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Forecasting Ukraine's UEFA Ranking in a Crisis Context: Regression Analysis to 2030

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Abstract

Background and Study Aim. The performance of national football associations in UEFA tournaments reflects not only athletic success but also institutional stability and resource sustainability. Since 2014, and particularly following the full-scale Russian invasion in 2022, Ukrainian football has faced unprecedented disruption, resulting in the decline of its UEFA association coefficient. This study aims to forecast Ukraine's UEFA national association coefficient through 2030 using regression-based models, thereby identifying long-term performance risks under crisis conditions.

Material and methods. The study is based on secondary data from official UEFA sources covering the period 2014–2025, including national and club coefficients in the Champions League, Europa League, and Conference League. Linear and exponential regression models were developed in IBM SPSS Statistics 29.0 to forecast future coefficients for the 2026–2030 seasons. Model fit was assessed through R^2 , RMSE, MAE, MAPE, and BIC values to ensure predictive accuracy and reliability. Only statistically significant models ($p < 0.01$) were included in the final analysis.

Results. Both models demonstrated high explanatory power ($R^2 = 0.987$ for linear; 0.974 for exponential). The linear model was selected as optimal, with an average forecast deviation of 1.78%. The predicted trend shows a decline in Ukraine's UEFA coefficient from 24.4 in 2025 to approximately 14.5 by 2030 ($\approx 60\%$ decrease), implying a drop in ranking from 23rd to around 32nd place. However, the model is univariate and does not account for exogenous variables such as geopolitical instability, financial investment, player mobility, or UEFA policy reforms, which may alter real-world outcomes. This limitation defines the scope of the statistical projection.

Conclusions. Regression-based forecasting proved effective for analyzing long-term dynamics of national association coefficients under crisis. The findings highlight systemic vulnerabilities in Ukrainian football and the need for adaptive recovery strategies and international cooperation. The methodology can be applied to other sports systems facing political or economic instability to assess resilience and institutional performance.

Keywords: UEFA coefficient, regression analysis, Ukraine, sport management, European football, performance forecasting.

Анотація

Прогнозування рейтингу України в системі УЄФА в умовах кризового контексту: регресійний аналіз до 2030 року

Передумови та мета дослідження. Результативність національних футбольних асоціацій у турнірах УЄФА відображає не лише спортивні досягнення, але й інституційну стабільність та сталу забезпеченість ресурсами. Починаючи з 2014 року, а особливо після повномасштабного російського вторгнення у 2022 році, український футбол зазнав безпрецедентних потрясінь, що призвело до зниження коефіцієнта національної асоціації України в рейтинговій системі УЄФА. Метою цього дослідження є прогнозування коефіцієнта національної асоціації України в УЄФА до 2030 року з використанням регресійних моделей, а також виявлення довгострокових ризиків спортивної результативності в умовах кризового середовища.

Матеріал і методи. Дослідження ґрунтується на вторинних даних з офіційних джерел УЄФА за період 2014–2025 років, зокрема щодо національних і клубних коефіцієнтів у Лізі чемпіонів, Лізі Європи та Лізі





конференцій. Для прогнозування значень коефіцієнтів на сезони 2026–2030 років було застосовано лінійну та експоненціальну регресійні моделі з використанням програмного забезпечення IBM SPSS Statistics 29.0. Якість моделей оцінювали за показниками R^2 , RMSE, MAE, MAPE та BIC для забезпечення точності та надійності прогнозування. До фінального аналізу включалися лише статистично значущі моделі ($p < 0,01$).

Результати. Обидві моделі продемонстрували високу пояснювальну здатність ($R^2 = 0,987$ для лінійної; $R^2 = 0,974$ для експоненціальної). Оптимальною було визначено лінійну модель із середнім відхиленням прогнозу 1,78%. Прогнозована тенденція свідчить про зниження коефіцієнта України в УЄФА з 24,4 у 2025 році до приблизно 14,5 у 2030 році (близько 60% зниження), що передбачає падіння рейтингової позиції з 23-го до орієнтовно 32-го місця. Водночас модель має одновимірний характер і не враховує зовнішні фактори, зокрема геополітичну нестабільність, обсяги фінансування, мобільність гравців або можливі зміни політики УЄФА, які можуть вплинути на реальні показники. Ця обставина визначає межі статистичного прогнозу.

