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## АНАЛІЗ ФАКТОРІВ ВПЛИВУ НА ОБСЯГИ СВІТОВОЇ ТОРГІВЛІ

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## ANALYSIS OF FACTORS INFLUENCING THE WORLD TRADE VOLUMES

**Анотація.** В умовах глобалізації торговельної системи, яка набула безпрецедентних темпів, міжнародна торгівля стає все більше лібералізованою через зниження тарифів, яке відбувається в рамках преференційних режимів, спрощення процедур торгівлі, забезпечене цифровізацією торговельних процесів, що особливо спостерігається при проходженні товарами митних формальностей тощо. Водночас перелічені процеси супроводжуються посилення протекціоністських заходів у торговельних політиках країн. У такому контексті вагому роль відіграють нетарифні заходи регулювання торгівлі, такі як санітарні та фітосанітарні заходи, технічні бар'єри в торгівлі, ліцензування імпорту, спеціальні захисні заходи тощо. Наразі недостатньо оціненим залишається вплив заходів як тарифного, так і нетарифного регулювання на зміну обсягів світової торгівлі.

У статті проаналізовано динаміку зміни обсягів світової торгівлі за останні 24 роки, а також виокремлено ряд факторів, що мають безпосередній лінійний вплив на зазначені зміни. Метою дослідження є проведення ґрунтовного аналізу впливу тарифних і нетарифних заходів регулювання на динаміку світової торгівлі, а також прогнозування її обсягів у контексті сучасних глобалізаційних процесів. За допомогою багатофакторного регресійного аналізу виявлено зростаючу роль впливу кількості угод про вільну торгівлю (УВТ) між країнами та групами країн на обсяги торговельних потоків з огляду на те, що підписання міжнародних домовленостей такого типу дозволяє усунути існуючі бар'єри в торгівлі між партнерами, що призводить до значного зростання двосторонніх торговельних потоків. Крім того, продемонстровано, що вплив тарифних заходів у торгівлі все ще залишається значним, незважаючи на посилення застосування країнами нетарифних заходів регулювання з метою протекції внутрішнього ринку.

кції національних економічних інтересів. У рамках дослідження розраховано прогноз обсягів світової торгівлі на 2019—2021 рр. та порівняно отримані результати з прогнозними оцінками експертів СОТ.

**Ключові слова:** світова торгівля, тарифні заходи регулювання торгівлі, нетарифні бар'єри в торгівлі, санітарні та фітосанітарні заходи, технічні бар'єри в торгівлі, угода про вільну торгівлю, Світова організація торгівлі.

**Abstract.** In the context of globalization of trading system, which has gained unprecedented pace, international trade is becoming increasingly liberalized due to tariff reductions under preferential regimes, trade facilitation, digitalisation of trade processes, which is especially demonstrated within the passage of customs formalities, etc. At the same time, these processes are accompanied by increased protectionist measures in countries' trade policies. Under such circumstances non-tariff trade regulation measures such as sanitary and phytosanitary measures, technical barriers to trade, import licensing, special safeguards and so on play an important role. Currently, the impact of tariff and non-tariff regulatory changes in world trade remains underestimated.

The article analyzes the dynamics of changes in world trade volume over the past 24 years, and also identifies a number of factors that have a direct linear effect on these changes. The purpose of the study is to conduct a thorough analysis of the impact of tariff and non-tariff regulatory measures on the dynamics of world trade, as well as to forecast its volumes in the context of current globalization processes. Multivariate regression analysis reveals the growing role of the impact of free trade agreements (FTAs) between countries and groups of countries on trade flows, since the signing of the international agreements of this type eliminates the existing barriers to trade between partners, contributes to a significant increase in bilateral trade flows. In addition, it has been demonstrated that the impact of tariff measures in trade remains significant, despite the increasing use of non-tariff measures by countries to protect national economic interests. In the study global trade forecasts for 2019—2021 is calculated and compared the results obtained with the estimates of WTO experts.

