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INVESTIGATION OF THE CHARACTER AND SIGNIFICANCE OF THE IMPACT OF LABOR MARKET FACTORS ON THE COUNTRY'S INVESTMENT ATTRACTIVENESS

In recent years, there has been a significant structural impact of the so-called "digital" economy on the formation of FDI flows. The development of advanced technologies and robotics is accelerating. All this makes production more sophisticated, cheaper, and faster. The progressive labor market is a good basis for the successful development of enterprises in various industries. And investments make it possible for industries to be created, to develop, and to innovate. In addition, foreign direct investment is an important method of technology transfer that stimulates domestic public investment flows and fosters the development of human capital and institutions.

The purpose of the article is to develop an economic and mathematical model of the dependence of a country's investment attractiveness on labor market factors. The influence of labor market factors on the investment attractiveness of Ukraine is analyzed and thoroughly substantiated, as well as the state of Ukraine's modern labor market, whose characteristic features, possible tendencies, and prospects are determined. The factors of the labor market include value-added per worker, medium and high-tech exports as a percentage of total exports, the unemployment rate, and the gross enrollment rate for higher education. Investment attractiveness is determined by the volume of foreign direct investment.

When developing the model, the authors substantiate the comparability of the input data, their statistical significance, and the correlation of factor variables with foreign direct investment income.

The Irwin method was used to check for anomalies of values, and recommendations were made for eliminating such data if they were found. The normality of distribution was verified using the Shapiro-Wilk test. The construction of a multivariate linear regression model was performed using the Stata 14 statistical package.

Keywords: *time series, labor market, unemployment, multifactorial regression model, economy, foreign investment*

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Problem statement. The era of globalization, namely the internationalization of economies is characterized by higher mobility of international factors and increased competition for favorable conditions and places. Recently, large and small companies are increasingly looking for investment in regions where the best conditions are offered for high-speed production of new high-quality products, which are located closest to the final consumer and have conditions for the formation of flexible production processes. In terms of investment, developing countries and least developed countries face a number of challenges and obstacles.

There are a number of significant structural constraints, such as underdeveloped infrastructure, access to financial assets, imperfections in the judiciary and power systems, and strategic guidance issues.

The movement and relocation of production facilities to regions that offer cheaper labor is no longer relevant, due to a significant increase in the level of automation of production. At the same time, improving people's living standards requires the creation of new jobs, which still to some extent depend on industrial production.

The purpose of the article is to develop and build a model of the impact of the labor market on the country's investment attractiveness and determine the nature and strength of the impact of certain factors of the labor market on Ukraine's investment attractiveness for foreign investors.

Analysis of recent research and publications. It is well known that foreign direct investment is of great importance for the socio-economic and industrial policies of developing countries. O.M Tkachenko [1] and I.O. Onishchenko [2] conducted a thorough analysis of the dynamics of attracting foreign investment in various economies, including Ukraine. The authors note that Ukraine's position in international rankings over the past 10 years has been rather weak.

We agree that the definition of a country's investment attractiveness is based on the application of various integrated approaches, on the country's position in the leading rating surveys, and on the dependence on government policy to attract foreign and national investment [3].

In addition, the European Business Association (EBA) started assessing Ukraine's investment attractiveness on an ongoing basis in 2008 [4]. The attractiveness index is calculated by surveying the heads of large international and Ukrainian companies, which give their own assessments of changes in the country's investment climate compared to the previous six months, make forecasts for the next six months, and assess the profitability of future investments. A 5-point Likert scale is used to calculate the index, where 1 is the worst point and 5 is the best one. It should be noted that, according to the EBA survey, for the first half of 2019, the index was 2,85 points out of five possible. The indicator of previous period was 3,07 and showed a neutral attitude of investors to the business climate in the country. There is a negative trend, so there is an urgent need to identify all possible factors to increase the level of investment attractiveness of Ukraine [6].

The best known in the world for assessing the investment attractiveness of the countries are the methods of the World Bank [7], and the researches of the rating agencies such as Institutional Investor, Moody's Investors Service [8], Rating and Investment Information [9], Euromoney reports [10], Institutional Investor [11], Forbes [12], Doing Business [13, 14], and World Economic Forum [15]. However, all these ratings are marked by conventionality and subjectivity. The best real estimate of the level of investment attractiveness is the result, that is, the actual amount of foreign direct investment.