Висновки. Регресійне прогнозування виявилось ефективним інструментом аналізу довгострокової динаміки коефіцієнтів національних асоціацій в умовах кризових впливів. Отримані результати підкреслюють системні вразливості українського футболу та актуалізують потребу в розробці адаптивних стратегій відновлення й міжнародної співпраці. Запропонована методологія може бути застосована до інших спортивних систем, що функціонують в умовах політичної або економічної нестабільності, з метою оцінювання їх інституційної стійкості та результативності.

Ключові слова: коефіцієнт УЄФА, регресійний аналіз, Україна, спортивний менеджмент, європейський футбол, прогнозування результативності.

Introduction

Football is among the most popular sports globally and in Ukraine, and the success of domestic clubs on the international stage serves as an important indicator of their competitiveness. The participation of Ukrainian teams in tournaments under the auspices of the Union of European Football Associations (UEFA) is not only prestigious but also a significant factor in the development of football in the country, especially in crisis conditions. Forecasting the performance of Ukrainian clubs in European competitions offers insight into their future prospects, identifies key success factors, and informs the development of performance improvement strategies.

Football has long held a central place in Ukrainian culture, serving not only as a source of national pride but also as a platform for international representation. Since gaining independence, Ukrainian football clubs have consistently competed in elite European tournaments, often achieving significant results and maintaining a strong position in the continental rankings [1].

However, since 2014 – and particularly following the full-scale Russian invasion in 2022 – the Ukrainian football system has faced unprecedented challenges. The ongoing war has disrupted training infrastructure, displaced clubs, reduced funding, and limited the ability of teams to perform at their full potential in international competitions top [2–4]. As a result, Ukraine's standing in the UEFA association rankings has steadily deteriorated, falling from 8th position in 2015 to 23rd by 2025 [5]. The impact of war and geopolitical instability on national sports performance is

a multidimensional issue, often underexplored in quantitative sports analytics. In Ukraine's case, disruption of domestic football calendars, forced relocation of clubs, and infrastructural damage have compounded challenges, leading to measurable declines in performance on the European stage. As Ukraine's domestic clubs face severe logistical and financial constraints, their capacity to compete with fully resourced European counterparts has diminished, directly affecting the national UEFA coefficient [6].

Armed conflict disrupts the functioning of social institutions, including sport. Scholars have examined how sport reinforces national identity and symbolic power, especially in contested or divided societies [7], and how it can serve as a platform for peacebuilding and international dialogue [8, 9]. Yet, little is known about how ongoing warfare affects a nation's competitive standing in international sport systems such as UEFA. This study addresses that gap through a regression-based forecast of Ukraine's national coefficient under crisis conditions.

The UEFA association coefficient (AC) reflects each national federation's five-year club performance across the UEFA Champions League, Europa League, and Conference League. It is used to allocate tournament slots and seeding positions [10, 11].

This study provides a regression-based forecast of Ukraine's UEFA association coefficient through 2030, using historical performance data. While the observed decline in Ukraine's ranking coincides with crisis conditions, the analysis does not incorporate war-related variables nor attempts to establish causality. Instead, it focuses



exclusively on projecting the likely trajectory of the coefficient based on past trends.

A sustained decline in UEFA ranking may reduce Ukraine's access to European competitions, financial inflows, and player visibility, thereby exacerbating structural imbalances in the domestic league. These risks underline the importance of forecasting coefficient dynamics for evidence-based sport governance.

Although existing literature has addressed the broader political and economic effects of war on sport [12–16], there is a lack of quantitative studies that statistically project long-term institutional performance under such conditions. This paper contributes to filling that gap by offering a data-driven, methodologically transparent forecast of a UEFA national association ranking during a period marked by instability.

The purpose of the research to forecast Ukraine's UEFA national association coefficient through 2030 using regression-based models, thereby identifying long-term performance risks under crisis conditions.

Research materials and methods

The results of the performances of Ukrainian football clubs in UEFA competitions (UEFA Champions League, UEFA Europa League and UEFA Conference League) over an eleven-season period were analysed. Ukraine's UEFA association coefficient was chosen as the evaluation criterion, as an indicator of the national rating of Ukraine. Regression analyses were applied to construct the forecasting model. Based on the results of Ukrainian football Clubs' performances in UEFA competitions (2014 – 2025), a linear and an exponential regression model were developed. To ensure the quality of predictions for UEFA AC values for Ukraine up to 2030, regression analysis was conducted using IBM SPSS Statistics 29.0.