**Key words:** world trade, tariff measures, non-tariff barriers to trade, sanitary and phytosanitary measures, technical barriers to trade, free trade agreement, World Trade Organization.

#### ANALYSIS OF FACTORS INFLUENCING THE WORLD TRADE VOLUMES

**Abstract.** In the context of globalization of trading system which has gained unprecedented pace, international trade is becoming increasingly liberalized due to tariff reductions under preferential regimes, trade facilitation, digitalisation of trade processes which is especially demonstrated within the passage of customs formalities, etc. At the same time, these processes are accompanied by increased protectionist measures in countries' trade policies. Under such circumstances non-tariff trade regulation measures such as sanitary and phytosanitary measures, technical barriers to trade, import licensing, special protective measures, etc. play an important role. Currently, the impact of both tariff and non-tariff regulatory changes in the world trade remains underestimated. The article analyzes the dynamics of changes in world trade volume over the past 24 years, and also identifies a number of factors that have a direct linear effect on these changes. The purpose of the study is to conduct a thorough analysis of the impact of tariff and non-tariff regulatory measures on the dynamics of the world trade as well as to forecast its volumes in the context of current globalization processes. Multivariate regression analysis reveals the growing role of the impact of free trade agreements (FTAs) among countries and groups of countries on trade flows, since the signing of such international agreements eliminates the existing barriers to trade among partners, contributes to a significant increase in bilateral trade flows. In addition, it has been demonstrated that the impact of tariff measures in trade remains significant, despite the increasing use of non-tariff measures by countries to protect national economic interests.

In the study global trade forecasts for 2019—2021 is calculated and the obtained results are compared with the estimates of WTO experts.

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JEL codes: F13, F40, F53, F62.

**Target setting.** Within the conditions of overall globalization of trade system processes of trade liberalization which are demonstrated in further decrease of tariff rate levels and implementation of simplification measures of trade procedures by countries such as accepting and processing of e-documents, establishment of minimal threshold for express dispatching, unification of customs procedures, implementation of «unified window» system evolve along with strengthening of protectionist measures which are used by both developed and developing countries. Moreover, unprecedented tempos of growing number of regional trade deals not only boost increase of world trade volumes due to granting preferential regimes to its sides, but also indicate creating a bigger number of local regulatory rules which appear to be a decent alternative to universal rules of multi-sided trade system developed within the World Trade Organization (WTO).

Over the past decade non-tariff measures of trade regulation have gone to the forefront as compared to tariff ones which are more predictable when taking into consideration that tariff rate levels are restricted for 163 countries and one customs area of the world. At the same time using non-tariff measures often appears to be of latent character which complicates proving the fact of their usage when a trade argument is initiated.

**Analysis of researches and publications.** Among scientific works where the issue of international trade policy influence onto volumes of world trade within the context of economic globalization is studied, it's worth mentioning the works of the following foreign and domestic scientists: J. Bhagwati, I. Burakovskiy, T. Hordeieva, T. Kalchenko, O. Kireev, S. Cohen, P. Krugman, R. Lawrence, H. Solodkovska, M. Trebilkok, E. Helpman, M. Hart, T. Tsyhankova, O. Shvydanenko, O. Yatsenko and others.

The issues of non-tariff regulation influence in international trade have become the object of thorough study of such scientists as R. Baldwin, J. Wilson, N. Horin, O. Hrebelynyk, A. Dirdorf, D. Deremer, H. A. Kireev, S. Liard, K. Mascus, F. Ruth, R. Feinberg, M. Ferrantino, R. Steiger, R. Stern and many others.

**Research methods.** When conducting the research, the following methods were used: general scientific and specialized methods including the method of logical and historical analysis in order to study the manner of world trade volume changes dynamics during 1995—2018 as well as to establish relationship of cause and effect between trade flow volume changes and changes in other sectors of global economic system; the graphic method was used in order to illustrate the dynamics of world trade development and its growing tempo and to build a line of trade volume changes trend in order to forecast them in short-term prospect.

