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UKRAINIAN ADVERTISING MARKET UNDER ECONOMIC AND INFORMATION SPACE TRANSFORMATION

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ABSTRACT

This study examines the structural transformation of Ukraine's advertising market during 2016–2025 amid digitalization, macroeconomic change, and full-scale war. Using data from the All-Ukrainian Advertising Coalition and Minfin, it analyzes changes in major media segments and relationships between market dynamics, economic indicators, and digital infrastructure. Between 2021 and 2025, digital advertising's market share increased from 34.9% to 59.8%, while its value rose from UAH 10.83 billion to UAH 19.41 billion. Correlation analysis identifies the strongest associations with capital investment (r = 0.908), real GDP (r = 0.777), and average wages (r = 0.717); Internet penetration is also positively associated with market volume (r = 0.652). The integrated regression model yields an R^2 of 0.8708, but it is not significant at the conventional 5% level (F-test p = 0.0638), and no individual coefficient is significant at that level. Given the ten-observation sample, findings are interpreted cautiously. The study concludes with strategic recommendations for 2026–2030 focused on digital channels, first-party data, artificial intelligence, and adaptive media planning.

1 INTRODUCTION

The transformation of advertising markets driven by digital technologies has become an essential field of research in economics, marketing, and management. The expansion of digital platforms, social media, mobile technologies, Big Data, and artificial intelligence (AI) has radically altered the mechanics of interaction between advertisers and consumers. Modern scholarly inquiry focuses not only on evaluating individual promotional tools but also on structural market shifts and consumer behavioral changes.

2 LITERATURE REVIEW

Recent literature systematically explores these dimensions. Ford et al. categorise AI advertising

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into computational, programmatic, and effective performance models. Lütjens et al. analyze consumer attitudes towards digital ads, highlighting information value, entertainment, trust, and privacy. In the national context, Yatsiuk, Horodniak et al., and Chukin et al. evaluate the Ukrainian advertising landscape, emphasizing the growing role of social media, e-commerce, and digital agency promotion. Furthermore, Cioppi et al. outline how digital transformation alters core business processes, while Korkames et al. provide meta-analytic insights on advertising elasticity, showing internet media to possess higher responsiveness than traditional channels.

Table 1. *Systematic Categorization of Key Research Directions*

Research Direction	Authors	Key Research Finding / Idea
Digital advertising	Ford et al. (2023)	Systematized AI-advertising into AI-driven, computational, programmatic, and effectiveness-based models.
	Lütjens et al. (2022)	Assessed digital market trends, noting the dominant role of internet, e-commerce, social networks, and OTT formats.
Advertising markets	Yatsiuk (2022)	Identified core determinants of ad attitudes: informativeness, entertainment, irritation, trust, privacy, and interactivity.
	Horodniak et al. (2024)	Analyzed the modern structure, dynamics, and main segments of the Ukrainian advertising market.
	Chukin et al. (2022)	Demonstrated how digital technologies transform broader marketing strategies and customer interaction.
Digital transformation	Cioppi et al. (2023)	Demonstrated how digital technologies transform broader marketing strategies and customer interaction.
	Ford et al. (2023)	Highlighted AI as a primary driver of transformation through process automation and computational evaluation.
Consumer behavior	Lütjens et al. (2022)	Highlighted that consumer acceptance hinges on personalization, privacy concerns, and trust.
	Teepapal (2025)	Showed that AI personalization enhances trust and perceived utility, though privacy concerns mitigate engagement.
Advertising effectiveness	Korkames et al. (2026)	Proved via meta-analysis that traditional ad elasticity estimates were overstated and internet ads exhibit peak elasticity.
	Chukin et al. (2022)	Evaluated campaign effectiveness across social networks in the Ukrainian communication sector.

Despite the extensive scholarship on digital ad transformations, existing literature often examines macroeconomic factors and technological drivers in isolation. Furthermore, studies focusing on the Ukrainian advertising market primarily offer qualitative overviews or short-term evaluations without integrating macroeconomic stability and digital infrastructure parameters into a single analytical framework. This study addresses these gaps by offering an integrated empirical analysis of the Ukrainian advertising market across the 2016–2025 period. By jointly examining macroeconomic indicators (capital investments, real GDP, average wages) alongside information and digital variables (Internet penetration, social media usage), this research directly connects theoretical assumptions about channel elasticity and digital shift with an econometric model calibrated for a war-impacted transition economy.