Data Collection

This study is based on secondary data collected from official UEFA sources, including the UEFA association coefficient [5], UEFA clubs coefficient [17] rankings between 2014 and 2025, analysis of football clubs statistics in UEFA Conference League (UECL) rankings between 2021 and 2025 [18], analysis of football clubs statistics in UEFA Champions League (UCL), UEFA Europa League (UEL) rankings between 2014 and 2025 [19,20], analysis of matches of the Association of Professional Football Clubs of Ukraine "PREMIER LEAGUE" [21].

Results of Ukrainian football clubs in UEFA (Champions League, Europa League and Conference League), the season club coefficients and the club coefficients for each clubs, which participated in UEFA competitions, the Ukrainian season

association coefficient, the Ukrainian association coefficient and Ukraine's position in the ranking UEFA were analysed from 2014 to 2025.

The observed values of Ukraine's association coefficients for each season were compiled to form a time series dataset spanning 11 years (2014 – 2025). This dataset served as the basis for constructing predictive models aimed at estimating future coefficients for the period 2026 – 2030.

Calculation of Association Coefficient (AC)

UEFA calculates the coefficient of each club and association each season based on the clubs' results in the UEFA Champions League, UEFA Europa League and UEFA Conference League. The associations' positions in the UEFA access list are determined as the sum of five-season association coefficients established at the end of the season. The season coefficient of an association is calculated by adding up the points obtained by all its clubs in each season of the UEFA and then dividing the total by the number of clubs from that association that took part in the three UEFA club competitions in question [10]. The final association coefficient used for UEFA rankings is the sum of five consecutive seasonal coefficients. These rankings determine how many clubs from each country qualify for European competitions and at what stage they enter, making the AC both a performance indicator and a critical factor in strategic football development [11].

Model Specification

Two types of regression models were employed to analyse historical data and forecast future association coefficients:

1. Linear Regression:

$$Y = \beta_0 + \beta_1 X + \varepsilon$$

Where Y is the dependent variable, X is the independent variable, β_0 is the intercept, β_1 is the slope coefficient, and ε is the error term.

2. Exponential Regression:

$$Y = ae^{(\beta X)}$$

Where Y is the dependent variable, X is the independent variable, a is the intercept, β is the slope coefficient [22].

Both models were estimated using IBM SPSS Statistics 29.0.

Forecasting Procedure

Using the best-performing regression model, forecasts were generated for the years 2026 to 2030. Confidence intervals were computed to reflect the uncertainty associated with the projections. Results were visualized using line plots, including the predicted values and confidence bands. Although the applied regression models yield statistically robust projections, their univariate structure does not capture the influence of external shocks, policy changes, or non-linear



disruptions. This limitation is acknowledged and presents a direction for future multivariate and scenario-based modeling.

Results

The performance results of Ukrainian football clubs in UEFA competitions (UEFA Champions League, UEFA Europa League, and UEFA Europa Conference League), the season club coefficients (CC) and the club coefficients (CC) for each

Ukrainian football clubs, which participated in UEFA competitions, the season association coefficient (AC) of Ukraine, Ukraine's UEFA association coefficient and the country position in the ranking UEFA over an eleven-season period were analyzed. The national association coefficient (AC) was selected as the evaluation criterion, serving as an indicator of Ukraine's national ranking. The data are presented in Table 1. Figure 1 illustrates the changes that occurred in Ukraine's UEFA association coefficient between 2014 and 2025.

Table 1. Results of Ukrainian football teams in UEFA (UEFA Champions League (UCL), UEFA Europa League (UEL) and UEFA Conference League (UECL))