The method of regressive analysis was used in order to define separate and combined influence of factors (e.g. average level of tariff rate for all goods groups,

number of sanitary and phytosanitary measures, technical barriers to trade, number of free trade deals, average monthly number of trade arguments which are dealt with by WTO, a number of WTO members) on result indication (world trade volume) and to define number estimation of the influence using corresponding criteria taking into account changes in time. The method of correlation analysis was used in the article as well — in order to define interrelation of six random factor quantities chosen to establish degree of models adequacy and expediency of simultaneous including all of the chosen factors into the model. The time series method was used to define the structure of time series of world trade volumes and to forecast them for 2019—2021.

**Uninvestigated parts of general matter defining.** Over the last twenty years considerable changes have been undergone by not only international economic environment which has become global and thus more transparent, dynamic and unpredictable, but trade policy realized by countries of the world arena as a response to modern challenges as well. The necessity for globally leading countries as well as for least developed and developing countries to protect national economic interests has led to strengthening of protectionist measures in trade which usually are non-tariff measures of its regulation as such that may be used implicitly. However, currently administration of custom fees which is a tool of tariff regulation is still the most popular and generally used measure of trade influence. Under such conditions influence of both influencing factor groups on world trade volume is expedient.

**The research objective** is to conduct thorough analysis of tariff and non-tariff regulation measures influence on world trade dynamics as well as to forecast its volume within the context of modern globalization processes.

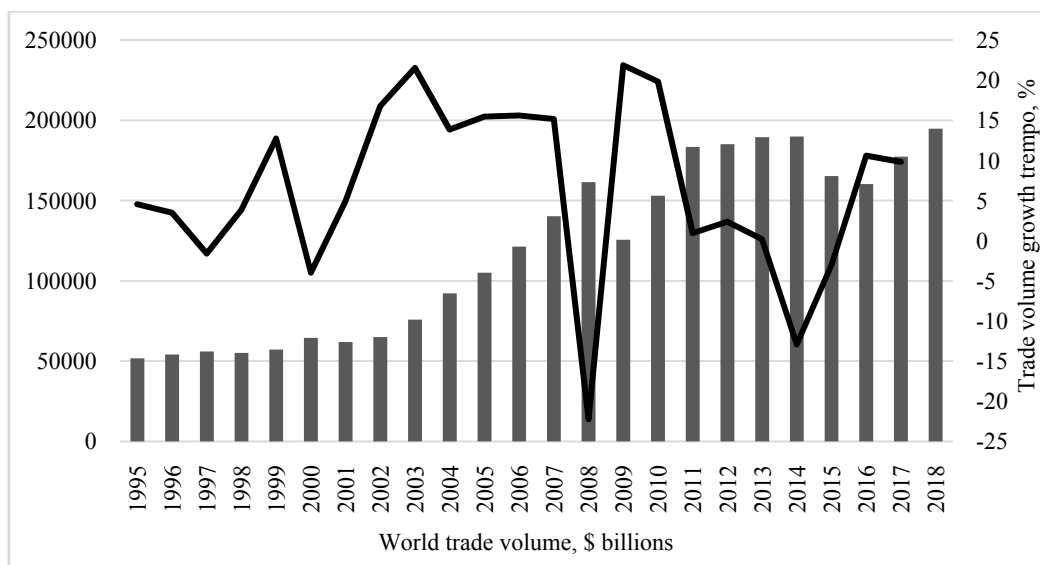
**The statement of basic material.** Modern international trade is characterized firstly with integration process dynamism caused by international trade liberalization based on harmonization of WTO trade rules and entering into new regional trade agreements; secondly, with growth tempo decrease mostly connected to economic development deceleration of industrially developed countries and the world economy on the whole; thirdly, with disproportionality of trade intensity caused by the difference between countries' and world regions' social-economic development [1].