Unexplored aspects of the problem. The most important resources of the future must be sought not only in the depths of the earth, but also in people's minds. This simple truth has long been known to the leaders of large multinational companies. By attracting well-qualified

staff, modern business has the opportunity to gain an advantage in the global race for knowledge and leadership in global economic markets [16]. The issue is relevant not only for large multinational corporations, but to a greater extent for small and medium-sized enterprises, who have to withstand international competition, which is growing rapidly with the frantic acceleration of globalization. For them, highly motivated, well-educated and professionally trained workers on a regular basis are a truly strategic resource.

Therefore, when locating the company's facilities, one should always focus on the situation in the human capital market. A broader and more differentiated labor market is the basis for a more successful positioning of enterprises, given that such a market is more likely to meet the complex and specific requirements of a particular industry.

Presenting main material. As a basis for the study, the authors proposed to use the indicators of wages of the population of Ukraine in 1995–2018 and the unemployed population according to the State Statistics Service [17] in order to analyze the state of the modern labor market, and identify characteristics and trends. To build a model of the impact of labor market factors on the country's investment attractiveness, the authors used statistical reporting from the open base of the World Bank [16, 18, 19].

Due to the rapid development of globalization and significant transformation processes in the world economy, the requirements for human capital and labor in general are changing. In today's competitive world, human capital is becoming a defining resource. The efficiency of the labor market determines the development of the national economy.

Global trends are duplicated in the trends of Ukraine's labor market, which from year to year undergoes significant modifications. Constant instability of the economic and political situation, increasing rates of development and replacement of industries and technologies, intensification of migration, increasing and strengthening communication channels, changing working conditions [20, 21] and forms of employment, and changes in tax and labor legislation are the main factors structure of the Ukrainian labor market. All these factors lead to significant fluctuations in the main indicators of the human capital market. According to the ILO methodology, we distinguish basic clusters that characterize the effectiveness of the labor market [22]: economically active population (men and women aged 15 to 70, who for a certain period provide labor supply), and economically inactive population. The first group includes employed and unemployed persons who were engaged in economic activity or looking for work and are ready to start working (Table 1) [17].

Table 1
Economically active population of Ukraine

	economically active population				including employed population			
	age 15-70		working age		age 15-70		working age	
	on average, thousand people	as % of the population of the corresponding age group	on average, thousand people	as % of the population of the corresponding age group	on average, thousand people	as % of the population of the corresponding age group	on average, thousand people	as % of the population of the corresponding age group
2010	20 894,1	63,6	19 164,0	71,9	19 180,2	58,4	17 451,5	65,5
2011	20 893,0	64,2	19 181,7	72,6	19 231,1	59,1	17 520,8	66,3
2012	20 851,2	64,5	19 317,8	72,9	19 261,4	59,6	17 728,6	66,9
2013	20 824,6	64,9	19 399,7	72,9	19 314,2	60,2	17 889,4	67,3
2014	19 920,9	62,4	19 035,2	71,4	18 073,3	56,6	17 188,1	64,5

Table 1 (end)

2015	18 097,9	62,4	17 396,0	71,5	16 443,2	56,7	15 742,0	64,7
2016	17 955,1	62,2	17 303,6	71,1	16 276,9	56,3	15 626,1	64,2
2017	17 854,4	62,0	17 193,2	71,5	16 156,4	56,1	15 495,9	64,5
2018	17 939,5	62,6	17 296,2	72,7	16 360,9	57,1	15 718,6	66,1
2019	18 066,0	63,4	17 381,8	74,0	16 578,3	58,2	15 894,9	67,6

Note: data for 2010–2014 are given without the temporarily occupied territory of the Autonomous Republic of Crimea, for 2015–2017 – without a part of the temporarily occupied territories in Donetsk and Luhansk oblasts.

Source: State Statistics Service of Ukraine [17].

Statistics in the Table 1 indicates a 15,65% decline in the number of economically active population aged 15-70 years from 20894,1 thousand people in 2010 to 18066,0 thousand people in 2019. This reflects negative trends in the modern market labor. The largest decline in the economically employed active population was observed in 2012–2013 – 59,6 and 60,2%, respectively. For the employed population of working age during the study period, the highest figure was in 2013 – 17889,4 thousand people, and the lowest – in 2017 – 15495,9 thousand people. The number of employed population of working age for the period from 2013 to 2019 decreased by 1556,6 thousand people. At the end of 2019, the employed population of working age was 67,6%. This is due to the difficult political situation and instable economy.