Seasons	Results of Ukrainian football clubs in UEFA (Champions League, Europa League and Conference League)	The season CC	CC	The season AC	AC	Ukraine's Position in the Ranking UEFA
2014/2015	1. Shakhtar – 1/8 final of UCL	17.000	77.000	10.000	45.166	8
	2. Dynamo Kyiv – 1/4 final of UEL	16.000	56.000			
	3. Dnipro – final of UEL	19.000	43.000			
	4. Metalist – Group Stage of UEL (4 place)	2.000	38.000			
	5. Chornomorets Odesa – 3rd qualifying round of UEL	1.000	9.000			
	6. Zorya Luhansk – play off UEL	1.500	1.500			
2015/2016	1. Shakhtar – Group Stage of UCL (3 place), 1/2 final of UEL	20.000	73.000	9.800	44.883	8
	2. Dynamo Kyiv – 1/8 of UCL	18.000	57.000			
	3. Dnipro – Group Stage UEL (3 place)	5.000	46.500			
	4. Zorya Luhansk – play off UEL	1.500	3.000			
	5. Vorskla Poltava – 3rd qualifying round UEL	1.000	3.000			
2016/2017	1. Shakhtar – 1/16 final of UEL	14.000	79.000	5.500	42.633	8
	2. Dynamo Kyiv – Group Stage of UCL (4 place)	8.000	59.000			
	3. Zorya Luhansk – Group Stage of UEL (4 place)	2.000	5.000			
	4. Vorskla Poltava – 3rd qualifying round UEL	1.000	2.000			
	5. Oleksandriya – 3rd qualifying round UEL	1.000	1.000			
2017/2018	1. Shakhtar – 1/8 final of UCL	19.000	81.000	8.000	41.133	8
	2. Dynamo Kyiv – 1/8 final of UEL	12.000	62.000			
	3. Zorya Luhansk – Group Stage of UEL (3 place)	4.000	9.000			
	4. Oleksandriya – play off UEL	1.500	2.500			
	5. Olimpik Donetsk – 3rd qualifying round of UEL	1.000	1.000			
2018/2019	1. Shakhtar – Group Stage UCL (3 place), 1/16 final of UEL	10.000	80.000	5.600	38.900	9
	2. Dynamo Kyiv – 1/8 final of UEL	11.000	65.000			
	3. Zorya Luhansk – play off UEL	2.500	11.500			
	4. Vorskla Poltava – Group Stage UEL (4 place)	3.000	5.000			
	5. Mariupol – 3rd qualifying round of UEL	2.000	2.000			
2019/2020	1. Shakhtar – Group Stage of UCL (3 place), 1/2 final of UEL	22.000	85.000	7.200	36.100	9
	2. Dynamo Kyiv – Group Stage of UEL (3 place)	6.000	55.000			
	3. Oleksandriya – Group Stage of UEL (4 place)	3.000	5.500			
	4. Zorya Luhansk – play off UEL	2.500	12.500			
	5. Mariupol – 3rd qualifying round of UEL	2.000	4.000			
2020/2021	1. Shakhtar – Group Stage UCL (3 place), 1/8 final of UEL	14.000	79.000	6.800	33.100	12
	2. Dynamo Kyiv – Group Stage UCL (3 place), 1/8 final of UEL	10.000	47.000			
	3. Zorya Luhansk – Group Stage of UEL (3 place)	5.000	15.000			
	4. Kolos Kovalivka – 3rd qualifying round of UEL	2.000	2.000			
	5. Desna – 3rd qualifying round of UEL	2.000	2.000			
2021/2022	Shakhtar – Group Stage of UCL (4 place)	6.000	71.000	4.200	31.800	12
	Dynamo Kyiv – Group Stage of UCL (4 place)	5.000	44.000			
	Zorya Luhansk – Group Stage of UECL (3 place)	5.000	18.000			
	Vorskla Poltava – 2-nd qualifying round UECL	1.500	4.500			
	Kolos Kovalivka – 3-nd qualifying round UECL	2.000	4.000			
2022/2023	1. Shakhtar – Group Stage of UCL (3 place), 1/8 UEL	11.000	63.000	5.700	29.500	14
	2. Dynamo Kyiv – Group Stage UEL	3.000	35.000			
	3. Dnipro-1 – 1/16 UECL	8.000	8.000			
	4. Zorya Luhansk – 3-nd qualifying round UECL	2.000	16.000			
	5. Vorskla Poltava – 2nd qualifying round UECL	1.500	6.000			
2023/2024	1. Shakhtar – 3-rd in Group Stage UCL, play-off UEL	10.000	63.000	4.100	28.000	18
	2. Dynamo Kyiv – play off UECL	2.500	26.500			
	3. Zorya Luhansk – 3-rd in Group Stage UECL	5.000	18.500			
	4. Dnipro-1 – play off UECL	2.500	10.500			
	5. Vorskla Poltava – 2nd qualifying round UECL	1.500	4.500			
2024/2025	1. Shakhtar – Group Stage UCL	11.000	52.000	3.600	24.400	23
	2. Dynamo Kyiv – 3rd qualifying round UEL	3.000	23.500			
	3. Kryvbas – 3rd qualifying round UEL	2.500	2.500			
	4. Dnipro-1 – 2nd qualifying round UECL	0	10.500			
	5. Polissya Zhytomyr – 2nd qualifying round UECL	1.500	1.500			