The change trend of world trade volume over the last 24 years may be generally defined as positive despite considerable volume decline in 2009 as a result of world financial crises which led to decrease of paying capacity of countries and during 2015—2016 because of appreciable prices growth caused by currency rates instability (pic. 1).

Trade volume growth in 2018 was limited by a number of factors, particularly, by implementation of additional tariff and non-tariff measures which effect consumer goods trade, deceleration of global economic growth tempo, growing instability on financial markets and realization of tougher (as compared to others) monetary policy by developed countries [3].

When retrospectively looking at dynamics of world trade volume change since foundation of WTO in 1995, it becomes clear that in different years dominant influence was possessed by different factor groups: at first, they were levels of tariff rate for agricultural and industrial goods, then along with growing anxiety of producers and consumers due to healthcare issues and animals and plants safety, sanitary and phytosanitary measures (SPM) gained greater role as well as technical barriers to trade. Currently, non-tariff measures (which are protectionist in their

essence) are often used by countries and they are as follows: quantity limitations, import quotas, antidumping, protective and compensation measures, and when implemented, they provoke dissatisfaction of a number of their key trade partners who initiate considering these issues by the WTO Argument Regulation Body.



Pic. 1. World trade volume dynamics during 1995—2018, \$ billions

*Source:* made by the authors based on [2] and own calculations.

Over the last decade unprecedented growth of a number of free trade agreements (FTA) between countries or groups of countries has been observed against a background of active multi-sided agreements concluding which contain universal trade regulation rules for the majority of countries of global economic space, and it allows them to provide each other with preferential trade regime without the necessity to spread it over other trade partners, which due to majority of tariffs decrease up to 0 and precise regulation of using non-tariff measures, boosts considerable growth of trade turnover among countries and thus growth of general international trade volumes.

Moreover, we consider it to be reasonable to put forward a hypothesis which states that a change of world trade volumes directly depends on dynamics of membership expansion in the World Trade Organization as the biggest international organization which regulates trade relations and also monitors trade policies, a multi-sided negotiation forum and a ground for arguments resolving. Upon entering the organization, countries determine their tariffs (establish the highest level) and commit themselves not to use forbidden tools which distort trade or build barriers on its way. Thus, the bigger number of countries and customs areas get membership, the more liberalized trade becomes. As of today, 164 countries and areas are WTO members which is over 50 members more than 24 years ago, and currently it makes 98 % of the world trade [4].

So in order to build a multi-factor regressive model of effect on the world trade volume, let's try using six factors:  $X_1$  — medium level of tariff rates for all goods groups,  $X_2$  — a number of sanitary and phytosanitary measures (SPM) established by countries,  $X_3$  — a number of technical barriers to trade (TBT) established by countries,  $X_4$  — a number of free trade agreements (FTA) signed and ratified by countries,  $X_5$  — average monthly number of trade arguments solved by WTO,  $X_6$  — a number of WTO members (table 1).

*Table 1*

**FACTORS INFLUENCING WORLD TRADE VOLUME, 1995—2018**

	Trade volume, \$ billions	Medium tariff rate	Number of SPM	Number of TBT	Number of FTA	Number of arguments	Number of WTO members
	Y	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>
1995	5,176,236	6.44	198	388	44	25	112
1996	5,410,859	6.15	241	501	52	39	128
1997	5,599,525	5.42	298	847	58	50	132
1998	5,509,646	5.22	336	681	64	40	133
1999	5,722,820	5.21	445	697	69	30	135
2000	6,452,318	4.96	468	633	79	33	140
2001	6,195,068	5.38	776	574	87	22	143
2002	6,499,786	4.56	810	624	96	37	144
2003	7,589,983	4.57	856	897	108	26	146
2004	9,223,768	3.72	926	724	118	19	148
2005	10,502,489	3.5	856	897	131	11	149
2006	12,127,770	3.16	1156	1,032	148	20	149
2007	14,020,770	3.38	1196	1,229	159	12	151
2008	16,148,882	3.31	1264	1,523	176	18	153
2009	12,555,786	3.2	1019	1,893	195	13	157
2010	15,302,149	3.3	1408	1,869	207	17	157
2011	18,339,071	3.53	1391	1,773	218	8	157
2012	18,512,641	2.89	1219	2,196	234	27	157
2013	18,949,886	3.04	1299	2,140	245	20	160
2014	18,985,777	2.87	1634	2,240	257	13	160
2015	16,531,558	3.06	1681	1,977	268	12	162
2016	16,031,517	2.98	1392	2,332	280	17	164
2017	17,732,796	2.59	1479	2,580	289	17	164
2018	19,476,196	2.55	1632	3,065	292	38	164