So, there is an urgent need to study all possible factors, and direct and indirect effects that will help increase the level of employment of the economically active population of Ukraine and have the most positive impact on the development of its economy.

A detailed analysis of the dynamics of Ukrainian real wages growth/decrease in 1995–2018 is presented in Fig. 1 [17]. Since 2017, there has been a decline in average real wages, which can be explained by the significant impact of inflation. This dynamics is preceded by a simultaneous decrease in the unemployment rate (Fig. 2) and, accordingly, an increase in total labor costs.

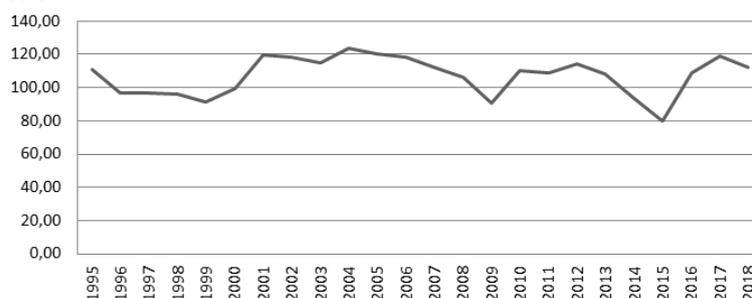


Fig. 1. Growth / decrease rates of real wages in 1995–2018,
% compared to previous year

Source: data compiled by authors based on [17].

Graphs (Fig. 1) and (Fig. 2) show a certain cyclicity caused by the global processes in the economy of Ukraine and the world. In particular, there are significant declines in the dynamics of both series in 2008–2009 and 2013–2014, respectively, which are then replaced by positive dynamics. The nature of this cyclicity serves as a confirmation of the idea of Kondratiev cycles: economic processes are characterized by cycles that can be superimposed on each other, and the rate of such cyclical fluctuations increases. This increase in pace is a

characteristic feature of the modern world to which we must adapt. Under such conditions, the labor market needs to become more flexible and adaptable.

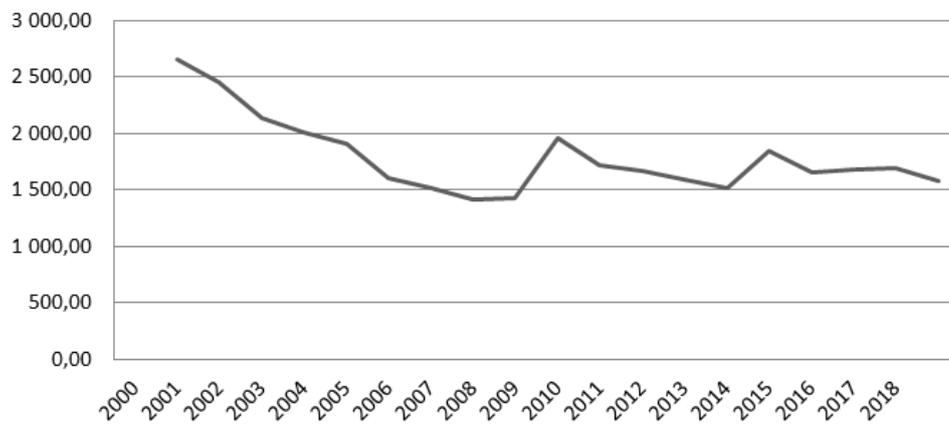


Fig. 2. Unemployed population of Ukraine aged 15–70 in 2000–2018, total, thousand people

Source: data compiled by authors.

Figure 2 shows that during the years of independence, the unemployment rate in Ukraine decreased significantly, but there were significant fluctuations in 2008–2009 and 2013–2014. The unemployment rate is one of the indicators of economic power and labor involvement in the production. It should be noted that according to the State Statistics Service in 2018, the employed population averaged 16360,9 thousand people, and the unemployed – 1578,6 thousand people; the unemployed population accounted for 8,8% of the economically active population of the corresponding age group. This level is not critical; it is contributed mainly by such phenomena as labor migration and shadow economy that produces informal employment. In other words, it can be argued that Ukraine has a sufficient level of demand for labor. This country cannot become a market for very cheap and primitive labor, because there are no significant incidences of stagnation or massive unemployment.