3 TRANSFORMATION OF ADVERTISING COMMUNICATIONS

The evolution of advertising communications from the traditional to the AI-personalized model reflects a change in the principles of interaction

between the advertiser and the consumer: from the massive one-way dissemination of information through traditional media to digital, interactive, data-driven, and personalized communication.

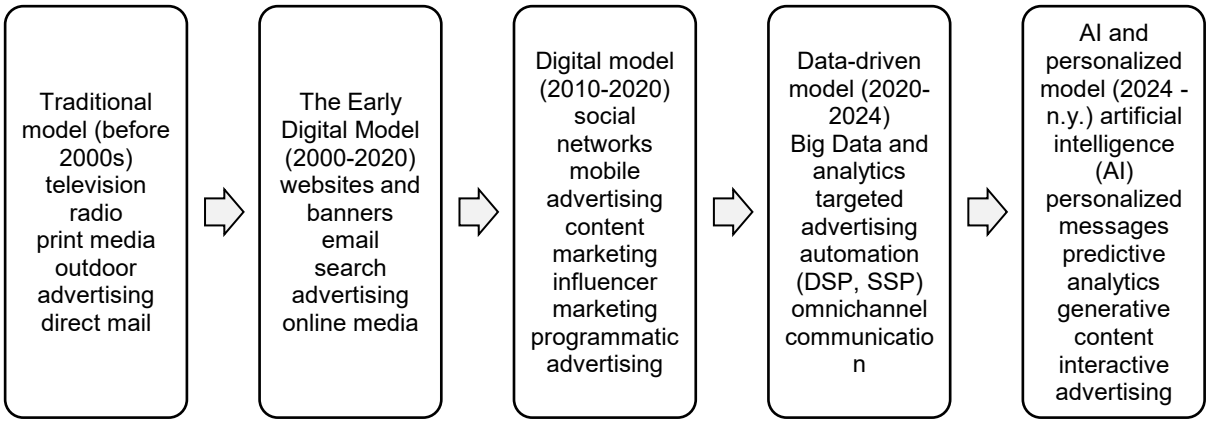


Figure 1. *Transition from traditional to digital advertising communications model*

The traditional model was characterized by advertising communications based mainly on mass offline media: television, radio, print, outdoor advertising, and direct mail. Communication was mainly one-way: the advertiser formed the message, and the consumer acted as a passive recipient. Targeting was limited, and effectiveness was often assessed using indirect indicators.

The period of the initial digital model is associated with the spread of the Internet, which initiated the transition of advertising to the digital environment. Websites, banner and search advertising, email, and online media appeared. Advertisers received new opportunities to measure audience response - the number of views, conversions, and clicks. Communication gradually became two-way and more measurable.

The next stage (digital model) was the active spread of social networks, smartphones, and mobile Internet. Advertising moved directly into the digital environment of the consumer's everyday life. Content marketing, influencer marketing and programmatic advertising are developing. The consumer no longer only receives an advertising message, but also interacts with the brand, creates and distributes content.

The increase in the volume of digital data has led to the transition to data-driven advertising. Big Data and analytics have made it possible to study audience behavior in more depth, carry out targeting, automate the purchase of advertising inventory through DSP/SSP, and also coordinate interaction with the client in various channels. The basis of advertising communication is no longer only creative and media channels, but also data on consumer behavior and interests.

The current stage is characterized by the active use of artificial intelligence, generative technologies, and predictive analytics. Advertising is becoming personalized: algorithms can predict user needs, form individual messages, and generate advertising content. Interactive advertising and omnichannel communication are developing, ensuring coordinated interaction between the consumer and the brand at various digital touchpoints.

The key drivers of the transformation of advertising communications have been the development of the Internet, social and mobile technologies, the accumulation and analysis of large data sets, the automation of advertising processes, and the introduction of artificial intelligence. As a result, the consumer has transformed from a passive recipient of an advertising message into an active participant in the communication process, and advertising has transformed from a mass tool of influence into a personalized system of interaction with the target audience.

4 EMPIRICAL ANALYSIS OF THE UKRAINIAN ADVERTISING MARKET

The transformation processes are directly reflected in the structure of the advertising market in Ukraine. The shift of advertising communications from traditional media to digital channels is accompanied by a change in the ratio

between the main market segments and a gradual strengthening of the role of Digital advertising. At the same time, the dynamics of the Ukrainian advertising market are determined not only by technological changes, but also by the influence of macroeconomic and socio-political factors.