*Source:* madebytheauthors based on [2, 5—8].

First of all, it's necessary to define the dependence of world trade volume ( $Y$ ) from each of the chosen factors. To do so, let's build six single-factor linear regressions (one-sided stochastic linear dependences between random index value ( $Y$ ) and one factor ( $X_1, \dots, X_6$ ) which possess relationship of cause and effect and factor change excludes index change [9]) (table 2).

Table 2

SINGLE-FACTOR LINEAL REGRESSIVE MODELS

Y(X1)		Y(X2)		Y(X3)	
-4,164,780	28,508,740	10,661,2	1,372,583.2	6,400.03	3,141,639.5
424,060.3	1,747,631	908.99	1,000,500.4	570.13	903,361.2
0.814	2,385,979	0.862	2,055,823.5	0.851	2,134,498.7
96.45	22	137.56	22	126.012	22
Y(X4)		Y(X5)		Y(X6)	
61,201.2	2,145,994.5	-274,789.6	18,482,444.3	355,927.2	-40,845,137.8
4,121.6	747,331.8	85,663.1	2,218,713.3	42,327.4	6,311,432.33
0.909	1,667,643.8	0.319	4,569,948.7	0.763	2,697,006.2
220.48	22	10.29	22	70.7	22

Source: madebytheauthors based on own calculation.

Firstly, let's analyze determination coefficients ( $R^2$ ) of each regressive model, statistic indices which are used in models as an extent of dependent variable variation dependence ( $Y$ ) from independent variables variation ( $X_1, \dots, X_6$ ) and indicates how the received observations confirm the accuracy of the built model [10]:

- $R_1^2 = 0,814$ , that's why the model with medium level of tariff rate as an independent variable, explains 81 % of world trade volume change;
- $R_2^2 = 0,862$ , that's why the model with a number of used SPM as an independent variable, explains 86 % of world trade volume change;
- $R_3^2 = 0,851$ , that's why the model with a number of used TBT as an independent variable, explains 85 % of world trade volume change;
- $R_4^2 = 0,909$ , that's why the model with a number of FTA as an independent variable, explains 90 % of world trade volume change;
- $R_5^2 = 0,319$ , that's why the model with a number of trade arguments as an independent variable, explains only 32 % of world trade volume change;
- $R_6^2 = 0,763$ , that's why the model with a number of WTO members as an independent variable, explains 76 % of world trade volume change.

Based on the results of prior analysis it's possible to draw a preliminary conclusion about including  $X_5$ (a number of trade arguments) to the model being unreasonable due to a low level of influence on the dependant variable. At the same time, it's worth mentioning that  $X_4$ index (a number of FTA) possesses the biggest influence.  $X_1$ index (medium level of tariff rate) has a reverse effect which means the less rate level, the bigger trade volume appears

Secondly, let's define the presence of correlation ( $r$ ) among influence factors (six independent variables) with the help of CORREL function (table 3).

