Research Article

Investment Analysis Introducing To Our Country's Finance

Namozov Olim Botirovich[1]

Annotation

Investments penetrating the Republic of Uzbekistan are amplifying year by year. The rise of involving investments and its dynamics were evaluated by an econometric analysis applying the Cobb-Douglass model. Microeconomic Indicators of Uzbek Economy for the years 2000-2019 related to Investments were selected to analyze. According to the analysis results, introduced investments are the principal elements contributing to the proliferation of the Gross Domestic Product (GDP) of Uzbekistan. The current circumstance of the development of the national economy is comprehensively analyzed. The assessment of the effectiveness and trends in the use of capital within sectors and regions of the economy is identified.
Key words: Gross Domestic Product (GDR), domestic investment, foreign investment and credits, direct foreign investment (DFI), employment, labor resources and econometric model.

INTRODUCTION

The role of investments in the modernization of the economy, expansion of innovative production, further development of priority industries, development of private business and entrepreneurship based on various forms of ownership, the introduction of modern marketing and management methods are of substantial importance. Shavkat Mirziyoyev, the President of Uzbekistan, have emphasized the role of investments in one of his speeches: "We pay special attention to reinforce investment policy in our country. Our foreign diplomatic missions must strive their utmost to attract foreign investment and cutting-edge technology to the economy. Thereupon, it is imperative to strengthen the activities of the Ministry of Foreign Affairs, and our ambassadors abroad should be actively encompassed not only in politics but also in introducing investment to our country" [1].

Indeed, foreign investment is not only the supplementary source of financing the production in the economy but also it assists in the encouragement of trade, namely, export, boosting national competitiveness, integration into the World Economy and also ensuring microeconomic stability. Successful economic burgeon and industrialization of majority world countries, precisely China, Malaysia, Thailand, Indonesia, the Philippines, Singapore, East Asian countries, have taken place thanks to foreign investments. These countries have actively targeted direct foreign investment in priority sectors of the economy by creating a wide range of profits for investors, overcoming barricades, ensuring the openness of the economy, and creation of free economic zones. Consequently, these actions have opened the way to operational modernization of the

[1]Basic Doctoral Student at Tashkent Finance Institute, Tashkent, Uzbekistan. E-mail: olimnamozov260628@gmail.com Orcid: 0000-0001-9934-5743

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Economy, Industrialization, Import of technological breakthroughs, Innovation development, Export expansion, and the escalation in the production of high-tech products in the aforementioned countries. As world experience demonstrates, the countries which pursued an active investment policy have attained a sustainable economic improvement. Hence, there is no exaggeration in claiming that investment is an "economic driver". A number of scopes, places and systems witness new technologies, priority experience, proficient specialists as well as rapid entrepreneurship enhancement along with investments [2].

This article, based on the results of economic and mathematical calculations, reflects the priorities for augmenting the capacity and potential of our economy in the effective use of investments and the appropriate measures of implementation. Additionally, the foremost tasks of rational investment use in various sectors of the economy, taking into account the growth potential of each region of a country on the basis of relative avails of regions, specific practical proposals to improve the mechanism and support for attracting domestic investment and foreign direct investment have been offered. To illustrate, M. Porter, an economics scientist (1990), coined and scrutinized a theory of Direct Foreign Investment (hereafter, it is referred to as DFI), Competitive Privilege of Nations [3]. He researched the competitiveness of over hundred branches holding particular roles in 10 developed countries' economy. The author singled out the factors that identify the competitiveness of transnational companies and recipient countries which are acknowledged as a "brilliant" model. These factors enclose the followings: corporate strategy; structure and competition; human factor; the cases of natural, condition, expertise, capital, infrastructure factors; demand creating elements; the existence of interrelated and assistant branches; coincidence role; alteration in demand; political factors and government contribution. Furthermore, Dann J (1981) and Narula R (1994) offered "Theory of the Country's Investment Development Path (IDP) with classifying countries in compliance with their investment progress [4]. As it states, a typical country's inflow or outflow of investment directly hinges on the level of economic advancement if compared to other countries. At this point, countries all over the world go through 5 early development stages. In the first stage, the inflow investment index and enterprise competition is set to be low, and DFI is not exported. Alternatively, in the second stage, the inflow of DFI amplifies, a country's own DFI is started to be produced, and a competition privilege in several enterprises is established. The third stage is distinguished by investment inflow deceleration, at the same time, its production acceleration and an increase in per capita income. In the fourth stage, DFI outflow exceeds inflow, local industries gain impressive competitiveness in national and global markets, production rate pertinently improves, and a country dominates in many fields worldwide. Finally, in the fifth stage, a further rise in DFI inflow and outflow can be spotted, transnational companies are founded, per capita income boosts, and the country leads in capital-intensive and high-tech industries. Usually, enterprises introduce DFI to a country with low GDP per capita from an investor country.