The analysis used data from the All-Ukrainian Advertising Coalition (AUC), which annually assesses the volume of the advertising and communications market in Ukraine.

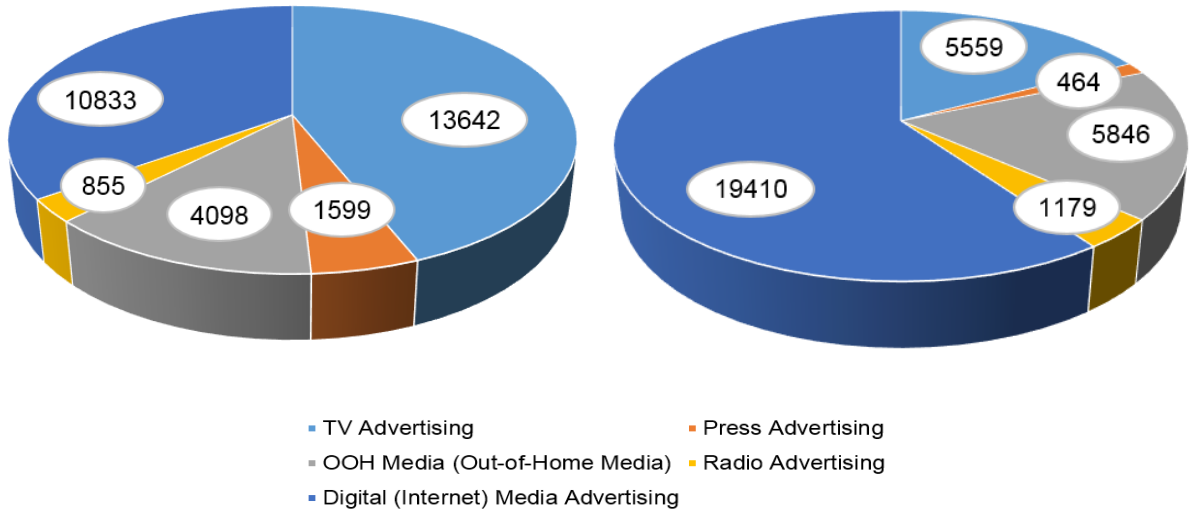


Figure 2. *Structure of the Ukrainian advertising market in 2021 and 2025, UAH million*
Source: (All-Ukrainian Advertising Coalition)

A comparison of the structure of the Ukrainian advertising market in 2021 and 2025 shows its significant transformation under the influence of digital technologies. During the period under study, the volume of Digital Media advertising increased by 79.2% (from UAH 10.83 to UAH 19.41 billion), and its share in the structure of the presented advertising segments increased from 34.9% to 59.8%. In contrast, the most significant reduction was observed in traditional media: the volume of television advertising decreased by 59.3%, and advertising in the press - by 71.0%. At the same time, OOH Media and radio advertising showed growth of 42.7% and 37.9%, respectively. Thus, 2021–2025 are characterized not so much by the general expansion of the advertising market as by its structural restructuring: advertising budgets are moving from traditional media to digital channels, which confirms the increasing role of digital transformation in the development of the advertising industry of Ukraine.

Qualitatively, the structural shifts observed in the Ukrainian advertising market between 2021 and 2025 coincide with the geopolitical and economic disruptions caused by the full-scale war. While war acts as an exogenous historical context rather than a direct variable in the econometric model, it provides a plausible explanatory framework for the accelerated shift toward digital media. The war altered audience mobility and heightened reliance on real-time digital channels, prompting advertisers to reallocate budgets to platforms offering superior flexibility and ROI tracking. Therefore, while the econometric evaluation models statistical associations across macro-indicators, qualitative analysis supports the hypothesis that military challenges acted as a structural catalyst for ongoing market digitalization.

At the same time, media consumption changed, which strengthened the long-term trend of digitalization. An important manifestation of this process was the transition from traditional television consumption to digital video content. At the same time, the role of the mobile environment grew, which created favorable conditions for the development of social networks, mobile advertising, SMM, influencer marketing, and targeted advertising. In contrast, the combination of digitalization and war risks intensified the reduction of the role of print media: the volume of advertising in the press decreased. At the same time, traditional channels are not disappearing, but are transforming: the OOH segment has

grown, and the development of DOOH has contributed to its technological renewal. Thus, the Ukrainian advertising market is characterized not simply by the replacement of traditional advertising with digital, but by the redistribution of advertising budgets towards channels that provide greater mobility, efficiency, measurability, and personalization of communications, which forms a new structure of the Ukrainian advertising market.

