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CONTENTS

THE STRATEGIC ISSUES OF INFLATION TARGETING IN THE CONTEXT OF ECONOMIC GROWTH

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ARTICLE INFO	ABSTRACT
	The aim of this study is to test the relationship between inflation and GDP in the RA. Before estimating this relationship, we have checked the order of integration of the variables. Finally, we can see that there is a negative relationship between inflation and GDP in the RA, at least in the short run, which is consistent with most of the theories that have been developed throughout the years.

It is not an easy task to find many areas in economics where almost full agreement has emerged in the last few years. However, today there is a widespread and growing consensus that the single most important goal of monetary policy should be the pursuit of price stability. Reflecting this recognition, an increasing number of central banks have been granted independence and charged with the exclusive objective of controlling inflation and preserving the stability of prices. But embracing price stability as the explicit primary goal for monetary policy does not preclude the adoption of different operating mechanisms, and the choice of monetary regime that will best serve the objective of price stability has, indeed, generated much debate.

So, in order to expose the interrelation between real GDP and inflation in RA economy we offer the following formula:

$$GDPr = y_0 + y_1 INF + \varepsilon_t \qquad (1)$$

Where:
GDPr- real GDP (factor),
INF- inflation (factor),
y_0, y_1- flexible factors of independent variables,
ε_t – value of random error

In order to calculate the annual official statistical data of 2000-2017 real GDP and inflation were considered.

There are 17 statistical columns in the econometric model (1). Which means that the results are close to reality. It was estimated by the method of the least squares via "Eviews 9" computer program and corresponding regression and correlation analysis were carried out. We should mention that before estimating the model it is necessary to smoothen the dates so in order to avoid getting fake multifactor linear regression.

Table 1. The correlation values between selected factors*

	GDP	Inflation
Real GDP	1	
Inflation	-0.539111	1

* Calculated by the author.

A correlation analysis has been done in the article according to which the degree of precision of chosen factor and inflation has been revealed. Moreover we have a significant negative connection (0.53) between real GDP and inflation: (Table 1).

What we have as a result of the regression model assessment is given in table 2, where y_0, y_1 are the factors of independent variables, where t statistics and Prob. are the statistical features. And in order to perceive the qualitative features the values of R^2 and adjusted R^2 are given.

Table 2. Estimated Output of Real GDP and Inflation *

Factor	t-statistics	Prob.	R^2	Adjusted R^2
0.081598	5.106937	0.0001	0.890641	0.876306
-0.212567	-2.560383	0.0210		

Calculated by the author.

We can conclude from the results of table 2, that there is a significant interconnection between real GDP and inflation, because the factor of determination is equal to 0.89, i. e. about 89% of dependent variable is explained by the regression and the rest 11% by random errors. The adjusted coefficient of determination is equal to 0.87, which is 87% showing what effect the adjusted coefficient of determination has had on determination. Since the adjusted coefficient of determination in our estimated model is close to the coefficient of determination that means that we have qualified regression analysis.

As a result the values of equation of linear regression are reflected in the following formula:

$$GDPr = 0.081598 - 0.212567INF + \varepsilon_t \tag{2}$$

According to that, as a result of applying econometric model and mathematical tools, it was grounded, that 1 percentage point change in inflation cause 0.21 percentage point reduction of GDP. Consequently, the later reduction of inflation will lead to the diminution of real GDP.

We should mention that the inflation targeting has some advantages especially in time of mid-term monetary policy implementation. For instance, the deference between exchange rate and inflation targeting gives the Central bank an opportunity to concentrate on the problems emerged in domestic market and to rapidly react to economic shocks when realizing monetary policy.

In contrast to the aims of monetary policy the choice of inflation targeting regime has sustainability in comparison with money and exchange rate targeting regime. The benefit of the inflation targeting is its availability to all the members of the society which is the result of the transparency of the regime.

It is worth to mention, that the implementation of inflation targeting regime is carried out through the following phases:
1. The choice of inventory
2. Predictable inflation
3. Real inflation

Inventroy (Inflation targeting)	Predictable inflation	Real inflation
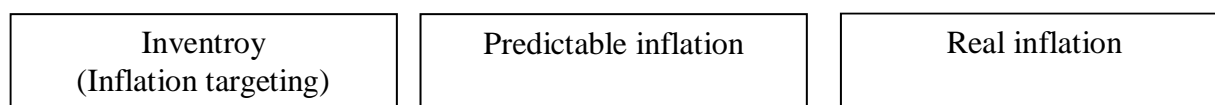
Fig. 1. The mechanism of inflation targeting regime

As a conclusion, in the article was approved, that one of the reasons why an explicit inflation targeting regime is so popular today was that it seems to lack some of the drawbacks of alternative

monetary policy regimes. For many years, the relationship between economic growth and inflation has been one of the most widely researched topics in macroeconomics.

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THE FORECASTING BUDGET REVENUES IN ARDL APPROACH: A CASE OF UZBEKISTAN

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ABSTRACT

This paper contribute to the forecasted total budget revenues in Uzbekistan. It is aim to investigate long run and short run relationship between number of registered company, total number of taxpayers and forecasted total budget revenues from 1998 and 2017. More specifically, this dynamic relationship using bounds testing approach to co integration and the ARDL model. The main empirical findings indicate the existence of directional relationship between the number of registered company and forecasted total budget revenues in short run and long run. This mean that increase the number of registered company leads to go up forecasted total budget revenues. However, a unidirectional relationship between the total number of taxpayers and forecasted total budget revenues are confirmed in the long run and short run.

1. Introduction. The current tax policy in Uzbekistan is becoming one of the key factors affecting the pace of economic growth. The one of the reason that the country's leadership pays great attention to improving the tax policy and tax administration. In particular, many taxes reformations were expected and worked out from the moment of the release of the President's Decree "On measures to radically improve tax administration, increase the collection of taxes and other mandatory payments" of July 18, 2017. It is known that the Strategy of Action on the five priority development directions of the Republic of Uzbekistan in 2017-2021 provides for a consistent simplification of the taxation system, reducing the tax burden by expanding the taxable base. As noted in the Decree of the President of the Republic of Uzbekistan dated July 18, 2017 No.UP5116 "On Measures for the Basic Improvement of Tax Administration, Increasing the Collection of Taxes and Other Mandatory Payments," to assess the objectivity and validity of the forecast of the State Budget revenues. Today, the main problem is that the current situation raises the need for the tax system to introduce methods that are more efficient. In particular forecasting ensuring is reliable forecasting of tax revenues to the budget.

Forecasting taxes require extensive econometric, mathematical analysis and research. In this regard, there are many models to be used in the world practice. It is important to note that further growth of econometric macroeconomic models that famous on autoregressive of the medium deviation model of ARIMA (autoregressive integrated moving average) are dependent on creation and its extensive application by economists and mathematicians Bocks and Johnsons. In the 60-70th years of the 20th century, model of AutoRegressive Integrated Moving Average (ARIMA), the autoregressive

model (AR) and the transverse functional model were public. This ARIMA model is used to forecast short-term revenues.

One of the last models of forecasting taxes is micro imitative models. Micro imitative models are widely used in the implementation of short-term forecasts in the world practice, including for forecasting tax revenues from tax payments by individuals. The essence of this is that, in the case of a large number of individuals, the micro imitative model has proven to be more accurate in determining the tax revenue over the periods. Tax reporting from taxpayers is a main base, and general trends are identified by using statistical methods in modelling and they are studied dynamically for a specific over the period.

Other models of forecasting taxes is the extrapolation model. It is well known that the extrapolation is a process of acquiring or disseminating. The part of the conclusions based on the observation of some of the phenomena and processes, and in this model of forecasting taxes, as well as its general features, but the endogenous and exogenous phenomenon in the past, it is important to take into consideration the impact of its appearance on its future appearance.

The last a few decades, econometrics models and methods used in the forecasting taxes process of the Republic of Uzbekistan. This including extrapolation methods (exponential grinding, REM, ARIMA), modelling techniques (cross-section, time series, panel, reprinting tax models), etc., are not adequately adjusted to the changing state of the tax system, and in their turn, the methods used in practice are being further improved.

In according to the Decree of the President of the Republic of Uzbekistan of July 18, 2017, "On improvement of tax administration, increasing the collectability of taxes and other payments" and the order "On organizational measures for radical improvement of the tax legislation" of February 13, 2018. These are still necessary to introduce the most advanced and tested forms and methods widely used abroad.

In particular, it is important to introduce effective forms of models and methods that are used in the process of taxation in the context of improving tax administration. Therefore, in the research process, we have been able to achieve relatively effective outcome in the tax system of the Republic of Uzbekistan, based on the model of "Autoregressive Distributed Lag" (ARDL) model, which is currently used as one of the most effective models in the world practice. Today, the smallest squares method employed in practice is not able to provide optimal forecasting parameters, taking into account the rapidly changing processes.

