2=1,52 b_2=7,99	0,98	-2,2
3.	$\ln(RYHM) = 1{,}38 + 0{,}07 * \ln(ACSBIND) + 0{,}77 * \ln(RYHM)_{t-1}$	b_1=2,58 b_2=1,53 b_2=8,11	0,98	-2,2
4.	$\ln(RVAD) = 1{,}39 + 0{,}07 * \ln(ACSBIND) + 0{,}77 * \ln(RVAD)_{t-1}$	b_1=2,59 b_2=1,56 b_2=8,03	0,98	-2,1

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

5.	$\ln(RYHM) = 1{,}40 + 0{,}02 * \ln(NACSBIND) + 9 + 0{,}83 * \ln(RYHM)_{t-1}$	b_1=2,09 b_2=1,03 b_2=9,33	0,98	-2,6
6.	$\ln(RVAD) = 1{,}39 + 0{,}02 * \ln(NACSBIND) + 0{,}83 * \ln(RVAD)_{t-1}$	b_1=2,05 b_2=1,01 b_2=9,18	0,98	-2,6
7.	$\ln(RYHM) = 1{,}54 + 0{,}03 * \ln(NEWSBIND) + 0{,}80 * \ln(RYHM)_{t-1}$	b_1=1,77 b_2=0,87 b_2=6,59	0,97	-2,4
8.	$\ln(RVAD) = 1{,}56 + 0{,}03 * \ln(NEWSBIND) + 0{,}80 * \ln(RVAD)_{t-1}$	b_1=1,79 b_2=0,90 b_2=6,52	0,97	-2,4
9.	$\ln(RYHM) = 1{,}80 + 0{,}06 * \ln(CLSBIND) + 0{,}76 * \ln(RYHM)_{t-2}$	b_1=17,34 b_2=7,62 b_2=60,54	0,99	1,30
10.	$\ln(RVAD) = 1{,}80 + 0{,}06 * \ln(CLSBIND) + 0{,}76 * \ln(RVAD)_{t-2}$	b_1=16,96 b_2=7,66 b_2=58,79	0,99	1,29

According to the results of the Student test cited to justify the adequacy of the coefficients of the developed models, the indicators representing changes in the number of small business entities in the industrial sector in the region do not have an effect on GNP and gross added value. However, unlike the above, in this case the coefficients of determination are almost equal one. In addition, the Durbin-Watson statistic shows that the autocorrelation problem is eliminated. As a result of the research, it was found that the positive effect of the number of closed small business entities on GNP and gross added value.

According to the results of the correlation analysis, there are problems related to the development of small business entities in the industrial sector in the region. Because, as is known from the previous analysis, despite the fact that small business entities have increased in quantity, negative results are observed in their relative and efficiency indicators.

V. CONCLUSION AND RECOMMENDATION

In our opinion, it is necessary to develop measures for the development of industry in the region, to increase the role of small business in the field, to use various organizational economic mechanisms to support small business entities, and to improve their activities. Since, the results of the analysis, substantiated positive and negative indicators representing the activity of small business entities in the region had a growth rate.Only high growth rates in positive indicators serve as the basis of development in the field. As a result, it was found that industrial development has an impact on gross regional product and gross added value, on the other hand, effect of volume of industrial production and added value in industry on employment have a very low.

REFERENCES

[1]. https://www.unido.org/sites/default/files/files/2020-04/UNIDO_Industrialization_Book_web4.pdf

[2]. KorhanGokmenoglua, VahidAzin, NigarTaspinar (2015): The Relationship between Industrial Production, GDP, Inflation and Oil Price: The Case of Turkey. 16th Annual Conference on Finance and Accounting, ACFA Prague 2015, 29th May 2015

[3]. Rauch, A. &Rijskik, S.A. (2013). The effects of general and specific human capital on long-term growth and failure of newly founded businesses. Entrepreneurship Theory and Practice(3), 923-941

[4]. Andreoni, A. and Chang, H.-J. (2016) 'Industrial policy and the future of manufacturing', Economia e PoliticaIndustriale, 43(4), pp. 491-502.

[5]. Haraguchi, N., Cheng, C.F.C., and Smeets, E., (2017) 'The importance of manufacturing in economic development: Has this changed?', World Development, 93, pp. 293-315.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 2, February 2023
Impact Factor: 7.301

[6]. Lawrence, R. Z., (2017) 'Recent Manufacturing Employment Growth: The Exception That Proves the Rule', National Bureau of Economic Research Working Paper w24151.

[7]. Obi, J.; Ibidunni, A.S.; Tolulope, A.; Olokundun, M.A.; Amaihian, A.B.; Borishade, T.T.; Fred, P. Contribution of small and medium enterprises to economic development: Evidence from a transiting economy. Data Brief 2018, 18, 835–839. doi:10.1016/j.dib.2018.03.126.

[8]. Ndiaye, N.; Razak, L.A.; Nagayev, R.; Ng, A. Demystifying small and medium enterprises' (SMEs) performance in emerging and developing economies. BorsaIstanb. Rev. 2018, 18, 269–281. doi:10.1016/j.bir.2018.04.003

[9]. Doern, R. (2009). Investigating barriers to SME growth and development in transition environment": a critique and suggestions for developing the methodology. International Small Business Journal, 27(3), 275-305. http://dx.doi.org/10.1177/0266242609102275.

[10]. Cressy, R. (2009). Determinants of small firm survival and growth. In: M. Casson, B. Yeung, A. Basu& N. Wadeson. The Oxford handbook of entrepreneurship (pp. 161-193). Milton Keybnes: Oxford University