That is, there is not just a growth of the advertising market, but a redistribution of advertising budgets in favor of Digital. This is consistent with current IAB Ukraine data: in 2025, digital media advertising in Ukraine reached UAH 19.41 billion.

Grounded in the literature on advertising elasticity and digital transformation drivers, structural shifts in the Ukrainian advertising market are conceptualized as the joint output of macroeconomic capacity and digital infrastructure development. To operationalize the research objective, empirical indicators are divided into two corresponding factor groups: economic determinants (real GDP, capital investments, wages, inflation) reflecting overall advertising spending power, and information-digital determinants (Internet penetration, social network usage, digital media spend) capturing structural budget reallocation.

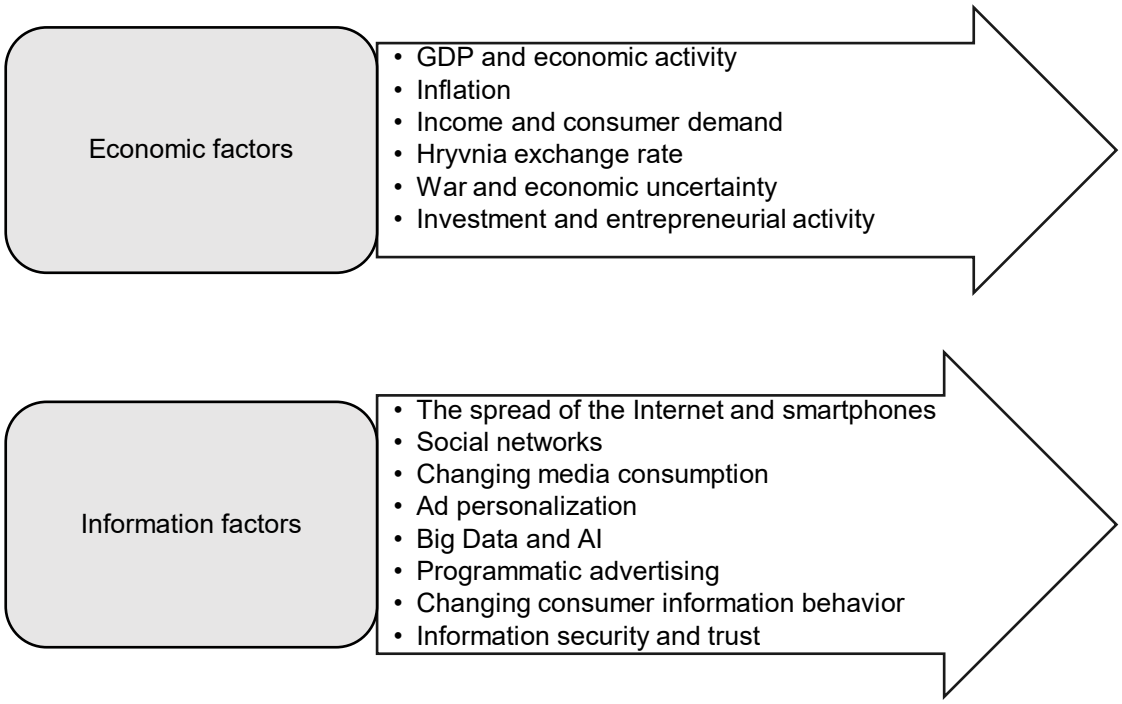


Figure 3. *The influence of economic and information factors on the advertising market of Ukraine*

Thus, the proposed system of factors allows us to consider the transformation of the advertising market of Ukraine not only as a result of technological digitalization, but as a complex process of adaptation of the advertising industry to changes in the economic and information environment. The interaction of these factors determines both the overall dynamics of the advertising market volumes and the redistribution of advertising budgets between traditional and digital channels.

Economic instability not only reduces advertising budgets, but also changes their structure in favor of channels with greater measurability of the results. Digitalization has become not just a consequence of economic changes, but a separate driver of the structural transformation of the advertising market.

To quantitatively assess the relationship between the state of the economic environment and the development of the advertising market of Ukraine, it is advisable to conduct a correlation analysis. Its application makes it possible to determine the strength and direction of the relationship between the volume of the advertising market and the main economic factors that characterize changes in the macroeconomic environment.