L. Alfaro, a professor at Harvard University, compared and assessed not only the overall impact of foreign investment on economic growth but also the impact of their inflows in various economic sectors on economic growth. He studied the effect of FDI on economic growth in 47 countries in 1981-1999 [5] and found that FDI in the primary sector (agriculture, mining) had a positive effect on economic growth, while FDI in the service sector had a neutral impact on economic growth.

MATERIAL AND METHOD

Cobb-Douglas Model represents the function of production in the following indicators [6]:

$$Y = AK^\alpha L^{1-\alpha}$$

(Cobb-Douglas) (1)

Y – Gross Domestic Product (GDP);
K and L – Capital and labour (main principles of production);
α – Ordinary information; explained in 1/3 form;
A – Technical Progress coefficient.

By differentiating the Cobb-Douglas function, the growth rate can be written as follows.

y=a – αk + (1 – α) l.

The equation formed by analyzing the data:

$$log\ y = \alpha\ log\ k + (1-\alpha) log\ l + \alpha.$$

Such models are encountered on a frequent basis. For instance, based on the experience of developed countries, in order to make the most of its economic potential (taking into account changes in the country's industries, i. e long-term change), a country uses the following models

$$Y(t) = K(t)^\alpha (A(t)L(t))^{1-\alpha}$$

(Solow) (2)

$$Y(t) = K(t)^\alpha H(t)^\beta (A(t)L(t))^{1-\alpha-\beta}$$

(Menqu – Romer – Weil) (3)

$$Y(t) = A(t)K^\alpha(t)\left(L(t)E(t)\right)^{1-\alpha} = A(t)K^\alpha(t)L^{1-\alpha}(t)H^{1-\alpha}(t)$$

(Denyson) (4)

t – Production factor;
L(t) – Labor input (human factor);
H(t) – Separate (supplementary) factor;
K(t) – Capital input;
A(t) – Total factor productivity (Index of labour resourcefulness);
α – Capital elasticity ;
β ёки (1-α) – Labor elasticity.

This table illustrates the dynamic changes of GDP in accordance with the Cobb-Douglas model:

	Y	**K**	**L**	*log y*	*logk*	*logl*
2000	3255,6	744,5	9633136	3,512631	2,871865	6,983768
2001	4925,3	1320,9	9903749	3,692433	3,12087	6,9958
2002	7450,2	1526,6	10176881	3,872168	3,183725	7,007615
2003	9844,0	1978,1	10452785	3,993172	3,296248	7,019232

2004	12261,0	2629,0	10734046	4,088526	3,419791	7,030763
2005	15923,4	3165,2	11024626	4,202036	3,500401	7,042364
2006	21124,9	4041,0	11322661	4,324795	3,606489	7,053949
2007	28190,0	5903,5	11639281	4,450095	3,77111	7,065926
2008	38969,8	9555,9	11975753	4,590728	3,980272	7,078303
2009	49375,6	12531,9	12323124	4,693512	4,098017	7,090721
2010	74042,0	16463,7	12815569	4,869478	4,216527	7,107738
2011	96949,6	19500,0	13266134	4,986546	4,290035	7,122744
2012	120242,0	24455,3	13571417	5,080056	4,388373	7,132625
2013	144548,3	30490,1	13887642	5,160013	4,484159	7,142629
2014	177153,9	37646,2	14203629	5,248351	4,575721	7,152399
2015	210183,1	44810,4	14502140	5,322598	4,651379	7,161432
2016	242495,5	51232,0	14786980	5,384704	4,709541	7,169879
2017	302536,8	72155,2	15042030	5,480778	4,858268	7,177306
2018	406648,5	124231,3	15289093	5,609219	5,094231	7,184382
2019	511838,1	195927,3	15453701	5,709133	5,292095	7,189033