The "Autoregressive Distributed Lag model", which we offer, will enable you to identify a shorter and longer-term outlook that will allow you to apply many factors affecting tax revenue. The advantages of this model are that of direct and indirect impacts on tax revenue, such as the gross domestic product, the number of registered enterprises, the number of taxpayers (tax liabilities), tax exemptions to taxpayers, current debt burden on budget, level, average tax rate, and long-term outlook. The objective of this model is to provide an objective assessment of multi-dimensional impacts in the tax-budgeting system of the republic, and simplification of the forecasting process will increase the objectivity and validity of the final figures. The paper rest of constructed as follows: section 2 indicates literature review. Section 3 describes methodology and data collection. The next section gives the empirical finding, results and conclusion.

2. Literature review. Many researchers have studied on the relationship between FDI and GDP growth with ARDL model the last a few decades. They found a long relationship two variable with together and the outcomes have varied significantly. Other studies have focused on the relationship between consumer energy and incomes. However, the results was build the difference economics structures, which is especially countries studies; in particular, those that are difference stage of the development. The first studies was examined the autoregressive distributed lag (ARDL) approach by Pesaran (1997), and then he continued in those studied by Pesaran et al. (2001). They tested the persistence of the relationship energy, employment and industrial production that found out the long run relationship those chosen variables. One of the most tested method that required variable must be integrated of the first level was developed Engle and Granger (1987). This approach have a process two stage. The first step includes a test cointegration was tested that the regression of one non-stationary variable on another is run and the residual was verified for stationary. Engle and Granger showed that the two variable non-stationary is a stable linear relationship, and then they were tested cointegration test. If variables had cointegration then there was an error correction. The next step was

examined the error correction which identified short run relationship. This approach had a shortage in multivariate case. Then, Johansen (1988, 1991) and Johansen and Juselius (1990) developed this approach and in this approach was more efficient in multirivate regression analysis but this approach became some shortage. The ARDL approach corrected those errors and had some over these other approaches. Ramazan Sariet al. (2008) examined the relationship energy consumption and industrial production through the ARDL model. The finding of the result bound test showed the presence of cointegration between the energy consumption, employment and industrial production. Their result indicated the short run relationship, there was a short run equilibrium, and this paper have important implications for public US energy policy and private sector investment in energy production. Bruce (2006) also studied ARDL model that used causal relationship between immigration and per capital economics growth. It was evident that he found a long run relationship between per capita economic growths to immigration. Besides that, he found out a short relationship with error correction model (ECM) and there was evidence of causality from per capital economic growth to immigration. Nicholas (2009) studied the causal relationship between energy consumption and economic growth in Tanzania. The finding of the result the bound test indicated that there was a stable long run relationship between energy consumption and economic growth. On the other hand, the testing of the causality showed the indirect causal between energy consumption and economic growth. Riadh Briniet al. (2017) examined that there existed a relationship renewable energy consumption, international trade, oil price and economic growth. The study result presented the existence of the bidirectional relationship between renewable energy consumption and international trade in the short-run but there was a unidirectional relationship between renewable energy and oil price, that was evident, that was the short-run. Soo Khoon Gohet al. (2017) studied the relationship between foreign direct investment (FDI), exports, and gross domestic product (GDP) including Asian countries. They studied a new method of ARDL approach that was the bootstrap ARDL. The study result showed that there was a long run relationship between FDI and GDP in selected Asian economics. Besides that, they confirmed that the FDI contributed to help to increase in real income Asian economics. They research indicated that the failure is to find evidence of cointegration the GDP related the dependent variable. Kamiar Mohaddeset al. (2017) tested the relationship among real GDP growth and the ratio of non-performing loans (NPLs) for example in Italy. The finding of result that there was a growth effect of about 1.2 percent in relationship among real GDP growth and NPL ratios. Mohammad Mafizur Rahman & Mohammad Abul Kashem (2017) examined the relationship long and short run series, empirical cointregration as well as Granger Causality test between carbon emissions, energy consumption and industrial growth. The study result confirmed that there was a long run cointegration among carbon emissions, energy consumption and industrial production. The industrial production and energy consumption effected positively to the carbon emissions short and long run periods.

3. Methodology. This research tested the long run and short run cointregration in selected variable forecasting taxes with ARDL (autoregressive distributed lag) model. Pesaran et al. (2001) built the ARDL bound testing framework according to this, we also apply ARDL test cointregration that is going to find long run relationship among the variable. The autoregressive distributed lag (ARDL) model is a dynamic single-equation error-correction specification. In general, a three-variable ARDL (p, q, r) is given as follows:

$$y_t = \sum_{i=1}^{p} \alpha_i \, y_{t-i} + \sum_{j=0}^{q} \beta_j \, x_{t-j} + \sum_{k=0}^{r} \chi_k \, z_{t-k} + u_t \tag{1}$$

Where, i, j and k are indices of lags: $i =1, 2, ...,p$; $j=0, 1, 2, ...,q$; $k =0, 1, 2, ...,r$; t denotes the time periods $t=1, 2, ...,T$; y_t is the dependent variable; x_t and z_t are the explanatory variables and u_t is the i.i.d. disturbance term with a zero mean and a finite variance, σ^2.

We use the theoretical frame work was developed by Pesaran (2001), with the long run cointregration model. Our ARDL model approach to cointegration can be denoted as follows:

$$\begin{aligned} \triangle logFTBR_t &= \alpha_0 + \alpha_1 \triangle log(FTBR_{t-1}) + \alpha_2 \triangle log(FTBR_{t-2}) + \alpha_3 \triangle log(NRC) + \alpha_4 \triangle \\ log(NRC_{t-1}) &+ \alpha_5 \triangle log(NRC_{t-2}) + \alpha_6 \triangle log(TNT) + \alpha_7 \triangle log(TNT_{t-1}) + \alpha_8 \triangle \\ log(TNT_{t-2}) \end{aligned} \tag{2}$$

Where, **FTBR**-Forecasted total budget revenues; **NRC**- number of registered company; **TNT**-total number of taxpayers.

3.1. Data collection. The study on the ARDL model conduct with cointregration among forecasted total budget revenues and number of registered company, total number of taxpayers. Annual report was collected from the State Taxation Committee of Uzbekistan annul report. The database include the period from 1998 and 2017. The number of observesition for each variable is 20. The variable forecasted total budget revenues in obtained taxes that is sum equivalent. Both number of registered company and total number of taxpayers are number equivalent. Before running ARDL model, we convert into log form all variable in order to equal equivalent. Then, we verify variable that is stationary or non-stationay because ARDL approach requir must be stationay level (l0) or stationay first level (l1) in selected variable. Then, both variable make ARDL model that find a long run cointregration.

4. The empirical finding and result.

4.1. Unit root test.

The estimation of the long run coefficient of the ARDL model using equation (2) is based on the three steps. The first step, all variables integration is estimated by unit root test that including the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests as follow table 1.

Table 1.

Variables	ADF			PP		
	Intercept	Intercept and trend	None	Intercept	Intercept and trend	None
FTBR	-1,5483	-4,0226**	1,8441	-1,6365	-4,0158**	2,6706
Δ FTBR	-6,9155***	-6,8943***	-5,9598***	-11,7454***	-18,7519***	-5,9598***
NRC	-0,6357	-3,0176	1,4126	-0,1692	-3,0176	3,1592
Δ NRC	-5,6260***	-5,3983***	-4,6730***	-5,8082***	-5,4479***	-4,6369***
TNT	-0,0856	-2,9501	1,0689	0,15844	-2,9543	1,2271
Δ TNT	-6,7158***	-6.9071***	-1,8298**	-6,3587***	-6,7122***	-5,4824***
Test critical values						
1%	-3,8573	-4,5715	-2,7080	-3,8573	-4,5715	-2,6997
5%	-3,0403	-3,6908	-1,9628	-3,0403	-3,6908	-1,9614
10%	-2,6605	-3,2869	-1,6061	-2,6605	-3,2869	-1,6066

Notes. Δas shown the first difference level.***p-value<0.01;**p-value<0.05; *p-value<0.05;

Table 1 shows the result both ADF and PP unit root tests that selected all variables non-stationary in their level, but there is stationary all variables in their first difference at 5% level its level form according to the ADF and PP tests.

4.2. *ARDL model selection criteria.*

The first stage of the model selection criteria is to select optimal Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hannan Quinn criterion (HQ). Table 2 can be as follows:

Table 2.