Within the framework of the study, the volume of the advertising market of Ukraine was selected as an effective indicator, and as factor characteristics – real GDP, inflation rate, average wage,

exchange rate, volume of retail turnover, and capital investments. The choice of these indicators is due to their potential impact on the purchasing power of the population, business activity of enterprises, consumer demand, and financial capabilities of advertisers.

Correlation analysis will allow us to move from a qualitative assumption about the influence of economic factors to a statistical assessment and to establish which of the studied indicators have the closest connection with the dynamics of the advertising market of Ukraine.

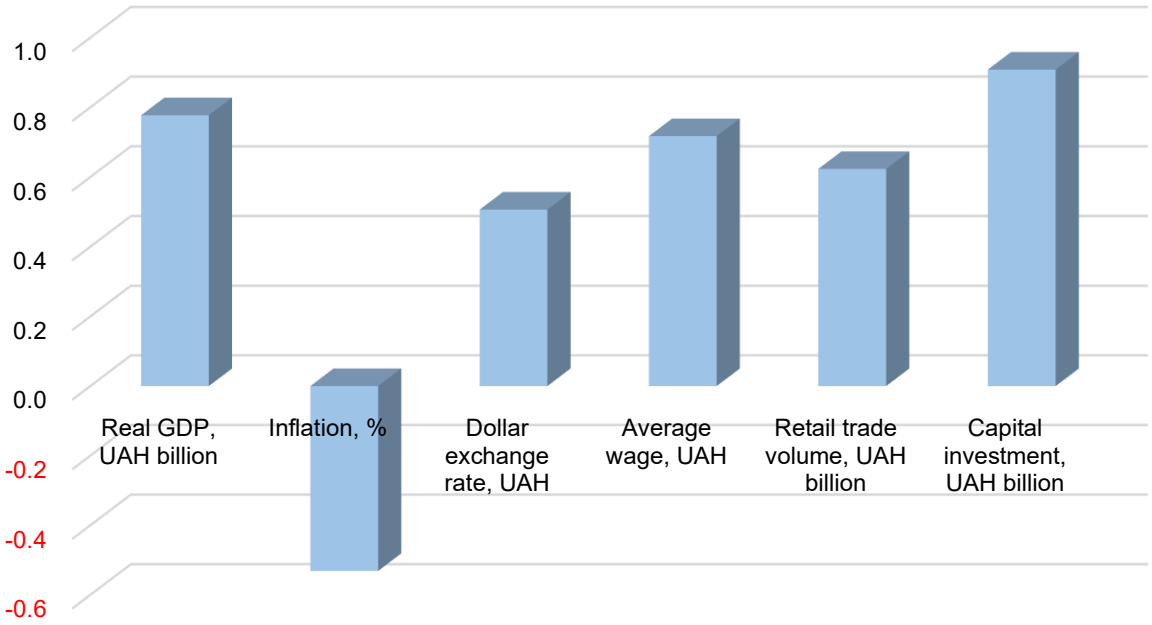


Figure 4. *Correlation coefficients between the volume of the advertising market of Ukraine and macroeconomic indicators (2016–2025)*

Source: (Minfin)

The advertising media market of Ukraine during 2016-2025 demonstrates a close relationship with indicators of economic activity. The correlation analysis reveals strong co-movements between the volume of the advertising media market and key macroeconomic indicators, most notably capital investments (r = 0.908), real GDP (r = 0.777), and average wages (r = 0.717). However, these high correlation coefficients establish empirical association rather than direct cause-and-effect mechanisms. Theoretically, while higher business investment and consumer purchasing power may expand advertising budgets, the observed statistical synergy reflects shared underlying macroeconomic cycles. These indicators serve as strong covariate candidates for regression modeling rather than definitive causal drivers. Accordingly, it is advisable to use these indicators as the main factor variables for further modeling.

In order to comprehensively assess the impact of certain economic factors on the volume of the advertising market of Ukraine, it is proposed to use a multifactor linear regression model, which allows assessing the contribution of each factor while simultaneously taking into account the impact of other variables.

The general form of the proposed model is as follows:

$$Y = a + b_1X1 + b_2X2 + b_3X3 + \varepsilon,$$

where Y – the volume of the advertising market of Ukraine;

X1 – real GDP;
X2 – average wage;
X3 – capital investment;
a – the free term of the equation;
b_1, b_2, b_3 – regression coefficients characterizing the change in the effective indicator under the influence of the corresponding factor;
ε – a random component of the model.

$$Y=-2{,}0577-0{,}0006X1+0{,}0422X2+0{,}0019X3.$$

The proposed model allows us to move from determining individual statistical relationships to a comprehensive assessment of the dependence of

the advertising market on key parameters of the economic environment of Ukraine.