Table 3

**CORRELATION COEFFICIENTS AMONG MODEL INDEPENDENT VARIABLES**

	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>
X <sub>1</sub>	1					
X <sub>2</sub>	-0.92583	1				
X <sub>3</sub>	-0.84339	0.859421	1			
X <sub>4</sub>	-0.90606	0.940755	0.9654449	1		
X <sub>5</sub>	0.590264	-0.63052	-0.3568113	-0.529954	1	
X <sub>6</sub>	-0.94752	0.936285	0.8534699	0.9192801	-0.5564525	1

Source: made by the authors based on own calculations.

The results of the conducted analysis at this stage demonstrate the presence of strong correlation among the selected influence factors and thus simultaneous including of six independent variables to the model being unreasonable since all model parameters are not significant in such a case. In order to build an efficient dependence model, let's choose two most significant factors and add a universal variable — a number of time series.

Thus, an optimal model of world trade volume dependence from the most suitable influence factor of all will be built based on the following data (table 4) where world trade volume (\$ billions) is  $Y$ , medium level of tariff rate (%) is  $X_1$ , a number of free trade agreements (FTA) is  $X_4$ , and a number of time series is  $t$ .

Table 4

**INITIAL DATA OF MODEL OF WORLD TRADE VOLUME DEPENDENCE  
FROM MEDIUM LEVEL OF TARIFF RATE, NUMBER OF SIGNED FTA  
AND NUMBER OF TIME SERIES, 1995—2018**

Год	Y	X <sub>1</sub>	X <sub>4</sub>	t
1995	5,176,236	6.44	44	1
1996	5,410,859	6.15	52	2
1997	5,599,525	5.42	58	3
1998	5,509,646	5.22	64	4
1999	5,722,820	5.21	69	5
2000	6,452,318	4.96	79	6
2001	6,195,068	5.38	87	7
2002	6,499,786	4.56	96	8
2003	7,589,983	4.57	108	9
2004	9,223,768	3.72	118	10
2005	10,502,489	3.5	131	11
2006	12,127,770	3.16	148	12
2007	14,020,770	3.38	159	13



Ending table 4

Pik	Y	X1	X4	t
2008	16,148,882	3.31	176	14
2009	12,555,786	3.2	195	15
2010	15,302,149	3.3	207	16
2011	18,339,071	3.53	218	17
2012	18,512,641	2.89	234	18
2013	18,949,886	3.04	245	19
2014	18,985,777	2.87	257	20
2015	16,531,558	3.06	268	21
2016	16,031,517	2.98	280	22
2017	17,732,796	2.59	289	23
2018	19,476,196	2.55	292	24

Source: madebythe authors based on [2, 5, 8].

Using LINEST function, we receive estimations of lineal regression equation parameters which are given in a table (table 5) where:

- $a_0, a_1, a_2, a_3$  are unknown regression coefficients which are to be estimated;
- $S_{a0}, S_{a1}, S_{a2}, S_{a3}$  are standard deviations of regression coefficients;
- $R^2$  is a determination coefficient which shows what fraction of general index variation is comprised by the determined component which is defined and taken into account by regression, or what variation fraction it explains;
- $s$  is a standard regression mistake which is a size index and provides absolute standard deviation of factual indices with regard to regression;
- $F_{estim}$  is a calculating value of Fisher  $F$  criterion;
- $n$  is a number of observations [11].

Table 5

TABLE OF PARAMETERS ESTIMATION OF LINEAL REGRESSION EQUATION

$a_3$	$a_2$	$a_1$	$a_0$
$S_{a3}$	$S_{a2}$	$S_{a1}$	$S_{a0}$
$R^2$	s	N/D	N/D
$F_{estim}$	n	N/D	N/D

Source: [11].

Thus, having done the calculations, we receive the following parameters estimation of lineal regression equation (table 6).

Table 6

TABLE OF FACTUAL PARAMETERS ESTIMATION OF LINEAL REGRESSION EQUATION

-1,160,433.694	129,832.1026	-2,227,879.719	14,391,006
588,454.3468	42,080.49397	897,275.084	5,047,069
0.930933928	1,526,027.465	N/D	N/D
89.85926139	20	N/D	N/D

Source: madebytheauthorsbasedonowncalculations.