Employment in Ukraine is rapidly declining (Table 1), so it is useful to follow the employment trend. For Ukraine, the situation of significant imbalance between supply and demand by industry and by activity is rather relevant. In some areas of activity, there is a significant staff shortage, and in some, on the contrary, a significant excess of labor supply over demand. This is demonstrated by the authors' analysis of the CVs and vacancies submission in 2018 on the Work.ua, which is the largest site in Ukraine for the placement and search of jobs [23].

We will consider the data of Figure 3 as representative data, since the source [23] meets both the legal criteria of information quality ("Procedure for the functioning of websites of executive authorities" [24]) and the criteria of User Experience Design (UX), related to information architecture, design interconnection, graphic design and content [25].

The rated values (Figure 3) show that most vacancies, and consequently the highest demand in the labor market exist for blue-collar and productive professions. And the highest offer exists for professions related to administration and middle management. The difference between the percentage of CVs and vacancies shows that significant staff shortages are experienced for blue-collar and productive professions, as well as for those in sales, procurement and IT. And oversaturation is observed in such areas as secretariat and records management.

Table 2
Infographics of the structure of supply and demand of the Ukrainian labor market according to the site Work.ua in 2018.

Employment category	Percentage in total number of vacancies, %	Percentage in total number of CVs, %	Difference between the percentages of CVs and vacancies, %
Blue-collar job, manufacture	10,78	6,19	-4,592
Sales, purchasing	9,79	7,19	-2,594
Service sector	9,09	7,08	-2,006
Retail	7,22	7,09	-0,129
Logistics, warehouse, foreign economic activity (FEA)	5,97	4,41	-1,565
Administration, middle management	5,78	8,62	2,84
IT, computers, Internet	5,64	3,35	-2,293
Hotel and restaurant business, tourism	5,19	4,57	-0,622
Accounting, audit	4,62	4,72	0,105
Transport, car business	4,29	4,99	0,703
Construction, architecture	3,86	3,68	-0,177
Secretariat, records management, maintenance and supply department	3,81	8,07	4,261
Marketing, advertising, PR	3,37	3,04	-0,326
Finance, bank	3,36	3,2	-0,16
Telecommunications and communication	3,19	1,94	-1,251
Medicine, pharmaceuticals	2,61	2,46	-0,144
Education, science	1,88	3,65	1,774
Design, creativity	1,6	1,95	0,346
Mass media, publishing, printing	1,38	3,12	1,742
Beauty, fitness, sports	1,3	1,69	0,383
Security, safety	1,06	1,56	0,506
Personnel management, HR	1,04	1,4	0,356
Top management, senior management	0,84	1,56	0,722
Agriculture, agribusiness	0,74	0,52	-0,222
Jurisprudence	0,62	1,65	1,032
Culture, music, show business	0,43	1,44	1,009
Real estate	0,38	0,18	-0,197
Insurance	0,17	0,11	-0,06
Other areas of activity		0,56	

Source: [23].

Based on the above, we propose to develop a model of the impact of labor market on the country's investment attractiveness. Description of the input data for model construction is given in Table 3.

Whereas foreign direct investment is the most accurate real result of achieving a certain level of investment attractiveness, it is advisable to take this indicator (FDI) as a performance indicator.

As independent variables, the authors suggested to use the following: GDP per person employed – GDPppE, Industry, value added per worker – IVApW, Medium and high-tech exports (% manufactured exports) – MHTE, unemployment rate – Unemp, School enrollment – Tertiary.

The GDPppE indicator is a characteristic of the economic efficiency of the country's labor market per unit of human capital in a national economy [26, 27].

Value added per industry per employee (IVApW) is considered as production efficiency based on the individual employees' motivation to work.

Table 3

Description of the model's input data

Indicator (designation)	Economic content	Measurement scale	Valid values	Source
<i>FDI(Y)</i>	Foreign direct investment, net inflows	<i>USD</i>	0; $+\infty$	Open base World Development Indicators (WDI)[15]
<i>GDPppE</i>	GDP per person employed	<i>USD</i>	0; $+\infty$	Open base World Development Indicators (WDI) [15]
<i>IVApW</i>	Industry (including construction), value added per worker	<i>USD</i>	0; $+\infty$	Open base World Development Indicators (WDI) [15]
<i>MHTE</i>	<i>Medium and high-tech exports (% manufactured exports)</i>	<i>%</i>	0; 100	Open base World Development Indicators (WDI) [15]
<i>Unemp</i>	The unemployed aged 15-70, in total	<i>thousand people</i>	0; $+\infty$	Open base State Statistics Service of Ukraine [13]
<i>Tertiar</i>	<i>School enrollment, tertiary (% gross)</i>	<i>%</i>	0; 100	Open base World Development Indicators (WDI) [15]

Source: data compiled by authors.