Model	LogL	AIC*	BIC	HQ	Adj. R-sq	Model selection
1	16.480933	**-0.880110**	**-0.438997**	**-0.836262**	0.849802	ARDL(2, 2, 2)
2	11.057695	-0.359729	0.032372	-0.320753	0.747302	ARDL(2, 2, 1)
3	10.975536	-0.467710	-0.124622	-0.433607	0.770363	ARDL(2, 2, 0)
4	11.175897	-0.373635	0.018465	-0.334659	0.750791	ARDL(2, 1, 2)
5	10.852411	-0.453225	-0.110137	-0.419121	0.767012	ARDL(2, 1, 1)
6	10.771554	-0.561359	-0.267284	-0.532128	0.786168	ARDL(2, 1, 0)
7	11.047275	-0.476150	-0.133062	-0.442046	0.772293	ARDL(2, 0, 2)
8	10.734968	-0.557055	-0.262980	-0.527823	0.785246	ARDL(2, 0, 1)
9	9.897262	-0.576148	-0.331086	-0.551789	0.782753	ARDL(2, 0, 0)
10	12.395953	-0.517171	-0.125071	-0.478195	0.784113	ARDL(1, 2, 2)
11	10.940142	-0.463546	-0.120458	-0.429442	0.769404	ARDL(1, 2, 1)
12	10.660954	-0.548348	-0.254272	-0.519116	0.783368	ARDL(1, 2, 0)
13	10.874498	-0.455823	-0.112735	-0.421720	0.767617	ARDL(1, 1, 2)
14	10.741837	-0.557863	-0.263788	-0.528631	0.785419	ARDL(1, 1, 1)
15	10.471379	-0.643692	-0.398629	-0.619332	0.796942	ARDL(1, 1, 0)
16	10.828725	-0.568085	-0.274010	-0.538854	0.787602	ARDL(1, 0, 2)
17	10.676569	-0.667832	-0.422769	-0.643472	0.801785	ARDL(1, 0, 1)
18	9.350320	-0.629449	-0.433399	-0.609962	0.786136	ARDL(1, 0, 0)

Table 2 presents the result optimal lags ARDL (2, 2, 2) because AIC is the biggest at -0.880110, BIC is also the biggest at -0.438997 and HQ is the biggest at -0.836262. According to three criterion rules are chosen the biggest indicators thus the beggist indicators that is optimal model selection. In this case, ARDL (2, 2, 2) is optimal model and it is able to detirmine long run cointregration. Then, we run ECM-ARDL (2, 2, 2) model including dependent variable of $\triangle$ FTBR as follow table 3.

Table 3. ECM-ARDL model result

Variables	Coefficient	Probability
$\triangle \log FTBR_{t-1}$	-0.309249	0.2207
$\triangle \log FTBR_{t-2}$	-0.430791	0.0570
$\triangle \log NRC$	7.084715	0.0001
$\triangle \log NRC_{t-1}$	0.041987	0.9801
$\triangle \log NRC_{t-2}$	4.274451	0.0283
$\triangle \log TNT$	-2.287929	0.0114
$\triangle \log TNT_{t-1}$	-1.342747	0.1924
$\triangle \log TNT_{t-2}$	-2.579714	0.0300
ECM_{t-1}	-0.046401	0.0000
Breusch-Godfrey Serial Correlation LM Test (p-value)	0.6658	
ARCH test (p-value)	0.4895	
Ramsey RESET Test (p-value)	0.1035	
Normality test (p-value)	0.4825	

Table 3 shows that estimated to gain the long-run and short-run coefficients using ARDL approach. The study results in table 2 present that the coefficients realeted to forecasted total budget revenues in logarithm have a long-run and short-run and the number of is significate level 5 percent that total number of tax payers is a negative impact to forecasted total budget revenues. However, the number of registered company effect positively to forecasted total budget revenues and it is significant level 5 percent. More specifically, a 1 percent go up in the number of registered company indicates increase in the forecasted total budget revenues 7,084 percent over the long run and short run. The total number of taxpayer's coefficient of regression found out long run and short run that has a positive impact and statistically significant 5 percent level. This mean that an increase in the total number of taxpayer's by 1 percent and go down in the forecasted total budget revenues by 2,28 percent over the long run and short run. Both number of registered company and total number of taxpayers are significant at the 1 percent level. This study result can be explained by the existence of long run realetionship of two variables. The lag error correction term (ECM_{t-1}) indicates the speed of adjustment the forecasted total budget revenues that it is long-run equilibrium following a shock. The coefficient of -0.464018in negative and statistical significant at the 1 percent level. This study results show the persistence of a stable long run cointregration among $\triangle \log NRC$, $\triangle \log TNT$ and $\triangle FTBR$. This mean that by 4,6 percent in next year is corrected a deviation from the long-run equilibrium level of total budget revenues.

The diagnostic tests of the ARDL model confirm that there is no serial correlation (Breusch-Godfrey Serial Correlation LM Test), heteroscedasticity (ARCH test), the functional errors is specified (RESET test) and the normality of the residuals. Then, we apply the cumulative sum (CUSUM) and cumulative sum squares (CUSUMS) of recursive residuals tests in order to check the robustness of the results in figure.
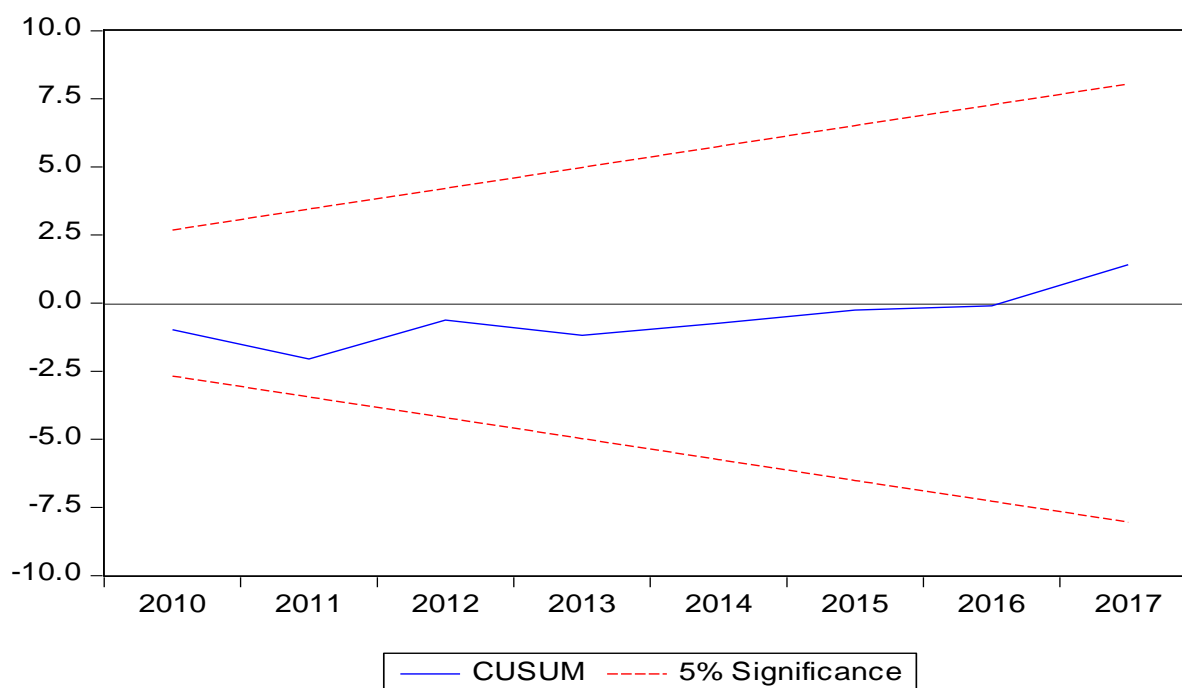
Fig. 1.

This tests show that there is no serial correlation and no problem of heteroscedasticity in the figure. The figure confirms that the curve is within the critical interval at 5% significance. This means that coefficients are stable over the research period and the model is valid.

5. Conclusion. We collected the small database and observations from 1998 and 2017. To be more exact, we used to verify the ARDL approach and testing relationship long run and short run cointregration, our empirical results indicate the negative impact of total number of taxpayers on the forecasted total budget revenues and the unidirectional long run from cointregration total number of tax payers to forecasted total budget revenues. This study finding show that the hypothesis for the relationship between the numbers of registered company and forecasted total budget revenues in Uzbekistan. More specifically, in the long-run relationship there is a directional relationship between the numbers of registered company

and forecasted total budget revenues. The numbers of registered company enables Uzbekistan to benefit from technology transfer that helps to invest more in the small business sector.

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FIRM PRODUCTIVITY AND IMPORTING BETWEEN UKRAINE AND CHINA

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ABSTRACT

This paper attempts to explore China's economic interest in Ukraine, a country which is in an advantageous geographic location with relation to China. Considering its position in the global map, Ukraine has the potential to become a transit hub for China. This has huge economic repercussions in Ukraine since China is the second most important EU trading partner after USA. Ukraine can thus take advantage of being a unique transit hub for China in the Silk Road.
Instrumental background to Ukraine economic relations with China
In spite of having a huge market potential, Ukraine did not share an optimistic trade relation with China. The country's unstable political environment along with having investment risks induces China to maintain a cautious approach toward Ukraine. However, due to a positive political relationship between the two countries, Ukraine can play in favour of China's strategy to strengthen the Silk Road Economic Belt. Although this facilitates China's trading relationship with Russia and the EU, the current crisis in Ukraine has become a concern for China since it does not want to play the role of diplomatic intermediary in Ukraine crisis. China chooses its strategic partners usually based on a couple of factors. The country has to be China's neighboring country as it can then become a close economic ally, and also the chosen country has to be large in size as China can use it to develop strategic partnership to fulfill its economic goals. However, Ukraine does not fall under any of the categories and so it fulfills a third category which is also another category that is considered by China. Ukraine shows a great potential for economic development, which is important for China as it needs to establish strong economic ties with the country in order to get benefitted in other areas. Moreover, China is also able to encase the history of friendly relationship that it shares with Ukraine, and also Ukraine's strong geographical position enables China to engage in regional cooperation. Finally, China looks for opportunities of cooperation as this can enhance the strategic relationship between two countries and Ukraine serves such opportunities.