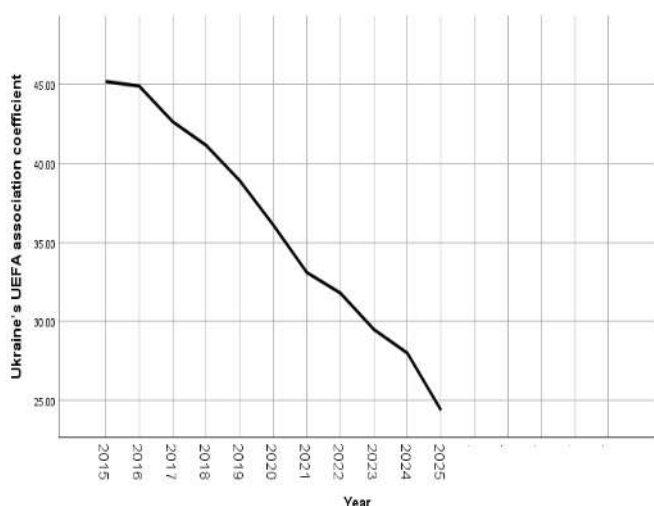


Figure 1. Dynamic of Ukraine's UEFA association coefficient for the period 2014 – 2025.

To predict the values of Ukraine's AC in the UEFA ranking, we used regression analysis in the IBM SPSS Statistics 29.0 software environment. Based on the data presented in Table 1, dynamic of Ukraine's association coefficient (2014 – 2025), were developed two regression models: linear and exponential. Figure 2 shows these regression models.

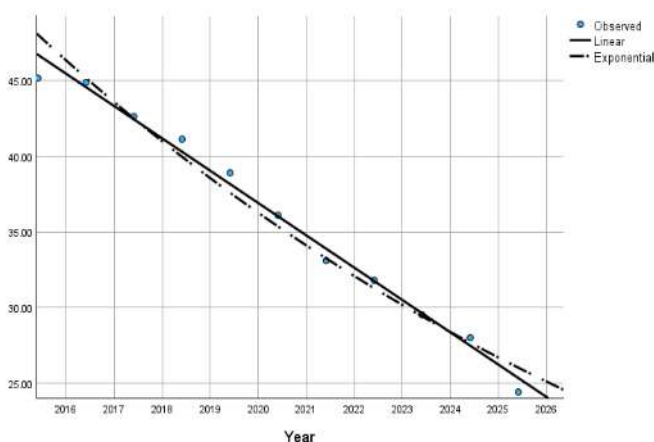


Figure 2. Regression models of Ukraine's UEFA association coefficient (2014 – 2025) linear and exponential.

Model Summary and Parameter Estimates for linear and Exponential models for Ukraine's asso-

Table 2. Model Summary and Parameter Estimates

Equation	R Square	F	df1	df2	Sig.	Parameter Constant	Estimates b1
Linear	0.987	822.76	1	9	<0.01	971.72	-6.776·10 ⁻⁸
Exponential	0.974	343.89	1	9	<0.01	1.601·10 ¹³	-1.944·10 ⁻⁹

Note 1: R Square (R²) - coefficient of determination; F - Fisher's criterion; df1, df2 - Degrees of freedom (numerator and denominator) for the F statistical test; Sig. - Significance level (p-value); Constant - The free term in the regression equation; b1 - Coefficient of the independent variable (slope of the line). Determines the effect of the independent variable on the dependent variable.

ciation coefficient are shown in table 2.

Linear Regression Equation:

$$Y = 971.72 - (6.776 \cdot 10^{-8}) \cdot X,$$

The coefficient of determination R² = 0.987.

The model is statistically significant, as Fisher's criterion F = 822.76 (P < 0.01).

Exponential Regression Equation

$$Y = (1.601 \cdot 10^{13}) \cdot e^{-1.944 \cdot 10^{-9} \cdot X}$$

The coefficient of determination R² = 0.974.