An important addition to the analysis of economic factors is the study of the information environment, since the digital transformation of the advertising market is directly related to changes in the ways consumers access information, the spread of digital technologies, and the development of online communications.

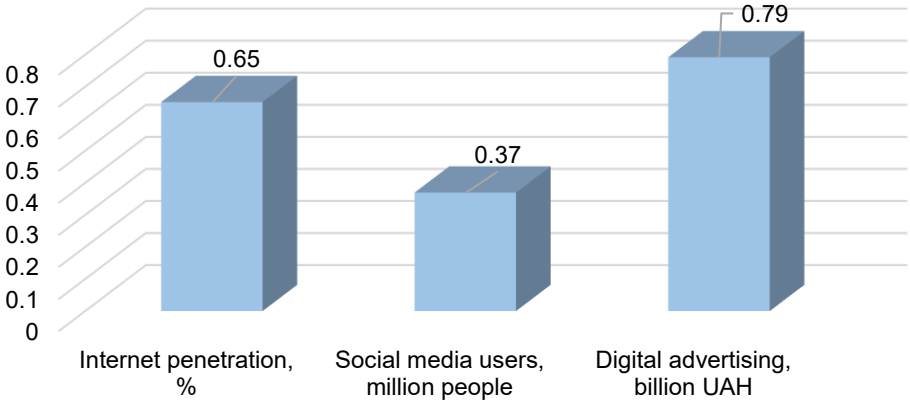


Figure 2. *Correlation coefficients between the volume of the advertising market of Ukraine and information and digital indicators (2016–2025)*
Source: (All-Ukrainian Advertising Coalition)

To assess the impact of information factors on the dynamics of the advertising market of Ukraine, a system of indicators has been formed, which includes the level of Internet penetration, the number of users of social networks, and the volume of Digital advertising. The choice of these indicators allows us to characterize the main directions of the transformation of the information space: expanding the population's access to the Internet, the development of social media, and the direct transfer of advertising budgets to digital channels.

Based on data for 2016–2025, a correlation analysis of the relationship between the above information indicators and the volume of the advertising media market of Ukraine was conducted. The results indicate different strengths of such a relationship. The closest relationship with the volume of the advertising media market is demonstrated by Digital advertising (r = 0.792). There is also a fairly close relationship with Internet penetration (r = 0.652). At the same time, the number of social media users is characterized by a much weaker relationship with the total volume of the advertising media market (r = 0.370).

The results obtained indicate that the development of the digital advertising segment is one of the key information factors in the transformation of the advertising market in Ukraine. At the same time, the growth of the social media audience in itself is not necessarily accompanied by a proportional increase in the total advertising market, which may be associated with changes in the structure of users, migration processes, changes in media consumption, and the redistribution of advertising budgets between different digital platforms.

Digital advertising is a component of the advertising media market, so it is necessary to include it as a factor in a model where the result is the entire advertising media market, very carefully. This can create a mechanical relationship.

We propose a model of information factors:

$$Y = a + b_1X1 + b_2X2 + \varepsilon$$

Where:
X1 - Internet penetration,
X2 - social media users.

$$Y = -30{,}9367 + 1{,}1249X1 - 1{,}4026X2.$$

For a comprehensive assessment of the impact of the economic and information environment on the transformation of the advertising market of Ukraine, it is advisable to combine the selected factors into an integrated multifactor model. This approach makes it possible to assess the overall relationship between macroeconomic conditions, the development of the digital information environment, and the dynamics of the advertising media market.

The integrated model includes five factor variables: average wages, capital investments, real GDP, Internet penetration level, and the number of social media users.

Let us denote:

Y – volume of the advertising media market, billion UAH;
X1 – average salary, UAH;
X2 – capital investments, billion UAH;
X3 – real GDP, billion UAH;
X4 – Internet penetration, %;
X5 – users of social networks, million people.

When specifying the integrated multi-factor model, direct indicators of digital advertising market volume were deliberately excluded as explanatory variables. Since digital advertising constitutes a structural sub-component of the overall advertising media market (Y), including it on the right side of the equation would introduce a mechanical endogeneity (part-whole correlation). To capture digital transformation without circularity, the information environment is instead operationalized through external infrastructure and behavioral metrics – specifically, Internet penetration level (X4) and social media users (X5). These metrics reflect the broader technological and informational ecosystem enabling market restructuring rather than duplicating the dependent variable itself.