Review of relevant literature. The attention of researchers attract various aspects of mutual support, the formation of integration structures, implementation of joint economic projects, but covered in fragments of cooperation with low income, generally defined as a global "periphery". In particular, the following classifications are considered like the Ukrainian-Chinese relations, despite the obvious differences in size of countries and their global impact. For Ukraine, the direction of relations with China is a priority, due to the rapid economic development of the country, which has now become a major player in the Asia-Pacific Region (APR) and is second only to the US economy in the world. In addition, China has excess capital and marked the political influence of the global economic system that in the current situation is of particular relevance.

Important theoretical and practical aspects of strategic partnerships form the basis of studies of domestic and foreign scientists, including Ukrainian scientists Andriychuk B., O. Belarus, Mikhail Belousov, V. Borschevsky V. Verhun, A. Goncharenko, Vladimir Granovsky, OH. DERGACHOV, IA Dolgov,

MA Nether, I. Zhovkva, O. Zarubinskyi, D. Lukyanenko, Yuri Makogon, M. Malskyy, M. Matsyaha, V. Melnik, A. Mokiy, N. Naumenko, B. Parahonskoho, Y. Pakhomov, Pyrozhkov, S. Pisarenko Alexander Plotnikov, Poltoratskiy A., A. Potekhin, C. Saveliev, A. Sobolev, Alexander Filipenko, M. Fleychuk V. Chaly, S. Cebotaru O. Shnyrkov, L. Yaremko and others. Among the foreign authors who have studied the strategic partnership in the context of the interaction between individual firms should distinguish A. Rodrigo, A. Heusler, H. Luo, J. Shen, B. Barnes, B. Dale, D. Walker, K. and others. However, despite the undeniable achievements of domestic and foreign scientists, the conceptual basis of criteria and approaches to the definition of "strategic partnership" remains poorly understood and on the basis of their analysis of Ukrainian-Chinese relations, this paper can lead to the scientific novelty of the thesis topic.

For the current study, secondary sources are used like various scientific journals that explain the political and economic relationship between China and Ukraine. The purpose is to establish the ground on which China has formed strategic alliance with Ukraine so as to facilitate its own trading relationship with Russia and the EU.

The nature and characteristics of strategic partnership.

According to O.N. Methrota 'the strategic partnership is a new term, which has been popularized in the international relations of the post Cold War period" (Wilkins, 2008, p.359). In general, strategic partnership is formed when the participating countries have common interests rather than shares values. Second, strategic alliance is formed in order to fulfil specific goals and so even countries with negative political relations can enter into strategic partnership provided the countries can offer economic opportunities to each other. In such cases however security issues become a major issue of concern in the context of terrorism, separatism, or religious fundamentalism. Moreover, strategic partnership is rather a informal agreement that allows the countries enough flexibility and autonomy, and this reduces the formal issues common to more orthodox alliances. Strategic partnership is often initiated between two countries where the target country provides economic opportunities to the countries who intend to form strategic alliance. The basic goal remains to fulfil its own objectives of economic expansion beyond its boundaries. Although strategic partnership is bilateral often other countries are included into the alliance. For instance, the strategic partnership between Russia and China also has other partners like India and Iran. It is also not uncommon that strategic alliance can be established between two apparently antagonistic countries like China's relationship with Britain and Sudan. However, such alliances can limit the possibilities for formal expansion and evolution.

Analysis Ukrainean – Chinese relationship according to the criteria at strategic partnership.

Based on the strategic partnership, China entered into trading alliance with Ukraine because of the huge market potential that the latter held. The first reason behind the bilateral relationship is Ukraine's geographical position that makes it an easy transit route for China to deliver oil and gas to the EU countries. Although Ukraine's infrastructural facilities are not well developed that is not considered as a major crisis. The second reason is that Ukraine has signed the Deep and Comprehensive Free Trade Agreement (DCFTA) with EU. For this reason, Ukraine can attract investment from China for manufacturing products specifically for the EU market. Ukraine's proximity to EU is a major reason for Chinese investments in the countries in spite of its high investment risk environment.

Ukraine for China is:	**China for Ukraine is:**
• A "bridge" into a capacious and financially reliable European market; • A market for cheap goods; • The partner in supplies of the products of the metallurgical complex, the chemical industry, the products of the agro-industrial complex, etc.; • The partner for personnel development and on-the-job training; • A "window" to the high-tech and capital-surplus economy of the European Union; • A large market with significant purchasing power and consumer needs; • A territory for the creation of technoparks and high technology development zones; • A link in the transit chain between Western Europe and the Asia-Pacific Region.	• A partner for attracting investments; • A reliable partner in support of national interests of Ukraine in the international arena (accession to the WTO, the UN peacekeeping operations, etc.); • An advanced partner in the supply of advanced equipment and technologies that can increase the competitiveness of Ukrainian products; • A partner in the development of entrepreneurial and investment projects in the oil and gas, and coal industries, civil engineering, production of consumer goods, in agro-industrial complex, renewable energy technologies, financial and banking sector, etc. • A partner in optimizing the structure of exports and improving product quality.

Fig. 1.

In May 2016, Chinese President Xi Jinping proclaimed that China should become the most innovative country in the world in 2030 and the world leader in the scientific sphere until 2049. State constituents are aware that achieving such ambitious goals can be achieved through more extensive cooperation with representatives of science from other countries, in particular with Ukraine. The leadership of China highly appreciates the level of advanced technologies available at the National Academy of Sciences of Ukraine and notes the fruitfulness of bilateral cooperation in numerous branches of science, technology and industry and states its readiness for its expansion and deepening.
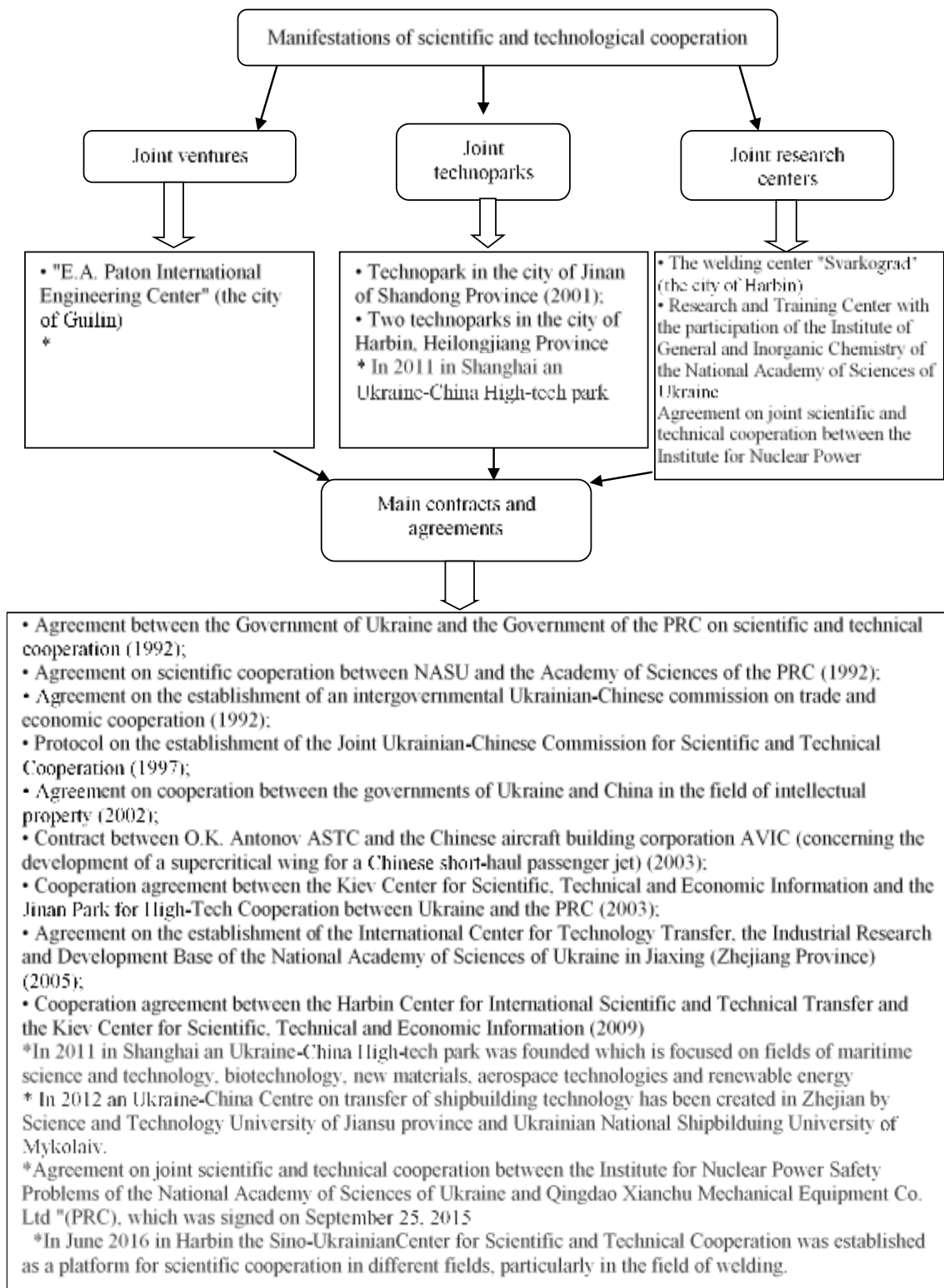

Fig. 2.