The model is statistically significant, as Fisher's criterion F = 343.89 (P < 0.01)

where:

- Y - the dependent variable (AC value),
- X - the independent variable (year).

Therefore, both models (linear and exponential) describe the data well, since they have a high value of the coefficient of determination R², which is close to 1, and are statistically significant, since the Fisher criterion is large enough (822.76 - for the linear model; 343.89 - for the exponential) at the level of statistical significance P < 0.01. But the linear model is better, since its R²=0.99 is higher than the exponential model (R² = 0.97). In both models, the negative regression coefficient indicates a downward trend in the dependent variable (the value of the AC) with an increase in the independent one (year).

To predict the change in Ukraine's association coefficient for 2026 – 2030, we use a linear regression equation, which model fit are shown in Table 3.

The forecast model has high accuracy, as R² = 0.987 indicates an almost perfect explanation of the relationship. Prediction errors remain low, as demonstrated by RMSE (0.850), MAE (0.632) and MAPE (1.78%). MaxAPE (4.169%) and MaxAE (1.539) indicate the largest deviations, which are acceptable for most applications. The low value of Normalized BIC (0.110) means that the model is not too complex but is well suited for forecasting. Therefore, the predictive model is well-fitted and has high predictive accuracy, which is confirmed by all metrics. In the table 3, percentiles show how statistical metrics (RMSE, MAPE, MAE) change for different parts of the data distribution. If the values are the same for all percentiles, this means that the model is stable and works equally well for all values.

Table 3. Model Fit

Fit Statistic	Mean	Min	Max	percentile						
				5	10	25	50	75	90	95
Stationary R^2	0.711	0.711	0.711	0.711	0.711	0.711	0.711	0.711	0.711	0.711
R^2	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987
RMSE	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850
MAPE	1.780	1.780	1.780	1.780	1.780	1.780	1.780	1.780	1.780	1.780
MaxAPE	4.169	4.169	4.169	4.169	4.169	4.169	4.169	4.169	4.169	4.169
MAE	0.632	0.632	0.632	0.632	0.632	0.632	0.632	0.632	0.632	0.632
MaxAE	1.539	1.539	1.539	1.539	1.539	1.539	1.539	1.539	1.539	1.539
Normalized BIC	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110

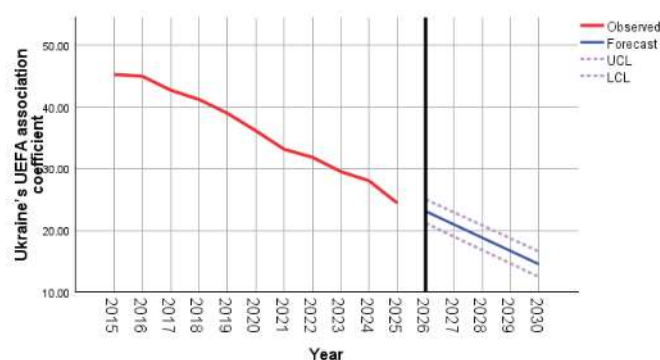
Note 2: Stationary R^2 - shows how well the model explains the variance in the stationaries data. A value of 0.711 (71.1%) indicates a good fit to the stationary series; R^2 - coefficient of determination, indicating how well the model explains the variation in the original data. A value of 0.987 (98.7%) suggests excellent model performance; RMSE (Root Mean Squared Error) - reflects the average magnitude of forecast errors. A value of 0.850 implies small forecast deviations; MAPE (Mean Absolute Percentage Error) - measures average absolute percentage error. A value of 1.780% means the forecast deviates on average by 1.78% from actual values; MaxAPE (Maximum Absolute Percentage Error) - The largest single percentage error in the forecast. A value of 4.169% means that at worst, a prediction deviated by 4.17%; MAE (Mean Absolute Error) - the average absolute error in original units. A value of 0.632 indicates the model's forecast is, on average, off by this amount; MaxAE (Maximum Absolute Error) - the largest absolute forecast error observed. Value of 1.539 shows the worst case deviation; Normalized BIC (Bayesian Information Criterion) - A metric for comparing models - lower values indicate better performance with less complexity. A value of 0.110 suggests significantly efficient model fit.