That is, the integrated model has the form:

$$Y = -17{,}4134 - 0{,}001675X1 + 0{,}040137X2 + 0{,}004347X3 + 0{,}271621X4 + 0{,}033091X5.$$

The multiple correlation coefficient R=0.9332 indicates a very close cumulative relationship between the volume of the advertising media market and the economic and information factors included in the model. The coefficient of determination R^2=0.8708 shows that 87.08% of the variation in the effective indicator is explained by changes in the studied factors.

The model was evaluated on the basis of annual data for 2016–2025, 10 observations with the inclusion of five factor variables, which results in only four degrees of freedom for estimating the residual variance. The coefficient of determination is R^2 = 0.8708, and the adjusted coefficient of determination is 0.7094, which indicates a sufficiently high explanatory power of the model within the studied sample. Fisher's F-test value is 5.3931 (p = 0.0638). The obtained results should be considered as a characteristic of the relationship between economic and informational factors and the dynamics of the advertising market of Ukraine. Further research requires an expansion of the statistical sample and additional verification of the stability of the obtained estimates.

Table 2. *Statistical characteristics of the parameters of the integrated regression model*

Factor	Regression coefficient	Standard error	t-statistics	p-value
Constant	−17.418745	19.130959	−0.9105	0.4141
Average salary	−0.001678	0.001864	−0.9002	0.4189
Capital investments	0.040119	0.022508	1.7825	0.1493
Real GDP	0.004358	0.006872	0.6341	0.5605
Internet penetration	0.271599	0.522451	0.5199	0.6306
Users of social networks	0.033425	0.775061	0.0431	0.9677

The negative sign of the coefficient at the average salary (−0.001678) in the integrated regression model requires special attention. It is advisable to interpret it as a conditional relationship between the level of wages and the volume of the advertising media market, assuming that other factors included in the model remain unchanged. Such a result may be due to the interdependence of macroeconomic indicators, in particular, average wages, GDP, and capital investments, as well as the limited volume of the studied sample. At the same time, the p-value of the corresponding coefficient is 0.4189, which does not provide grounds to consider it statistically significant. Therefore, the obtained negative coefficient does not indicate a direct negative impact of wage growth on the advertising market, but reflects the features of the conditional relationship between the studied variables within the constructed model.

Furthermore, the economic and information indicators included in the model serve as broad conditioning factors rather than isolated, independent causal agents. Given the structural interdependencies among macroeconomic variables (such as real GDP, capital investments, and wages) and digital diffusion metrics, individual regression coefficients should be interpreted with caution. Collinearity among regressors means that the estimated coefficients reflect conditional associations under ceteris paribus assumptions rather than absolute standalone impacts. Consequently, the integrated model is best understood as a macro-systemic assessment of joint co-movement rather than a tool for parsing out precise, mutually exclusive marginal effects.

The obtained result confirms the feasibility of considering the advertising market of Ukraine as a system, the development of which is determined not by a single factor, but by the interaction of the economic and information environment. Economic conditions form the resource basis of advertising activities, while the spread of the Internet and social networks changes the ways in which advertisers interact with consumers and contributes to the transformation of the structure of advertising budgets.

At the same time, the study has certain limitations that must be taken into account when interpreting the results. Specifically, the analysis covers the period from 2016 to 2025 and is based on ten annual observations — a relatively small sample size for an integrated regression model with five explanatory variables. Furthermore, some economic and informational indicators may be interrelated, making it difficult to isolate the independent impact of each factor on the dynamics of the advertising market. It is also important to consider the specific nature of the period under study, which encompasses significant changes in Ukraine's economic and social environment — most notably a full-scale war — that have affected business activity, consumer behavior, and the structure of the advertising market. Given this, the modeling results should be interpreted within the context of the available statistical data and the specific conditions of the period in question, rather than viewed as definitive proof that the identified relationships will remain stable in the long term. Future research could focus on expanding the time frame, refining the set of factors, and verifying the robustness of the observed patterns.

5 PROSPECTIVE DEVELOPMENT MODEL AND STRATEGIC RECOMMENDATIONS

The high closeness of the cumulative relationship between the effective indicator and the studied factors creates the basis for the formation of a promising model for the development of the advertising market of Ukraine. The proposed model is based on the premise that the transformation of the advertising market is determined by the interaction of economic, digital, technological, and institutional determinants and is implemented through a consistent transition from the digitalization of advertising channels to the use of data, artificial intelligence, and the formation of an integrated advertising ecosystem.