Such active scientific activity contributes to the development of scientific and technical cooperation between countries, which is at a high level, as evidenced by the signed contracts; and also joint ventures, research centers and technoparks have been established.

Foreign trade cooperation between Ukraine and China is regulated by the Trade and Economic Cooperation Agreement between Government of Ukraine and Government of the People's Republic of China (1992) that setting of most favorable regime regarding the duties levy for exported and imported goods of both countries as well as taxes and other domestic dues. According to information of the General Customs Administration of China, in January-September 2016 the trade turnover between Ukraine and China amounted to 5188,2 million USD. At the same time, Chinese exports to Ukraine amounted to 3126,3 million USD (+24.2%), Chinese imports from Ukraine amounted to 2061,9 million USD (-32.0%). Balance of bilateral trade in favor of China amounted to 1064,4 million USD (Trade and Economic Relations between Ukraine and China, 2012).

The model.

China imported 380,000 metric tons of corn from Ukraine during May 2015. The total volume of corn exports from Ukraine to China amounted to more than 2.1 million metric tons for the market year that began in October 2014. Among the total corn imports in China it is estimated that Ukraine constitutes of three-fourths for 2014/15. The increasing imports of corn from Ukraine is a strategy by China to reduce its dependence of US, a country which was the biggest corn exporter to China before Ukraine came into the picture (Ukraine is China's Main Corn Supplier, 2015).

The equilibrium value of the complementarity index for the trade by main commodity groups between Ukraine and China in the period from 2008 to 2017
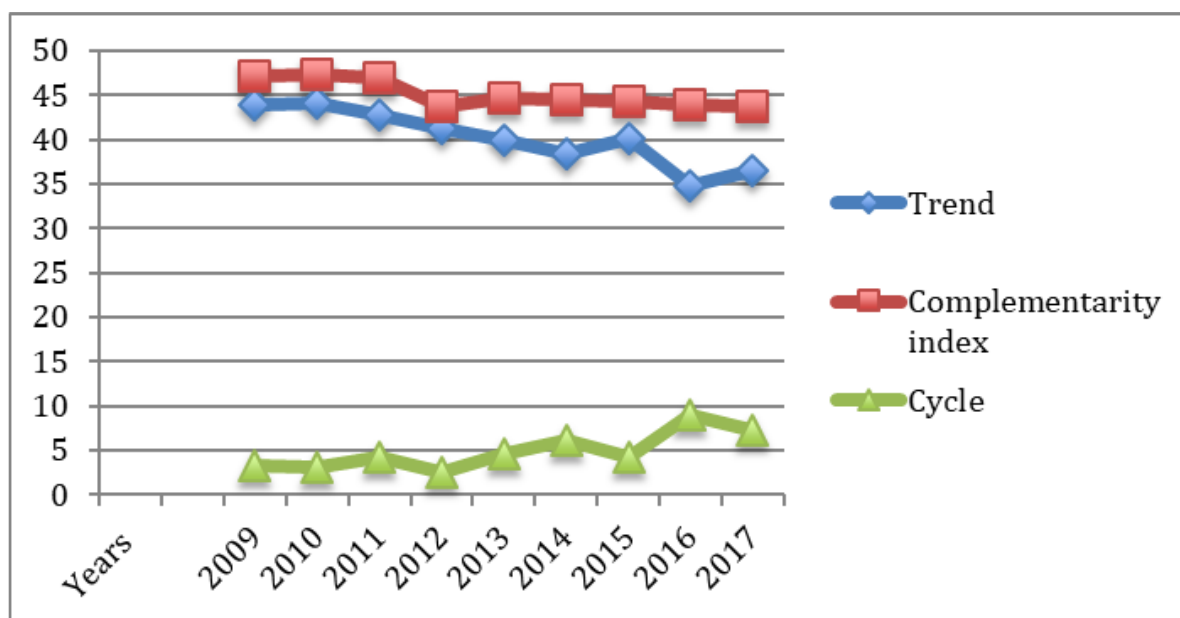
Fig. 3.

Analysis of the exports and imports commodity positions for Ukraine and China testifies to the complementarity of the economic systems of the two countries at the level of 44% (2017). To identify the most complementary goods in Ukrainian-Chinese trade, we will calculate the complementarity index taking into account the specification of goods. This indicator characterizes the level of mutual complementarity between the supply of certain goods from Ukraine and the demand for imports of the same goods in China. Calculations are carried out according to the formula

$$TCI_{ij}^{k} = \frac{X_i^k / X_i}{M_w^k / M_w} * \frac{M_j^k / M_j}{M_w^k / M_w}$$

Table 1. The complementarity index of Ukrainian-Chinese trade taking into account the commodity specification (TCI$_c$)

Products / Years	2012	2013	2014	2015	2016	2017
72. Iron and steel	0,003	40,70	45,98	37,77	33,88	31,43
27. Mineral fuels, mineral oils and products of their distillation	0,33	0,31	0,24	0,10	0,10	0,12
84. Machinery mechanical appliances, nuclear reactors, boilers;	0,63	0,89	0,76	0,71	0,60	0,55
86. Railway or tramway locomotives, rolling stock and parts there of; railway or tramway track fixtures.	27,05	24,95	39,01	14,91	24,16	53,28
73. Articles of iron	22,63	23,73	14,99	11,49	8,57	11,25
85. Electrical machinery and equipment and parts there of; sound records and repoducers television…	0,136	0,13	0,14	0,12	0,13	0,15
10. Cereals	103,615	102,33	82,79	34,54	82,43	74,38
28. Inorganic chemicals; organic or iorganic compounds of precious metals, of rare-earth metals;	6,47	8,22	5,39	5,24	3,63	3,62
31. Fertilisers	23,53	25,00	17,20	10,89	13,46	6,35
26. Ores, slag and ash	0,129	0,16	0,19	0,21	0,16	0,18
90. Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical	0,036	0,04	0,04	0,04	0,04	0,04
62. Articles of apparel and clothing accessories, not knitted or crocheted	27,85	25,67	25,36	21,31	23,52	23,14
15. Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal…	7,07	9,78	17,08	21,15	30,62	29,68
44. Wood and articles of wood; wood charcoal	1,55	1,41	1,34	1,86	1,67	1,36
76. Aluminum and articles there	0,64	0,97	1,27	1,69	1,74	2,29
29. Organic chemicals	0.131	0,08	0,07	0,05	0,06	0,08
04. Dairy produce; birds eggs; natural honey; edible products of animal origin, not else where…	12,318	7,40	5,06	12,22	8,58	7,24
99. Commodities not elsewhere specified	0,07	0,06	0,02	3,19	1,57	0,12
48. Paper and paperboard; articles of paper pulp, of paper or of paperboard	21,43	31,32	30,62	22,94	20,27	12,99
39. Plastics and articles thereof	0,24	0,22	0,19	0,20	0,21	0,26
22. Beverages, spirits and vinegar	11,12	15,62	10,61	4,67	3,30	3,85
25. Salt, sulphur; earths and stone; plastering materials, lime and cement.	2,66	3,60	3,51	3,06	3,04	2,24
87. Vehicles other than railway or tramway rolling stock, and parts and accessories there.	0,40	0,29	0,19	0,21	0,15	0,14
74. Copper and articles there	0,03	0,04	0,05	0,05	0,04	0,05
02. Meat and edible meat off	5,49	3,70	5,20	4,02	1,74	3,13
38. Miscellaneous chemical products	0,35	0,41	0,33	0,33	0,32	0,37
94. Furniture; bedding, mattresses, mattress supports, cushions and similar syffed furnishing	31,24	38,62	38,64	36,57	36,12	40,79
63. Other made-up textile articles; sets; worn clothing and worn textile articles; rags	88,74	94,13	99,94	107,81	115,52	115,58
12. Oil seeds and oleaginous fruits, miscellaneous grains, seeds and fruit, industrial of medicinal	8,564	10,99	7,83	6,76	5,81	6,77
52. Cotton	0,002	0,004	0,005	0,01	0,01	0,01

Based on the results obtained, we form the clustering of goods according to their complementarity level in 2017.