Medium- and high-tech exports as a percentage of total exports (MHTE) characterize the market's focus on the most popular competencies in today's economic environment, the ability to invent, create, maintain and integrate modern technologies that require a high level of qualification. This indicator is one of the most effective factors in increasing the competitiveness of the country's economy, so it is recommended to consider it as an indicator of the labor market and include it in the factors influencing the country's investment attractiveness.

Undoubtedly, an important factor in the country's investment attractiveness is the level of education. This indicator also indirectly acts as a factor in the labor market. First, it reflects the quality of human capital in the country's market. We cannot fail to agree that the whole complex of manufacturing high-quality goods and services for export, composite automated information systems and complexes (MHTE), starting from the design stage and ending with the stages of testing, implementation, maintenance and support, can be carried out only by highly qualified, and highly professional personnel, experts in a particular field. Accordingly, having a higher education at least at the master's level, one can be a professional in a particular field.

Secondly, general secondary education is compulsory in Ukraine. The total number of students of colleges, technical schools, and vocational schools at the beginning of the 2017–2018 academic year was 208601 people, and the number of students of universities, academies, and institutes – 1329964 people [28]. This is 3,5% of the total population of Ukraine in 2018. Thus, taking into account the above mentioned information, the probability of getting a job with a diploma of higher education is much higher than with only a certificate of general secondary higher education. Therefore, it is recommended to include the ratio of

gross enrollment in higher education as a factor of the labor market that affects the investment attractiveness of the country.

Verification of the significance and possibility of inclusion in the model, which describes the dependence of investment on the above indicators, will be tested further based on statistical criteria (Student, Fisher, and p-value) and using application packages Stata 14 and Statgraphics Centurion.

Conceptual scheme of the influence of individual factors on investment attractiveness is presented in Fig. 4.

The input data in the model are interval time series of the dynamics of macro indicators. Each time series consists of the values of a specific indicator for a time interval of one year. Comparability of the input data is proved by the fact that the calculations for each individual indicator were conducted according to common regulatory frameworks and using uniform methods of calculation for each individual indicator. It should also be noted that the indicators are used per employee or as percentage.

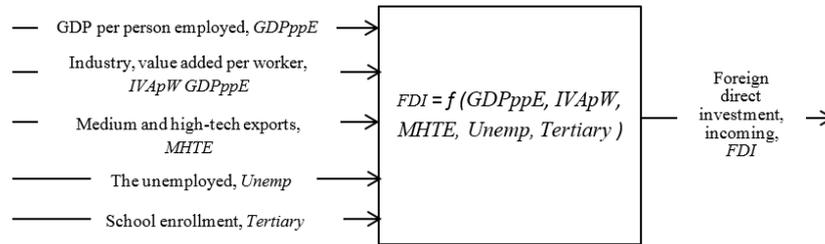


Fig. 4. The conceptual scheme of modeling the impact of labor market on Ukraine's investment attractiveness

Source: data compiled by authors.

Factor variables are statistically significant and have a close correlation with foreign direct investment inflows (Fig. 5).

Verification for the presence of anomalous values among the elements of the series by Irwin's method showed that such values are observed in the series of foreign direct investment in Ukraine for 1995–2018, namely two anomalous values of the series corresponding to 2005 and 2007. To avoid this anomaly, it is necessary to replace the values of the series with anomalous values with the average value of two adjacent data series:

$$y_{\text{тpозpax}} = \frac{y_{t-1} + y_{t+1}}{2} \tag{1}$$

Correlation of foreign direct investment and model indicators	<i>FDI</i>
<i>FDI</i>	1
<i>GDPppE</i>	0,763222
<i>IVApW</i>	0,823747
<i>MHTE</i>	0,728395
<i>Unemp</i>	-0,60301
<i>Tertiary</i>	0,650236

Fig. 5. Correlation of resulting value of foreign direct investment and factor values of the model

Source: data compiled by authors.