Table 3. *A promising model for the development of the Ukrainian advertising market in the context of digital transformation*

FACTORS	EVOLUTIONARY VECTOR	RESULT
ECONOMIC ENVIRONMENT GDP, household income, inflation, exchange rate, consumer demand	**1. DIGITALIZATION** Internet, social media, search, video, mobile	Sustainable development and growth of the efficiency of the Ukrainian advertising market Maximization of ROI / ROAS, channel synergy, resilience to challenges, forecast period: 2026–2030
DIGITAL INFRASTRUCTURE Internet, 5G, Mobile, Big Data, Penetration of social networks	**2. DATA-DRIVEN ADVERTISING** First-Party Data, CDP, Consumer analytics	Effectiveness of advertising investments

FACTORS	EVOLUTIONARY VECTOR	RESULT
TECHNOLOGICAL INNOVATIONS AI / machine learning, programming, predictive analytics	**3. ADVERTISING, AI** AI planning, personalization, automation	Personalization and precision of communications
REGULATION AND INSTITUTIONS Legislation, GDPR, data protection, measurement standards	**4. INTEGRATED ECOSYSTEM** Digital + CTV + DOOH + Retail Media +Influencer	Synergy of advertising channels and market sustainability

In the prospective period of 2026–2030, the strategic development of the Ukrainian advertising market is projected under the core assumption of gradual economic stabilization and accelerated digital adoption. Rather than acting as a strict quantitative extrapolation, the prospective model outlines key strategic directions and managerial recommendations designed to foster industry resilience.

Given that empirical findings confirm an 87.08% co-variation between advertising market dynamics and macroeconomic-digital parameters – alongside a sharp structural shift toward digital channels (reaching nearly 60% by 2025) – market stakeholders must adapt their operational strategies to wartime and post-war realities. To maintain efficiency under economic constraints and security risks, Ukrainian advertisers and agencies should implement the following targeted measures:

1. Acceleration of digital channel transition: expanding programmatic out-of-home (DOOH) advertising and connected TV (CTV) to modernize traditional media infrastructure.
2. Data-driven governance: emphasizing the collection, compliance, and utilization of first-party consumer data amidst evolving privacy standards (GDPR alignment).
3. Integration of artificial intelligence: implementing AI-driven tools for automated media planning, predictive behavioral analytics, and personalized content generation.
4. Flexible media planning: maintaining adaptive budgeting frameworks to rapidly respond to security challenges, energy infrastructure disruptions, and macroeconomic fluctuations unique to the Ukrainian business environment.

6 CONCLUSIONS

The study showed that during 2021–2025, the advertising market of Ukraine underwent a deep structural restructuring. The share of digital advertising increased from 34.9% to almost 60%, while traditional channels underwent a significant reduction. Qualitative assessment suggests that the conditions of full-scale war accelerated budget reallocation toward agile digital platforms. Econometrically, the multi-factor regression model demonstrates a strong statistical alignment (R^2 = 0.8708), showing that 87.08% of advertising market variance co-moves with integrated macroeconomic indicators (capital investments, real GDP, average wages) and digital connectivity parameters. While these empirical findings confirm tight structural co-dependence rather than direct single-source causality, they highlight the high sensitivity of advertising activity to broader economic and infrastructure trends. The closest connection was found with capital investments, real GDP, and average wages.

In the perspective period of 2026–2030, the development of the advertising market of Ukraine will be determined by the formation of an integrated intellectual ecosystem. The key direction will be the mass implementation of artificial intelligence to automate media planning, generate personalized content, and predict consumer behavior.

To ensure sustainable market development, it is proposed to accelerate the digitization of traditional media by introducing digital outdoor advertising and smart television. Advertisers are recommended to focus on collecting and analyzing their own customer data within the framework of privacy protection requirements. It is also important to form flexible media plans that

allow for rapid adaptation of advertising communications to security challenges and economic changes.

Finally, the findings of this study should be interpreted in light of certain methodological limitations, notably the restricted sample size of ten annual observations (2016–2025) and potential multicollinearity among macroeconomic and digital variables. Furthermore, the extraordinary socio-economic context of the full-scale war introduces structural shocks that affect long-term predictability. Consequently, the empirical results reflect specific historical co-movements within a transition economy rather than invariant global laws, pointing to the need for continued monitoring and sample expansion in future research.

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