Accordingly, we receive the following equation of multi-factor lineal regression:

$$Y = 14,391,006 - 2,227,879.7 * X_1 + 129,832.1 * X_2 - 1,160,433.7 * X_3.$$

The values of regression coefficients received as a result of observations embody these coefficients statistic estimations which are received based on limited information. Due to limitation of the selected data it becomes possible that true parameter value equals to 0 whereas the estimated differs from 0. In such a case, it's necessary to check statistic magnitude of regression parameters. Consequently, let's check it for  $a_0, a_1, a_2, a_3$  regression coefficients that are estimated, using Student's  $t$  criterion. To do so, let's calculate estimated values of  $t$  statistics:

$$t_{0\text{estim}} = 14,391,006 / 5,047,069 = 2.851359254;$$

$$t_{1\text{estim}} = -2,227,879.719 / 897,275.084 = -2.482939467;$$

$$t_{2\text{estim}} = 129,832.1026 / 42,080.49397 = 3.085327438;$$

$$t_{3\text{estim}} = -1,160,433.694 / 588,454.3468 = -1.972002927.$$

All parameters estimations of the received equation may be seen as considerable since their estimated values for  $t$  statistics module exceed or are approximately equal to critical value  $t_{\text{table}} = 2,086$  ( $n=20$ ) at significance level of 5 %.

To be confident let's check the model adequacy using Fisher's  $F$  criterion. Estimated value of Fisher's  $F$  criterion is equal to 89.86. For table value  $k_1=3, k_2=20-3-1=16$  thus table value is equal to 3.24. Consequently, a conclusion can be drawn that the model may be considered corresponding with observation data because 89.86 is more than 3.24.

Determination coefficient ( $R^2$ ) for the given model is equal to 0.930933928. In other words, the model explains 93 % of world trade volume change; the other 7 % is determined by the factors being outside the model. The received determination coefficient value for the model may be considered significant.

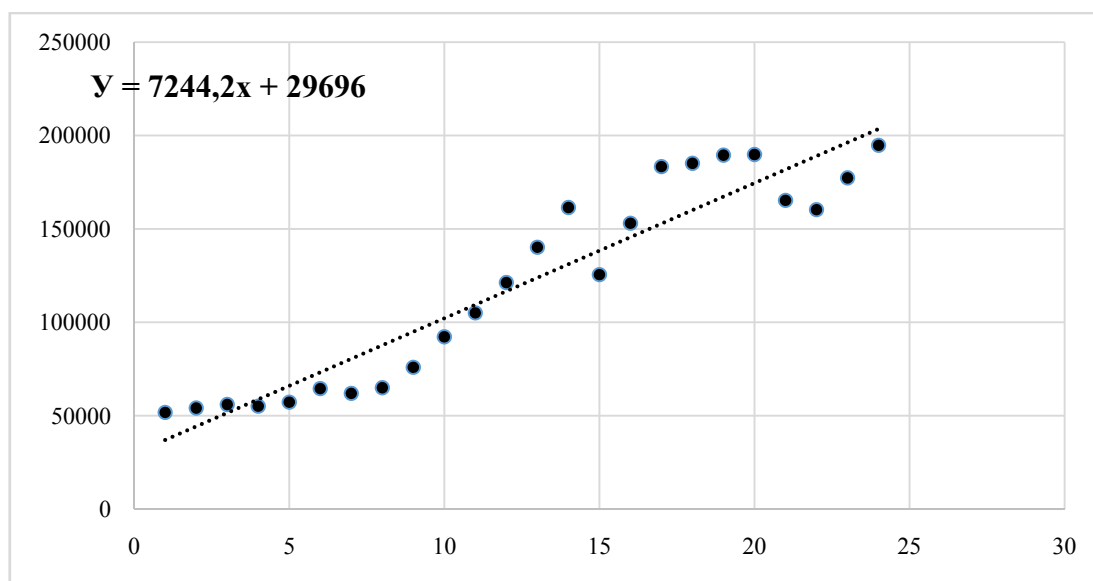
Having estimated factors of influence on world trade volume, the logical question concerning future perspectives of its dynamics change rises.