Table 2. Level of complementarity of goods in 2017

Complementarity level	Goods
Very high	Iron and steel; Railway or tramway locomotives; rolling stock and parts there of; railway or tramway track fixtures; Cereals; Articles of apparel and clothing accessories, not knitted or crocheted; Animal or vegetable fats and oils and their cleavage products; prepared edible fats; Furniture; bedding, matresses, mattress suports, cushions and similar syffed furnishing; Other made-up textile articles; sets; worn clothing and worn textile articles; rags
High	Articles of iron; Fertilisers; Paper and paperboard; articles of paper pulp, of paper or of paperboard; Oil seeds and oleaginous fruits, miscellaneous grains, seeds and fruit, industrial of medicinal;
Moderate	Inorganic chemicals; organic or iorganic compounds of precious metals, of rare-earth metals; Wood and articles of wood; wood charcoal; Aluminum and articles there; Dairy produce; birds eggs; natural honey; edible products of animal origin; Beverages, spirits and vinegar; Salt, sulphur; earths and stone; plastering materials, lime and cement; Meat and edible meat off;
Low	Mineral fuels, mineral oils and products of their distillation; Machinery mechanical appliances, nuclear reactors, boilers; Electrical machinery and equipment and parts there of; sound records and repoducers television; Ores, slag and ash; Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical; Organic chemicals; Commodities not elsewhere specified; Plastics and articles thereof; Vehicles other than railway or tramway rolling stock, and parts and accessories there; Copper and articles there; Miscellaneous chemical products; Cotton

The most noticeable complementarity is observed in such commodity groups as: railway or tramway locomotives, road equipment; ore, slags and ashes; fats and oils of animal or vegetable origin; and ferrous metals. Somewhat lower complementarity is in such goods as salt, sulfur, plastering materials, cement; fertilizers; inorganic chemistry products; wood and wood products; articles of ferrous metals; copper and copper products, for which Ukraine has a competitive advantage. Goods with a high level of complementarity during the last six years show a rather unstable dynamics - from a sharp increase to a deterioration in the value this is directly related to the production capabilities of the partner country.
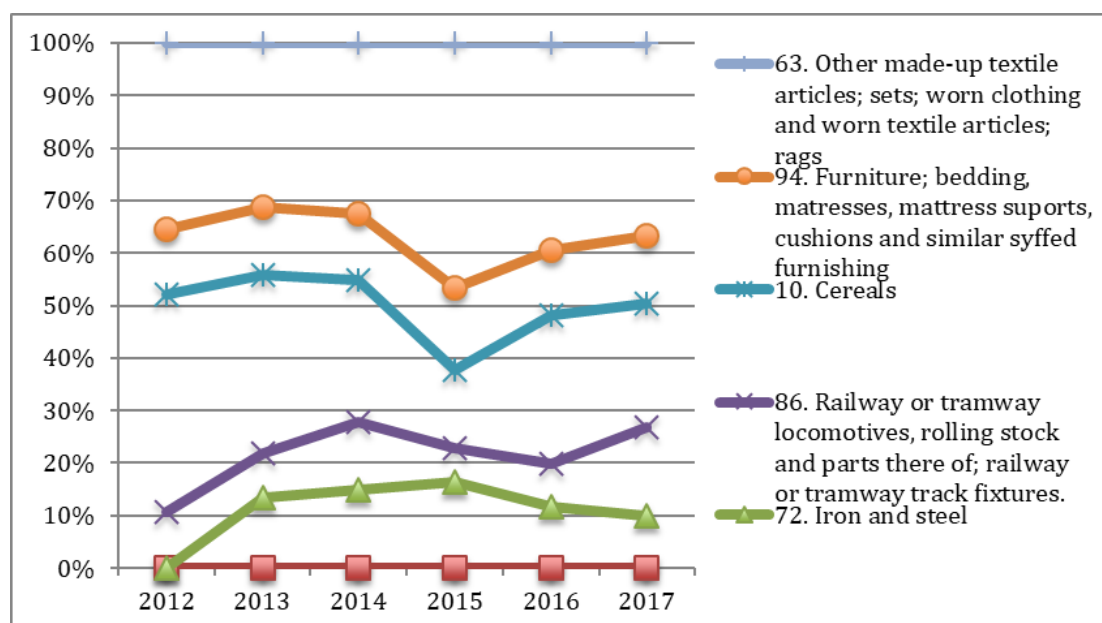

Fig. 4. Dynamics of trade in commodities with a high level of complementarity in the period from 2012 to 2017

Conclusions. The trading relationship between China and Ukraine has seen a slow by steady growth. Ukraine's agricultural sector is one principle source of trading volume between the two countries. It is very clear that China has various strategic advantages by maintaining a bilateral trading relationship with Ukraine. Ukraine can become the road to connect to China and its trading partner.

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14. Ukraine – Chinese partnership – Magokin Z.Y. – paper

INCREASE OF COMPETITIVENESS OF THE ENTERPRISE BY ELECTRONIC BUSINESS TECHNOLOGIES

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ARTICLE INFO	ABSTRACT
	The article deals with global trends in e-commerce, especially conducting e-commerce in Ukraine. The article also explores the positive and negative factors affecting the development of e-commerce enterprises in Ukraine. Particular attention is paid to the consideration of the stages of development of e-commerce in the enterprise, issues of enterprise management in terms of focusing on e-business in the modern conditions of informatization and globalization.

Introduction. The scope of e-business is developing dynamically around the world. The instantaneous rate of transfer of information, the absence of geographical and time constraints for consumers, low costs, a wide range of unique marketing tools and other benefits determine the interest to e-business by enterprises, manufacturers of goods and services. E-commerce (e-commerce) is a form of business transactions in which the interaction of the parties is carried out electronically instead of physical exchange or direct physical contact and as a result of which the right of ownership or use of a product or service is transferred from one person to another. E-commerce (from eng. e-commerce) is a sector of the economy, which includes all financial and trade transactions carried out using computer networks, and business processes associated with conducting such transactions [15]. E-commerce includes: Electronic Information Interchange (Electronis Data Interchange, EDI), Electronic capital flow (Electronic Funds Transfer, EFS), Electronic commerce (e-trade), Electronic money (e-cash), E-marketing (e-marketing), Electronic banking (e-banking), Electronic insurance services (e-insurance).

Literature Review. Issues of the use of information systems and technologies in business and on the development of e-business have been considered by such scientists: A. Baranov, A. Bereza, V. Bykov, D. Eimor, B. Gates, A. Gerashchenko, M. Dell, M. Castells, N. Medzhibovskaya, G. Mins, S. Parinov, V. Pleskach, K. Peitel, A. Pushkar, D. Siegel and others.

The **purpose** of the article is to study the development and priority areas of Internet commerce in Ukraine under the influence of global trends in e-commerce.

Research results. The global e-commerce market is one of the most dynamic and steadily growing markets. According to the report eMarketer [1], in 2017, the global retail Internet trade will reach 10.1% of retail sales in general, in 2021, this share will increase to 16,1%; the growth rate of e-commerce will outstrip the growth of retail sales in general (Fig. 1).

Technologically developed countries consider e-business a powerful mechanism for economic development and expansion of sales markets for goods and services. Therefore, the development of e-business is strongly supported and stimulated by government regulatory funds. The volume of modern global e-commerce is estimated at several trillions of dollars, but analysts predict its further growth to 10 trillion dollars in the coming years. The largest is the e-commerce market in the US and Europe (EU countries).

The European e-commerce market, which represents European countries - Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom - are projected experts will increase the rate of growth annually by 10-15% over the next 5 years.

Fig. 1 - Dynamics of the volume of world e-commerce [2]

Worldwide e-commerce is represented in the following segments: direct sales of goods and services, information placement, corporate purchases. Moreover, the largest share belongs to the first segment and is about 80%. Most experts point out that the Ukrainian e-business and commerce market is quite promising.

The spread of e-business in Ukraine is promoted by the growing number of Internet users (about 50% of the population), the introduction of electronic payment systems for goods and services, the development of the national ICT market and other signs of informatization of society.

The analysis of the share of e-commerce in the volume of GDP of Ukraine and Western European countries for 2009-2017 is presented in Fig. 2.
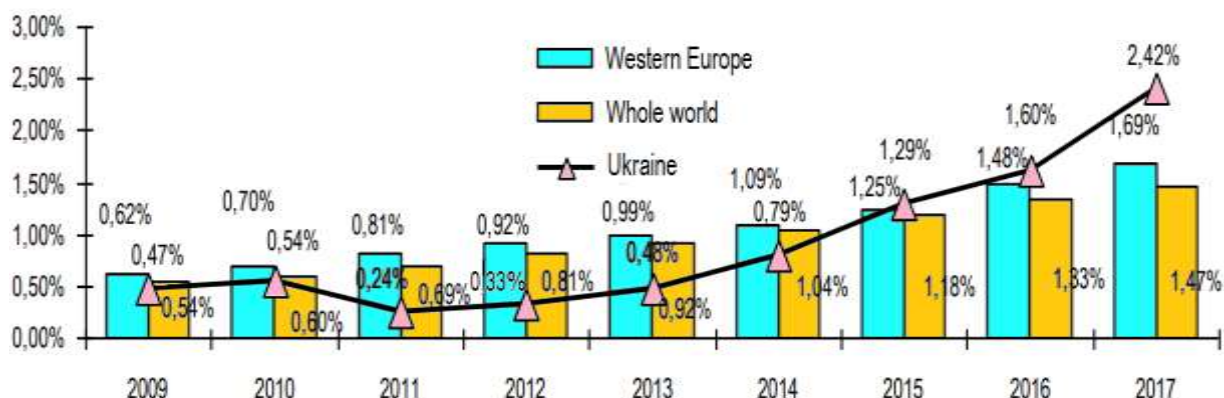

Fig. 2. Dynamics of the share of e-commerce in GDP of Ukraine, the world and Western Europe in 2009-2017. [2]

The development of e-commerce relies on attracting more and more users to the Internet (Fig.)