If the GDP of Uzbekistan in 2019 is calculated compared to 2000, it is apparently evident that the GDP has increased by 508,582.3 trillion Uzbek sums (or 157 times). In turn, this is a fact that the able-bodied population has boosted more than 1.5 times in contrast with 2000. With these indicators, it may be deduced that investment share in the economy of our country in the gross regional product is commendable. Investment efficiency in a country can be determined by the following formula:
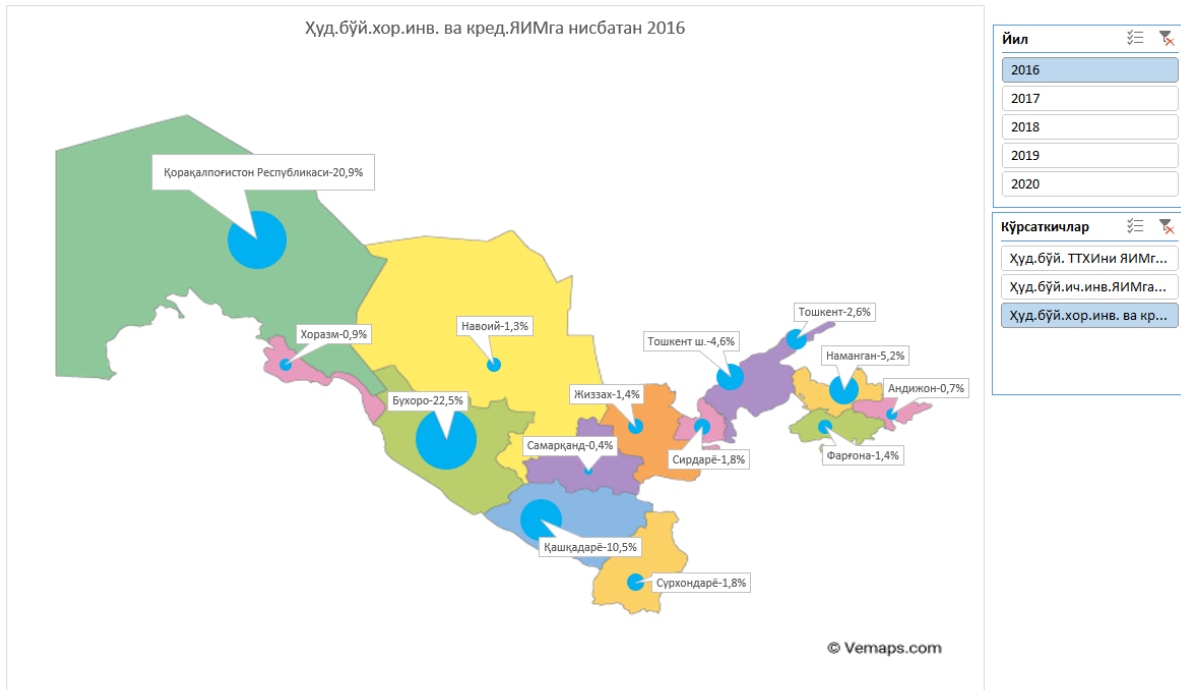
$$\mathrm{E}fdi = \frac{GDP(t)/GDP(o)}{FDI(t)/FDI(o)};$$

Efdi – FDI efficiency in ensuring economic growth, *GDP(t)* – GDP amount of comparable prices in the year *t, GDP(o)* – GDP amount in comparable prices in the base year, *FDI(t)* – comparable price amounts of DFI in the year *t, FDI(o)* –comparable price amounts of DFI in the base year.
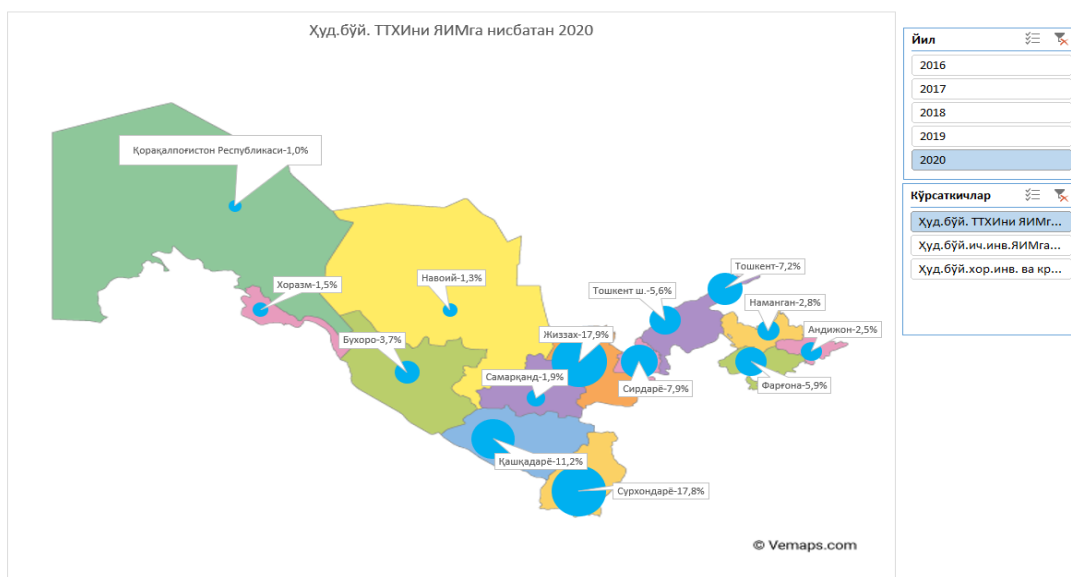
RESULTS