The world trade will continue reflecting the results of growing usage of non-tariff measures by countries, thus its volume growth will get slower in 2019 and 2020 than expected and than in 2018 due to growing degree of trade tension and rising level of economic uncertainty. WTO experts expect that goods trade volume will decrease from 3 % in 2018 to 2.6 % in 2019. In their opinion, trade volume growth may be reestablished at 3 % in 2020, but it will directly depend on trade tension reduction among the key global trade system members [12].

Within the context we consider it reasonable to make own forecast on world trade volume for 2019—2021 using the method of time series analysis. Judging by pic. 2 we can see that in spite of drastic index fall in 2009 linked to the consequences of the world financial crisis and despite its considerable decrease during three years in a row (2015-2017) due to growing tension in trade relations among countries because of protectionist measures used by them, the growing trend character over the last 24 years since the WTO foundation has remained positive.

The world trade volume forecast for 2019 is equal to \$210,801 billion, for 2020 — \$218,045.2 billion and for 2021 — \$225,289.4 billion. This forecast may be

considered realistic since the deviation is equal to 0.0897 % — approximately 1 %  $((2,885,964-19,546.47)/100)$  which makes less than 5 % (table 7).



Pic. 2. World trade volume trend line during 24 years

Source: made by the authors based on own calculations.

Table 7

WORLD TRADE VOLUME FORECAST FOR 2019—2021

1995	1996	1997	1998	1999	2000	2001	2002	2003
51,762.4	54,108.6	55,995.3	55,096.5	57,228.2	64,523.2	61,950.7	64,997.9	75,899.8
1	2	3	4	5	6	7	8	9
36,940.2	44,184.4	51,428.6	58,672.8	65,917	73,161.2	80,405.4	87,649.6	94,893.8
2004	2005	2006	2007	2008	2009	2010	2011	2012
92,237.7	105,024.9	121,277.7	140,207.7	161,488.8	125,557.9	153,021.5	183,390.7	185,126.4
10	11	12	13	14	15	16	17	18
102,138	109,382.2	116,626.4	123,870.6	131,114.8	138,359	145,603.2	152,847.4	160,091.6
2013	2013	2015	2016	2017	2018	2019	2020	2021
189,498.9	189,857.8	165,315.6	160,315.2	177,327.9	194,761.9			
19	20	21	22	23	24	25	26	27
167,335.8	174,580	181,824.2	189,068.4	196,312.6	203,556.8	210,801	218,045.2	225,289.4

Source: made by the authors based on own calculations.

So the received results of forecast values estimations for 2019 and 2020 approximately correspond to growth tempo predicted by WTO experts — on average 3 %.

**Conclusions.** Taking into account significant changes in directions and tools used by countries for realizing trade policy over the last two decades, it's established that currently tariff trade regulation methods retain vital influence mechanism on world trade volume but it's less popular and less frequently used as compared to non-tariff measures, particularly sanitary and phytosanitary ones as well as technical barriers to trade.

As a result of the conducted analysis, it's established that considerable role in trade volume correcting is increasingly played by free trade agreements which boost trade regime liberalization between the sides and simultaneously generating own regulating norms which are becoming an alternative to universal multi-sided rules introduced by the World Trade Organization. Meanwhile, presently the role of tariff trade regulating methods still remains considerable since it is a universal tool of quantity regulation of goods trade flow, but taking into consideration that the majority of countries (which comprise 98 % of the world trade) are WTO members who have established their tariff rates upon entering the organization, their reverse proportional influence on trade turnover volume is transparent and predictable.

Estimated forecast of world trade volume change proofs continuation of positive tendency which was traceable in 2018. Under such conditions the world trade volume will increase by 3 % annually during at least three following years.

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