The dynamics of indicators of the development of electronic commerce in Ukraine, calculated by the authors, taking into account differences in the methods of evaluation and fluctuations in the hryvnia exchange rate to major world currencies, is given in Table. 1.
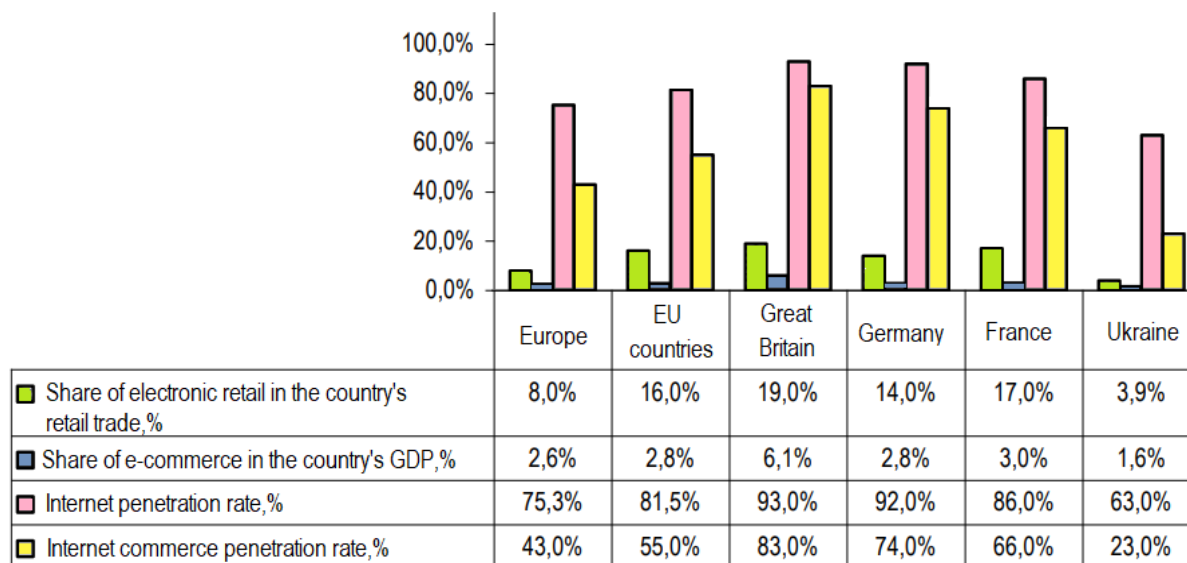

	Europe	EU countries	Great Britain	Germany	France	Ukraine
☐ Share of electronic retail in the country's retail trade,%	8,0%	16,0%	19,0%	14,0%	17,0%	3,9%
☐ Share of e-commerce in the country's GDP,%	2,6%	2,8%	6,1%	2,8%	3,0%	1,6%
☐ Internet penetration rate,%	75,3%	81,5%	93,0%	92,0%	86,0%	63,0%
☐ Internet commerce penetration rate,%	43,0%	55,0%	83,0%	74,0%	66,0%	23,0%

Fig. 3. The share of e-commerce in retailing and GDP in 2018 compared to Internet penetration rates

Table. 1. Dynamics of indicators of development of electronic commerce of Ukraine

Indicator	2013	2014	2015	2016	2017	2018 (forecast)
Volume of retail trade in Ukraine, bln. UAH	888,5	901	1031,7	1159,3	1228,8	1327,3
Volume of retail trade in Ukraine, bln.USD	111,2	76,0	47,1	45,1	43,5	41,7
Volume of retail trade in Ukraine, billion euro	83,7	57,4	42.6	41,0	42,3	42,5
Volume of Internet commerce in Ukraine, bln. UAH	7,4	12,3	25,5	38,3	48	47
Volume of Internet commerce in Ukraine, bln. USD	0,88	1,04	1,17	1,50	1,70	1,63
Volume of Internet commerce in Ukraine, bln. euro	0,66	0,76	1,06	1,43	1,65	1,64
annual growth index of retail trade in hryvnia equivalents	9,4%	1,5%	14,4%	12,7%	6,0%	8,0%
Annual index of growth of retail trade in dollar equivalent	11,5%	-31,1%	-36,3%	-4,3%	-4,1%	-4,2%
annual growth rate of retail trade in euro equivalent	5,7%	31,2%	-36,2%	100,4%	3,2%	3,5%
annual growth rate of Internet commerce in hryvnia equivalents	53,7%	72,5%	72,5%	12,4%	25,0%	22%
annual growth rate of Internet commerce in dollar equivalent	52,9%	18,3%	18,3%	13,2%	13,01%	11,4%
annual growth rate of Internet commerce in euro equivalent	48,0%	18,8%	18,1%	34,9%	22,3%	24,5%
e-commerce penetration in Ukraine	0,9%	1,5%	1,4%	2,5%	3,9	3,8%

However, the successful implementation of business on the Internet implies a transitional stage of its implementation, associated with the use of new electronic tools at enterprises, new methods and principles of work, improvement of the organizational structure and management system, optimization of business processes of the enterprise, with constant updating of knowledge and skills of

its employees the like. Effective enterprise management becomes a key factor in increasing its competitiveness and requires the use of modern methods and tools adapted to work in the information society. The most significant factor in the management and development of a modern enterprise is recognized as dynamic changes in the external environment, whose influence on management efficiency is determined by expanding the boundaries of the enterprise's activities, complicating relations with customers and partners, and increasing the available information. As a result, the company grows the number of management decisions and shortens the time of their adoption, which causes the need to revise the methods, principles, tools of enterprise management in the direction of increasing the degree of its informatization. One of the advantages of developing e-business in an enterprise is the possibility of its transition to a new dual technology of value formation, which, unlike that developed by Michael Porter, consists of analyzing and controlling costs both in the traditional sense and depending on the extent of the information space covered by the enterprise and its use of information technology and systems in various parts of the value chain.

On the basis of generalization of foreign and domestic experience in electronic activity, its evolution identified stages of transition to electronic business of domestic enterprises (Table 2).

Table 2. Characteristics of the stages of development of e-business in the enterprise

Stages of e-business development	Characteristics of the stage	Key actions
General informatization	Formation of a strategic plan for e-business, search for potential partners and information about the infrastructure of the Internet environment.	- formation of IT infrastructure; - informatization of activity; - introduction of electronic document flow
Representation on the Internet	Update of the company's website, marketing experiments on the Internet	- stimulating the use of the Internet, - integration of internal information resources of the enterprise
Creating e-business platform	Implementation of specialized information and computer technologies, payment and other systems; organization of personnel training; information security system providing	- creation of centers of data exchange and networks of the enterprise; - development of general IT infrastructure; - introduction of international regulations
Introduction of e-commerce	Implementation of e-commerce, implementation of business projects (innovative, industrial) on the basis of e-business platform; Internet providing service to customers	- stimulation of interaction between enterprises, partners and clients; - providing efficient electronic services
Network partnership	Creation of corporate portals, establishment of profitable partnerships with clients, Internet partners	- Integration of business and electronic services; - increase in the volume of electronic services engagement and synergy.

The introduction of e-business involves the structuring and systematization of relevant processes in the enterprise, the success of which is ensured by the timely adaptation of management activities in a dynamic information environment enhancing the active management of the enterprise and the transformation of the management system, its constituent elements and relations between them, are undergoing transformations on an ongoing basis (Table 3).

Table 3. Transformation of the components of the enterprise management system in e-business

Elements Management System	Transformation
Methodology of management (laws, principles, methods, functions, management technology)	– combination of the principles of strategic management and network management (by K. Kelly) – expansion and differentiation of management functions in connection with the diversification, virtualization and globalization of production; – reorientation of strategic priorities with an emphasis on flexibility, strengthening of program-targeted management, reorganization of divisions and their interaction, strengthening integration.
Process of management (communication system, development and implementation of managerial decisions, information provision)	– automation of management processes (planning, organization and control) for pre-allocated centers of responsibility; – provision of organizational, informational, financial-economic, social and communication management mechanism; – focusing on the management of intangible assets.
Management structure (functional structures, information flows, behavioral system, personnel training)	– the transition to a flexible, horizontal organizational structure through a network of labor organization; – reorganization of divisions, creation of strategic management departments and development of e-business; – formation of an effective system of motivation and training of the personnel.
Technology and management technology (communication networks, document management systems, communication systems)	– creation of a common information space for enterprise management based on an integrated integrated information system, with internal and external communications and connections of the enterprise.