The GDP share of investments in our country.

Figure 1. The author's work resulted from the research.

In 2016, the least GDP share in terms of foreign investments and credits was recorded in Syrdarya with 0.4 %, Andijan with 0.7 %, and Khorezm with 0.9 % proportions. Alternatively, regions with the lowest FDI share in GDP are Samarkand (0.1%), Tashkent region (0.3%), Navoi (0.3%), Andijan (0.4%) and the Republic of Karakalpakstan (0.5%). Coming to 2020, only the Republic of Karakapakstan registered 1 % of GDP share regionally. For example, Andijan, Fegana, Khorezm, Kashkadarya regions and Tashkent city delineated a stable growth with 2.5, 5.9, 1.5, 11.2 and 5.6, respectively. As a matter of fact, the biggest FDI share in GDP was indicated in Surkhandarya region in 2020 with 17.8 %.

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Figure 2.The author's work resulted from his scientific research.

Concluding the data of 2020, there have been a couple of positive transformations in the GDP share of investments throughout our country. The results we achieved via the Cobb-Douglas model clarified below.

$$Y = AK^{\alpha}L^{1-\alpha}$$

(Cobb-Douglas) (1)

Variables	Coefficient	Standard Error	t-statistics	Probability
Intercept term	-44,028	5,576	-7,63	0,000
log k	0,31159	0,08318	3,75	0,002
log l	6,6907	0,8603	7,78	0,000
R^2	R-Sq=99,8%			
Adjusted R^2	R-Sq (adj)=99,8%			

There is given a regression amount showing a correlation between $R^2=99{,}8$ %. Besides, the aforementioned factors, including standard error, statistics and probability, provides 98 % clarification in the change of Y related variable. This very statistics are used in order to reveal whether the regress equation enables to explain the substantial portion of this change with the help of predicators applied. Zero and one-sided alternative hypotheses are addressed as follows:

$$H_0: \rho^2=0$$

$$H_1: \rho^2>0$$

Finding the critical value of F for the significance level a = 0.05:
$F_{ж}=F_{\alpha}(k\text{-}1;n\text{-}k)=F_{0,05}(2;18)=2{,}62$

The purpose of the t-test in the model is to verify that the coefficients of the estimated linear regression equation of the main set are significantly different from zero, namely, that they are not random. Pertinent zero and one-sided hypotheses are as follows:

$$H_0: \beta_1{\leq}0 \quad H_0:\beta_2{\leq}0 \quad H_0:\beta_3{\geq}0$$

$H_1: \beta_1>0 \quad H_1:\beta_2>0 \quad H_1:\beta_3<0$

Finding the critical value of t for the significance level a = 0.05
$t_{cr}=t_{\alpha}(n\text{-}k)=t_{0,05}(18)=1.71$

Let's find the calculated value of *t*. Before, it is essential to identify some statistical amounts. Here is the Standard error of Regression Coefficients:

$$t_1 = \frac{b_1 - \beta_1}{S_{b_1}} = -7,63; \; t_2 = \frac{b_2 - \beta_2}{S_{b_2}} = 3,75; \; t_3 = \frac{b_3 - \beta_3}{S_{b_3}} = 7,78;$$

Decisive rule: H_0 hypotheses is ignored as long as $t_{cr} < |t_i|$ is accepted in all cases.