Table 4. Values of Ukraine's UEFA association coefficient for 2026 – 2030

Year	2026	2027	2028	2029	2030
Forecast	23.080	20.950	18.810	16.670	14.530
Upper Confidence Limit (UCL)	25.010	22.90	20.80	18.690	16.590
Lower Confidence Limit (LCL)	21.160	18.990	16.820	14.650	12.470

The accuracy of the predictive model is stable across the entire range of values. The forecast values of Ukraine's UEFA association coefficient for 2026 – 2030 are presented in Table 4.

Graphical representation of the existing and projected values of the values of Ukraine's UEFA association coefficient to 2030 presented in Figure 3.


Figure 3. Existing and forecast values of Ukraine's UEFA association coefficient to 2030.

Discussions

It is important to note that Ukrainian foot-

ball clubs have faced geopolitical instability since 2014, when Russia's annexation of Crimea and the onset of war in Donbas forced clubs like Shakhtar Donetsk to relocate. Despite the loss of home infrastructure, Shakhtar and other Ukrainian clubs continued to perform competitively at the European level. This earlier phase of disruption did not lead to a noticeable drop in the country's UEFA coefficient, suggesting a robust institutional capacity and adaptive flexibility [23].

Between 2014 and 2019, Ukrainian clubs – particularly Shakhtar Donetsk and Dynamo Kyiv – consistently contributed to a relatively stable national AC. During this period, Ukraine remained among the top 10 UEFA-ranked associations, with its clubs reaching the knockout phases of UEFA Champions League (UCL) and UEFA Europa League (UEL). For example, Shakhtar Donetsk's progression to the UEL semi-finals in 2019 – 2020 contributed significantly to the season AC of 7.200 (national AC - 36,1).

The onset of the COVID-19 pandemic (2020 – 2021 seasons) led to scheduling disruptions, match suspensions, and the absence of fans [24, 25]. Although Ukrainian clubs managed to main-



tain some presence in the UEFA rankings (12th place) with a national AC of 33,100 in the 2020 – 2021 season, the season AC began to decline slightly to 6,800, partly due to the early relegation of clubs such as Zorya Luhansk and Kolos Kovalivka, as well as the decline in the competitiveness of the domestic league [21].

It is important to note that the introduction of the UEFA Conference League (UECL) from the 2021/2022 season significantly affected the distribution of quotas for European countries, for Ukraine. Until 2021, there were only two tournaments: the UEFA Champions League (UCL) and the UEFA Europa League (UEL). Since 2021, a third tournament has been added - the UEFA Conference League (UECL) - the third most prestigious. As a result, smaller football associations, such as Ukraine, have begun to receive more chances to participate, but mainly in the less prestigious tournament (UECL), and not in the Champions League or the Europa League. Until 2021, clubs from Ukraine could directly qualify for the group stage of the Europa League. After the introduction of the Conference League, the same clubs that previously played in the Europa League now qualify for the UECL if they do not qualify for the Champions League.

There have also been changes to the qualification scheme: The champion of Ukraine starts in the Champions League qualifiers. Other clubs (2nd, 3rd, Ukrainian Cup winner) can either get into the Europa League or go down to the Conference League. All this complicates the path to the group stage of the Champions League and the European League: Ukrainian clubs now have more qualifying rounds. If clubs are eliminated from the Champions League or Europa League qualification stages, they are usually transferred to the UEFA Conference League rather than remaining in higher-tier tournaments. [26 – 28]. Although the position in the UEFA ranking was maintained, Ukraine took 12th place with a CA value of 31.800, the seasonal CA decreased significantly to 4.200.

The full-scale war in 2022 marked a major turning point. In the 2021 – 2022 season, although Ukrainian clubs had already exited UEFA competitions prior to February 2022, the impending crisis may have indirectly influenced preparation and performance. Key war-related impacts include: Forced relocation of training bases and staff; Inability to attract or retain foreign players; Budget reductions and staff layoffs; Declining domestic competition quality due to club disbandment and loss of infrastructure. By the 2022 – 2023 season, Ukrainian teams were forced to play their European matches in neutral venues (e.g., Poland, Slovakia, Germany), which undermined home-field advantage and logistical stability. Shakhtar Donetsk, Dnipro-1, and Dynamo Kyiv

faced early exits in UEL and UECL competitions during 2022 – 2023 and 2023 – 2024 seasons. Despite Shakhtar's brief group-stage presence in the UCL, no Ukrainian club progressed beyond Round of 16 in any UEFA competition. This performance gap is reflected in declining national AC to 24.400 and 23 position Ukraine in UEFA ranking [21, 29–31].