Conclusions. Thus, the transformation of the management system at the enterprise leads to a new higher level of development related to meeting the needs of consumers that arise in the information environment and which the enterprise must comply with (flexibility, prompt delivery of information, 24-hour on-line presence on the Internet, etc.). The article states that the intensive development of e-business technologies requires an appropriate timely transformation of the services and departments of the enterprise to e-business. Under such conditions, the integrative role of management in the formation of an innovative way of enterprise development increases.

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ПОСТРОЕНИЕ ШКАЛ ЭКВИВАЛЕНТНОСТИ ДЛЯ ОТДЕЛЬНЫХ ТЕРРИТОРИАЛЬНЫХ ЕДИНИЦ АРМЕНИИ

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ABSTRACT

An important indicator of the welfare and living standards of the population is the level of the poor population in the given country. As practice shows, in economically developed countries the policy in the population income sphere is one of the key elements of economic management. In countries with transforming economies such as Armenia, the problem of population income regulation is extremely topical. In resolving many of social policy issues the need to compare the living standards of families with different structures arises. The work is devoted to the construction of equivalence scales which take into account the actual purchasing power differences of similar incomes in different size households.

На современном этапе развития экономики Армении проблемы повышения уровня жизни населения и исследования факторов, определяющие его динамику, очень важны. От их решения во многом зависит направленность и темпы дальнейших преобразований в стране и, в конечном счете, экономическая и политическая стабильность в обществе. Решение этих проблем требует определенной политики, выработанной государством, центральным моментом которой был бы человек, его благосостояние, физическое и социальное здоровье. Именно поэтому все преобразования, которые так или иначе могут повлечь изменение уровня жизни, вызывают большой интерес у самых разнообразных слоев населения.

Различные измерители уровня бедности и показатели дифференциации населения по доходам и расходам относятся к ключевым индикаторам качества проводимой социальной политики и используются, в частности, при построении адресной социальной помощи малоимущим слоям населения, нацеленной на максимальное снижение социальной напряженности в обществе.

При сравнении уровня жизни домохозяйств нельзя не принимать во внимание проблемы, связанные с сопоставлением расходов и доходов семей различного размера, социально-демографического состава и территориальной принадлежности. Эта проблема вызывает необходимость построения шкал эквивалентности, позволяющих корректно учитывать различия в реальной покупательной силе одинаковых доходов в домохозяйствах различных размеров за счет экономии, полученной от ведения большого хозяйства. Обоснованно судить об уровне жизни населения можно лишь владея данными о количестве и соотношении групп домохозяйств, обладающих различным уровнем жизни. И. Дмитричев в

работе «Статистика уровня жизни населения[1] пишет, что основной информационной базой для исследования уровня жизни населения является статистика домашних хозяйств (ДХ).

Различия между ДХ в размере и по составу вызывают необходимость специальных расчетов, позволяющих оценить благосостояние ДХ с помощью так называемых «шкал эквивалентности. Эти шкалы дают возможность оценивать доходы ДХ в расчете на условного члена. Этот подход помогает корректно учесть различия в реальной покупательной силе доходов за счет экономии от ведения большого хозяйства[2] .

На практике при построении шкал эквивалентности чаще всего берется за основу анализ потребительского поведения. В странах с большим уровнем бедности в роли источника экономии предполагаются расходы на питание, нежели расходы на общесемейные нужды. Причина в том, что в этих странах расходы на питание составляют большую долю в прожиточном минимуме, его непродуктовая часть настолько мала, что практически не предполагает приобретения предметов длительного пользования. В этих условиях источником экономии обычно служит замена относительно дорогих полуфабрикатов дешевыми продуктами питания, прошедшими минимальную предварительную обработку. Еще один источник экономии состоит в том, что закупка продуктов питания, особенно скоропортящихся, в больших количествах обходится дешевле.

Воспользовавшись данными бюджетного обследования ДХ Армении 2016[3] года и применяя множественный регрессионный анализ в модели спроса[4] исследовалась зависимость среднедушевых общих расходов (y) от величины среднедушевых доходов (x) и численности ДХ (N_l, $l = 2, 3, 4, 5, 6$)[5].

Для разработки шкалы эквивалентности в данной статье используется регрессионный анализ, с помощью которого выявляется зависимость среднедушевых общих расходов от среднедушевых доходов и численности домохозяйства, по отдельным территориальным единицам:

$$ln\, Y_i^j = c_0 + c_1\, ln\, X_i^j + c_2 N2_i + c_3 N3_i + \ldots + c_6 N6_i + \varepsilon_i,$$

где $ln\, Y_i^j$ – логарифм душевого расхода i-го домохозяйства j-й территориальной единицы ($j = 1, 2, 3$: $j = 1$- Ереван, $j = 2$- другие города и $j = 3$-сельские местности); $ln\, X_i^j$ – логарифм душевого дохода i-го домохозяйства j-й территориальной единицы; $N2_i$, $N3_i$, …, $N6_i$ – дихотомические переменные, отображающие влияние размера домашнего хозяйства (ДХ) на среднедушевой расход. Они имеют следующую структуру:

$$N2_i = \begin{cases} 1, & \text{если } i - \text{ое домохозяйство состоит из двух человек;} \\ 0, & \text{в противном случае,} \end{cases}$$

$$\vdots$$

$$N6_i = \begin{cases} 1, & \text{если } i - \text{ое домохозяйство состоит из шести и более человек;} \\ 0, & \text{в противном случае.} \end{cases}$$

После исследования регрессионных моделей для трех территориальных единиц получены следующие оценки логарифмов душевых расходов:

$$\widehat{ln\, Y_i^1} = \underset{(14.28)}{6.74} + \underset{}{0.31} ln\, X_i^1 - \underset{(-2.63)}{0.09} N5_i - \underset{(-4.4)}{0.15} N6_i, i = \overline{1, 1231}: \qquad R_{adj}^2 = 0.28 \qquad (1)$$

$$\widehat{ln\, Y_i^2} = \underset{(16.72)}{5.95} + 0.35 ln\, X_i^2 - \underset{(-2.74)}{0.10} N4_i - \underset{(-4.67)}{0.19} N5_i - \underset{(-6.02)}{0.25} N6_i, i = \overline{1, 1231}: R_{adj}^2 = 0.33 \qquad (2)$$

$$\widehat{ln\, Y_i^3} = \underset{(18.56)}{6.04} + 0.36 ln\, X_i^3 - \underset{(-3.27)}{0.24} N2_i - \underset{(-4.69)}{0.36} N3_i - \underset{(-7.27)}{0.51} N4_i - \underset{(-9.51)}{0.68} N5_i - \underset{(-12.57)}{0.89} N6_i,$$

$$i = \overline{1, 1637}: R_{adj}^2 = 0.41 \qquad (3)$$

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[5] Աշխատունքի հետազոտության անվանագերծված միկրոտվյալների բազա և հարցաթերթը (ըստ տնային տնտեսության անդամների)

Скорректированные коэффициенты детерминации получились невысокими, что объясняется не включением в модели других переменных, связанных с душевыми расходами. Однако, исходя из содержания поставленной задачи и того факта, что все коэффиценты при зависимых переменных статистически значимы, считаем возможным использовать их для построения шкалы эквивалентности (в скобках приведены t-значения соответствующих коэффициентов.).

Исходя из содержательной интерпретации решаемой задачи и того факта, что все коэффиценты объясняющих переменных статистически значимы (гипотезы о равенстве нулю коэффициентов отвергаются с 0.05 уровнем значимости), эти коэффициенты были использованы для построения шкалы эквивалентности.

Из уравнений (1), (2) и (3) видно, что все коэффициенты при переменных $N2, N3, \ldots, N6$ отрицательны. Это означает, что при фиксированном значении душевого дохода, душевые расходы в домохозяйствах большего размера уменьшаются, что подтверждает факт наличия экономии на больших домохозяйствах. Однако, в (1) и (2) эффект экономии проявляется начиная не от $N2$, как в (3), а соответственно от $N5$ и $N4$. Остальные дихотомические переменные были статистически не значимыми в (1) и (2) и поэтому были исключены из них.

Таким образом, результаты регрессионного анализа подтверждают наличие экономии в больших домохозяйствах, однако если в столице и в других городах такая экономия проявляется только в домохозяйствах с четырьмя и более членами, то в сельских местностях она дает о себе знать уже в домохозяйствах с двумя и более членами.

На основе формул (1), (2) и (3) была построена шкала эквивалентности:

Таблица 1. Шкала эквивалентности

	Размер домашних хозяйств					
	1	**2**	**3**	**4**	**5**	**6 и более**
В Ереване	1	2	3	4	4,91	5,77
В других городах	1	2	3	3,91	4,82	5,76
В сельских местностях	1	1,79	2,49	3,09	3,6	4,01

Коэффициенты означают, что, например, если домохозяйство в сельской местности с одним членом получает одну единицу дохода и при этом имеет конкретный уровень потребления, то домохозяйству с двумя членами, для достижения того же уровня потребления достаточно иметь 1.79 единиц дохода вместо 2, как в случае домохозяйств столицы или других городов и т.д.

Таким образом, для сопоставления реального уровня жизни домохозяйств различного размера в отдельных территориальных единицах предлагаем привести сопоставляющие характеристики к эквивалентному уровню с помощью полученной шкалы эквивалентности.

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