Hence, the coefficients b2, b3 of the estimated regress equation of the general set are positive, and the coefficient b1 is negative. The selected model successfully passed the F-test and t-test.

DISCUSSION

On the basis of these, an overall equitation can be deduced like**:**

$$logy = -44,028 + 0,31159 \ logk + 6,6907 \ logl.$$

There is an escalation with 0.31 % in GDP provided that investment rises by 0.31 % and if labour boosts by one unit, GDP will increase by 6.69 %. Solow made his efforts in order how to discern the human factor in the proliferation of GDP. Depending on his clarification, in the span of 1909 and 1949, 87.5% of the technological change in GDP per capita and the remaining 12.5% served only to increase capital.

Even nowadays, the classic model of Cobb-Douglas has been broadly using to assess human capital. Schultz model is put into practice by adding human capital (*H*-human capital) to the Cobb-Douglas model and is presented below:

$$Y=AK^aL^bH^c, \ a+b+c=1, \ a, \ b, \ c$$

(Elasticity coefficient in conformity with production factors)

For example, the models of Denison and Schults vary in terms of some crucial traits. Precisely, Denison does not correlate production dynamics with resourcefulness, income and expertise of the workforce, while Schultz points out that the rise of workers with a certain level of training leads to a decrease in productivity and wages. Putting the notion in facts, in 2020 GDP of the Republic of Uzbekistan constituted 59.771 million American dollars (580 203.2 billion Uzbek sums) and took 78th place [7]. In turn, the Economies of developed countries also failed to maintain national economic growth at an expected level it is simply due to the rampant outbreak of COVID-19 that commenced in 2019. In this same year (2020), The GDP of The USA, China, Japan constituted $ 20 807 269, $ 14 860 775, $ 4 910 580 respectively, whereas Germany leads the 4th rank with 3 780 553 [8]. It is clearly seen that these countries, leaders in the world GDP rankings, are making the most efficient use of production resources in their national economies. In point of fact, Japan, covering an area of 377,915 km2, has managed to advance its Industry sector or GDP owing to the effective use of electronics, robotics and artificial intelligence. However, it is no exaggeration to say that the volume of natural resources in the country is minimal, or even there are no natural resources. The only key to attaining such efficacy lies in human capital investment. Japan can cope with competing with "Toyota", "Honda", "Mitsubishi", "Acura", "Infiniti", "Lexus" and "Nissan" in the global automotive industry. At the same time, the Japanese began to yield electric cars so as not to emit "greenhouse gases" into the environment. Examples include the "Mitsubishi I-MiEV", the "Nissan Leaf", and the hyper-car "Aspark Owl" [9]. In order to regulate the investment activities, a country needs to rivet its attention to the acquisition of production technologies, global expertise, enhancing the regulatory role of taxes and reinforcing their incentive role. Here, the grand task is concerned with proposing productive domains of investment to foreign partners, indicating mutual benefits and protecting their rights.

Taking international experience into account in investment activity regulations, national management of all types and forms of foreign investment creates a more favourable investment

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ambience, accelerates the inflow of foreign investment and promotes sustainable economic growth. Human capital, used in our scientific article, has an imperative role in the economy to develop any country in the world. The economists mentioned above, R.Solow, U.sculls, C.Douglas, also and reflected human capital in their economic models in ensuring sustainable economic burgeon as a result of their long scientific research.

CONCLUSION

These are the results gained by the research:

1. Cobb-Douglas model was applied in assessing both this scientific work and the investment case all over Uzbekistan.

2. While the share of investments in the GDP of the Republic of Uzbekistan is 0.31%, the proportion of the labour unions in GDP is much higher, i.e. 6.69%. Despite the fact that the volume of investments in our country is growing from year to year, its share in the maximum sustainable growth of GDP remains low. As a result, along with domestic investment, we will need to further strengthen the active attraction of DFI investments to our country.

3. In order to ensure economic sustainability and a gradual GDP boom in the future, the government, primarily, is to provide a state-of-the-art technological breakthrough and intensify the demand towards subjects like mathematics, physics, chemistry, and astronomy at primary schools.

CONFLICT OF INTERESTS AND CONTRIBUTION OF AUTHORS

The authors declare the absence of obvious and potential conflicts of interest related to the publication of this article and report on the contribution of each author.

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