The 2024 – 2025 edition of the UEFA Champions League was used a new format, which also influence on Ukraine position in ranking UEFA [32]. The results of Ukrainian Football clubs in the 2024 – 2025 season AC 3.600 (national AC – 24.400) indicate a decline in competitiveness on the European stage. UEFA reform has made the path to success more difficult for teams from countries outside the top leagues, such as Ukraine. This highlights the need for Ukrainian clubs to adapt their strategies to the new conditions and find additional resources to increase their competitiveness.

According to sports resilience theory, resilience is not defined by the absence of adversity but by the capacity to adapt, reorganize, and maintain functionality under extreme pressure [33,34]. The resilience of Ukraine's national football system has been tested by sustained structural shocks – ranging from the loss of home venues to financial instability and organizational fragmentation. Despite these challenges, Ukrainian clubs have demonstrated elements of adaptive resilience, such as the relocation of training camps abroad, rapid logistical reorganization, and maintaining UEFA participation under war conditions. In this context, Ukraine's continued presence in UEFA competitions – even with declining coefficients – reflects a degree of psychological, organizational, and institutional resilience.

In parallel, disruption theory and crisis response frameworks emphasize how organizations navigate systemic threats and restructure operations under uncertainty [35, 36]. These models explain how prolonged war conditions can undermine institutional legitimacy, strain resources, and expose underlying vulnerabilities – such as the decentralization of football governance, budgetary shortfalls, and reduced youth player development. Unless mitigated through coordinated recovery strategies, these disruptions may continue to depress Ukraine's UEFA coefficient and limit long-term competitiveness.

The projected drop in Ukraine's UEFA ranking below the top 30 may carry wider implications beyond reduced European representation. These include the weakening of club competitiveness, loss of UEFA-driven revenues, and the erosion of structural incentives to invest in youth development or long-term strategy. Such effects, while not directly analyzed in this study, should be considered in future planning to avoid further sys-



temic degradation.

The declining trajectory of Ukraine's UEFA association coefficient revealed by our models reflects not only temporary performance gaps but also structural exposure to external shocks. Unlike earlier disruptions, which clubs could absorb without major ranking losses, the current crisis coincides with UEFA reforms that increase competition for limited slots. This interaction between domestic instability and institutional change helps to explain why the coefficient is projected to fall more sharply than in previous periods.

Limitations and Future Research

This study focuses exclusively on the statistical projection of Ukraine's UEFA association coefficient based on historical performance data. While the model demonstrates high predictive accuracy, it does not incorporate geopolitical dynamics, financial variables, changes in player transfers, or possible UEFA reforms that may impact the coefficient trajectory. Future research should integrate scenario-based modelling using multivariate approaches, including exogenous shocks, strategic investments, and international federation policies. Additionally, comparative modelling of other post-crisis sport systems (e.g., Serbia, Croatia, Israel) may offer valuable benchmarks for institutional recovery and performance resilience.

Conclusions

This study applied regression analysis to forecast Ukraine's UEFA association coefficient for 2026 – 2030. The linear model demonstrated high predictive accuracy and indicated a potential 60% decline in the coefficient, suggesting a drop in UEFA ranking from 23rd to approximately 32nd place by 2030.

These results highlight the structural risks facing Ukrainian football under ongoing crisis conditions. While the projections capture historical performance trends, they do not account for potential recovery factors such as post-crisis investment, player mobility, or UEFA policy reforms. Future research should extend this work through multivariate and scenario-based models, as well as comparative analyses with other football systems affected by crisis.

Overall, the study demonstrates the usefulness of regression-based forecasting for evaluating the long-term dynamics of national association coefficients. The projected decline in Ukraine's UEFA ranking illustrates how prolonged crises can reshape institutional trajectories in international sport. These findings provide a basis for further methodological development and comparative research on resilience in football governance.

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Supplementary Information

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Ethical statement

This study was conducted in accordance with generally accepted ethical standards for scientific research. The research was based exclusively on secondary data obtained from publicly available official UEFA sources. No human participants, personal data, or animal subjects were involved in the study; therefore, ethical committee approval and informed consent were not required.

Conflict of interest

The authors declare no conflict of interest.

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