The normality of the distribution was checked using the Shapiro-Wilk test (W) [29] in the statistical package Stata 13. All factor variables have a normal distribution. The data series that characterizes foreign direct investment was different from normal, because the calculated value of the coefficient $W_{\text{calcul}} = 0,87166$ is less than the table value $W_{\text{tabl}} = 0,91635$. In order to bring the distribution of the series closer to normal, we will calculate its logarithm.

The construction of a multifactor linear regression model was performed using the statistical package Stata 14. The results of the model are shown in Fig. 6.

As a result of the study of the impact of labor market indicators on the country's investment attractiveness, a multifactor regression model was built:

$$\log(FDI) = +16,3 - 0,000395GDPppE + 0,00063IVApW - 0,137Unemp + 0,085Tertiary \quad (2)$$

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. reg lgfdi gdppe ivapw mhte unemp tertiary
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Source	SS	df	MS	Number of obs = 24		
Model	24.7673136	5	4.95346271	F(5, 18) =	30.02	
Residual	2.97055175	18	.165030653	Prob > F =	0.0000	
Total	27.7378653	23	1.20599414	R-squared =	0.8929	
				Adj R-squared =	0.8632	
				Root MSE =	.40624	

lgfdi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gdppe	-.0003953	.0001886	-2.10	0.050	-.0007915	9.56e-07
ivapw	.0006336	.0002077	3.05	0.007	.0001972	.0010701
mhte	.0760851	.0417662	1.82	0.085	-.0116624	.1638326
unemp	-.1374824	.0650224	-2.11	0.049	-.2740895	-.0008754
tertiary	.0852395	.0273611	3.12	0.006	.0277561	.1427229
_cons	16.30244	1.587547	10.27	0.000	12.96713	19.63776

Fig. 6. The results of building a model of labor market impact on the country's investment attractiveness

Source: data compiled by authors.

Whereas the model includes a logarithm and takes the functional form "log-level", its interpretation is carried out according to the formula:

$$\% \Delta y = (100\beta) \Delta x \quad (3)$$

The model is statistically significant, which is confirmed by Fisher's test and the coefficient of determination $R^2 = 0,89$. However, before interpreting the results, we will check the indicators for multicollinearity.

Whereas the indicators of gross domestic product per worker, as well as value added from industry per worker, which are included in the model, are indicators of productivity, in this regard, we will carry out the procedure of brutal elimination using the command Relate/ Multiple Factors / Multiple Regression / Backward Stepwise Selection of Statgraphics Centurion. This procedure leaves only significant features in the model and rejects those that have a multicollinear relationship. The result is a model (Table 4):

$$\log(FDI) = 9,14534 + 0,000612478 IVApW - 0,0832593 Unemp + 0,01513 MHTE \quad (4)$$

$R^2 = 85,76\%$; DW-statistic=1,48; P-Value=0,0228 (the level of significance).

Table 4

The results of building a model of investment dependence on significant features in the program Statgraphics Centurion

<i>Parameter</i>	<i>Estimate</i>	<i>Standard Error</i>	<i>T-Statistic</i>	<i>P-Value</i>	
CONSTANT	9,14534	0,51486	17,7628	0,0000	
IVApW	0,000212478	0,0000434796	4,88684	0,0001	
Unemp	-0,0832593	0,0288326	-2,88768	0,0091	
MHTE	-0,01513	0,00381333	-3,96765	0,0008	
Analysis of Variance					
<i>Source</i>	<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F-Ratio</i>	<i>P-Value</i>
Model	4,58374	3	1,52791	47,16	0,0000
Residual	0,647942	20	0,0323971		
Total (Corr.)	5,23168	23			

Source: data compiled by authors.

The model is statistically significant, which is confirmed by the criteria of Student (t-statics), Fisher (Fst) and the Darbin – Watson (DW-statistic). Thus, the actual value of Fisher's test at the level 47,16, which exceeds the critical limit of 2,02 (determined based on the built-in MS Excel function), indicates the statistical significance of the econometric model (4) [30].

The Darbin – Watson (DW) test checks the model residues to determine whether the correlation between the independent variables in the order in which they are entered in the model is significant.

The calculated value of the Darbin – Watson test (1,48) is in the range from 0,584 to 2,464 [30], which indicates compliance with the uncertainty zone. Further study of the auto-correlation of residues using the John von Neumann test shows its absence.

The coefficient of determination R^2 for this model is 87,62%, the value of the adjusted coefficient R^2 is 85,76%. The standard error of the estimate reflects the standard deviation of the residues and equals to 0,180. This value can be used to construct prediction limits for new observations. The mean absolute error (MAE) is 0,130; it reflects the average residual value.

We conduct an economic analysis of the model (4) coefficients. The indicator for the disincentive of investment attractiveness is the indicator of the unemployed aged 15-70. Its increase by 1% will reduce foreign investment by 8,3%. The most influential indicator of the positive variation of the performance indicator is the indicator of medium and high-tech exports as a percentage of total exports. Detailed analysis showed that this indicator should be left to increase investment, although it acts indirectly as a factor in the labor market. At the same time, the indicator of value added from industry per worker is relevant; its increase by 1% will increase the volume of foreign investment by 0,061%.

Conclusions

An approach to modeling the influence of relevant factors of the labor market of Ukraine on its investment attractiveness is proposed. It allows: to quantify the magnitude and direction of the relationship between labor market indicators and the country's investment attractiveness, and to identify the priority of labor market indicators in determining economically sound tactics and strategies for the development of investment attractiveness.

The article confirms the hypothesis about the positive nature of the impact of the level of education of the population as a manifestation of the quality of human capital, and the level of value added per industry per worker on the investment attractiveness of the country and the negative impact of unemployment.



Based on the results of the study of the impact of the labor market on the country's investment attractiveness and of the constructed model of this impact, we can offer recommendations for the management of Ukraine's public authorities to regulate the labor market. In particular, it is proposed to: intensify activities aimed at creating new jobs; develop a set of measures aimed at reducing unemployment and supporting the unemployed, in particular, by providing them with assistance in finding jobs; intensify cooperation with business leaders in order to address issues of increasing productivity and improving working conditions of employees; make changes to the existing legislation governing labor relations in order to move to more modern and progressive forms of interaction between workers and employers; promote educational institutions (vocational and higher education), and perform activities aimed at raising the level of understanding of the importance of acquiring professional competencies and qualifications among the population.

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ДОСЛІДЖЕННЯ ХАРАКТЕРУ ТА ЗНАЧИМОСТІ ВПЛИВУ ФАКТОРІВ РИНКУ ПРАЦІ НА ІНВЕСТИЦІЙНУ ПРИВАБЛИВІСТЬ КРАЇНИ

Останніми роками спостерігається значний структурний вплив цифрової економіки на формування потоків прямих іноземних інвестицій. Прискореними темпами розвиваються передові технології та робототехніка. Все це удосконалює, здешевлює та пришвидшує виробництво. Прогресивний ринок праці є гарним підґрунтям для успішного розвитку підприємств різних галузей. А інвестиції дають можливість індустріям створюватися, розвиватися та оновлюватися. Крім того, прямі іноземні інвестиції сприяють трансферу технологій, який стимулюють потоки внутрішніх державних інвестицій, зумовлюючи розвиток людського капіталу та інституцій.

Метою статті є розробка економіко-математичної моделі залежності інвестиційної привабливості країни від факторів ринку праці. В роботі проаналізовано та детально обґрунтовано вплив факторів ринку праці на інвестиційну привабливість України, здійснено аналіз стану сучасного ринку праці України, визначено характерні особливості, можливі тенденції та перспективи. Як фактори ринку праці розглядаються додана вартість від промисловості в розрахунку на одного працівника, середній та високотехнологічний експорт у відсотках від усього виробленого експорту, показник рівня безробіття. Інвестиційна привабливість визначається обсягом прямих іноземних інвестицій.

При розробленні моделі обґрунтовано порівнюваність вхідних даних, їх статистичну значущість та кореляційний зв'язок факторних змінних з прямими іноземними інвестиційними надходженнями. Методом Ірвіна здійснено перевірку на аномальність значень, надано рекомендації щодо усунення таких даних за умови їх виявлення. Перевірку на нормальність розподілу здійснено за допомогою критерію Шапіра – Уїлка. Побудову багатофакторної лінійної регресійної моделі здійснено за допомогою статистичного пакета Stata 14⁵.

Ключові слова: часові ряди, ринок праці, безробіття, багатофакторна регресійна модель, економіка, іноземні інвестиції

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