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Cultural Capital and Digital Search Interest in Flagship Premium Smartphones: Ecological Evidence from Türkiye

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ABSTRACT

Purpose – This study considers the ecological relationship between provincial-level digital search interest for flagship premium smartphones (iPhone Pro Max and Samsung Ultra) and indicators of cultural capital, economic capital, demographic-urban structure, and mobile digital access in 81 provinces of Turkey.

Design/Methodology/Approach – The study is a quantitative ecological marketing analysis based on publicly available secondary data. Google Trends sub-region scores make up the dependent variables; The data of the Turkish Institute of Statistics on education, culture, population, libraries, cinema, theater and GDP constitute independent variables; and the Information and Communications Technology Authority's annual state statistics provide mobile broadband penetration control. Analyses include Spearman correlations, HC3 robust OLS regressions, brand-× capital engagement testing, coupled and cross-effects panel models, outlier checks, and K-mean clustering.

Findings – Artistic engagement is a strong and negative predictor of digital search interest for both brands, and this relationship remains significant after demographic, urban, and mobile broadband access controls. Mobile broadband penetration is not an additional significant predictor; The median age is negative and significant for both brands. The formal brand × capital engagement test shows that there is no statistically significant brand-level differentiation between iPhone Pro Max and Samsung Ultra. Cluster analysis, on the other hand, divides provinces into four marketing segments.

Discussion– The findings should be interpreted as patterns of digital search interest at the provincial level, not as motivation for individual purchase, ownership, or status. The results are of practical importance for responsible targeting, consumer well-being, and critical marketing discussions in the premium technology market.

1. INTRODUCTION

Premium smartphones are among the prominent objects of contemporary consumer culture because of their high prices, strong brand image, intensive marketing communication, and visibility in daily life. Flagship models such as the iPhone Pro Max and Samsung Ultra stand out not only through their technological functions but also through their capacity to generate symbolic meaning. Therefore, the premium smartphone market can be considered a hybrid consumption field positioned between rational utility and status-based symbolic consumption.

The literature on luxury and status consumption has long focused on classic product categories such as fashion, jewelry, automobiles, and watches. However, the symbolic value that smartphones have gained in recent years has moved this product category to the center of debates on cultural capital, conspicuous consumption, and aspirational consumption. Han, Nunes, and Drèze's (2010: 15-17) typology of brand awareness and status signaling is important because it shows that premium technology brands may function not only as functional products as well as as symbolic positioning tools.

ETİK ONAY / ETHICAL APPROVAL: This study was conducted only on publicly available, aggregated secondary data. No data was collected from human participants, no personal data was processed, and no experimental treatment was applied. Therefore, the study does not require ethics committee approval.

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In developing countries such as Türkiye, where regional socioeconomic differences are evident, the geographical distribution of digital interest in premium technology is not homogeneous. Üstüner and Holt (2010: 38-39) stated that status consumption patterns may differ from Bourdieu's Western-centered model in less industrialized countries and that global consumer culture may constitute a strong reference field in the context of Türkiye. For this reason, examining the cultural and economic grounds on which digital search interest in premium phones is concentrated at the provincial level is significant for both academic and applied marketing.

The main question of this research is as follows: How is digital search interest in the terms iPhone Pro Max and Samsung Ultra across the 81 provinces of Türkiye related to the cultural capital structure, economic capital, demographic-urban characteristics, and mobile digital access level of these provinces? ? The study only treats Google Trends data as an indicator of normalized digital search interest, not purchase or ownership. The unit of analysis is the province rather than the individual; therefore, the findings are not directly generalized to individual motivations, and the risk of ecological fallacy is explicitly considered (Robinson, 1950: 351-352).

The contribution of the study is threefold. First, it adapts Bourdieu's theory of cultural capital to the premium technology market through an ecological design at the provincial level. Second, it formally tests whether brand-level differentiation exists between two flagship terms competing in the same premium category. Third, it segments provinces on the basis of digital interest, cultural capital, economic capital, and demographic indicators, therefore providing a data-driven basis for responsible marketing and consumer welfare discussions.

2. CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1. Bourdieu's Theory of Cultural Capital and Consumption

According to Bourdieu (1984), consumption is not only the satisfaction of utilitarian needs, but also the symbolic reproduction of social class positions and hierarchies of taste. Bourdieu considers cultural capital in institutionalized, embodied/internalized and objectified forms (Bourdieu, 1986: 243). This distinction enables for the theoretical interpretation of provincial-level indicators such as educational indicators, cultural practices, reading/library use, and cultural infrastructure.

Holt's (1998: 1-2) study on consumption behaviors shows that cultural capital structures consumption not only through purchased objects but also through how these objects are used and interpreted. Bennett et al. (2009: 1-2) argue that the relationship among culture, class, and distinction continues within broad cultural practices, while Atkinson (2011: 169-170) emphasizes that Bourdieu's explanatory power is preserved when the origins of seemingly pluralistic taste patterns are examined. Recent work in the Turkish literature also evaluates art, family, habitus, capital, and space within the Bourdieusian framework (Akkol and Çakır, 2026: 343-359). In consumer research, Coskuner-Balli and Thompson (2013: 19-20) show that cultural capital is not only a resource specific to upper classes but also a status resource operating through consumer practices that seek legitimacy in different consumption fields.

In this study, institutionalized cultural capital is represented by education indicators; embodied/internalized cultural capital is represented by artistic participation and reading/library capital; and objectified cultural capital is represented by cultural infrastructure indicators. Although social and symbolic capital are theoretically important, they are excluded from the analysis because they cannot be directly measured with annual, comparable, publicly available indicators at the provincial level.

2.2. Veblen, Conspicuous Consumption, and Status Signaling

Veblen (1899) considered conspicuous consumption as a form of consumption that serves to make social status visible. Although Bourdieu's approach to cultural capital and Veblen's conspicuous consumption thesis are based on different theoretical foundations, both focus on the social meaning of consumption. Guimarães, Oliveira and Rocha (2010: 1-3) discuss this relationship between Veblen and Bourdieu comparatively on the axis of consumption, taste and social distinction.

Han et al. (2010: 15-17) showed that luxury products appeal to different types of consumers through brand visibility. Berger and Ward (2010: 555-556) state that consumers with high cultural capital may prefer subtle

signals that only 'insiders' can decipher; Eckhardt, Belk, and Wilson (2015: 807-809) interpret the rise of inconspicuous consumption as a transformation regarding luxury and class signals. This literature shows that premium smartphones can be read as both visible status markers and more refined symbolic objects of belonging.

Current studies in Türkiye also show that conspicuous, status, and symbolic consumption are similar but not identical consumption tendencies. Gürbüz and Çetinkaya Bozkurt (2022: 193-194) reveal that these structures are measurable and separable in the Turkish adaptation of conspicuous, experiential, and symbolic consumption scales. The qualitative study by Yavuz and Yılmaz (2025: 2966-2967) shows that consumer practices are formed not only by ostentation but also by professional identity, social role, and symbolic meanings.

2.3. Compensatory Consumption, Aspiration and Smartphones

The literature on compensatory consumer behavior suggests that the gap between an individual's current self and desired self can be repaired through consumption. Mandel, Rucker, Levav, and Galinsky (2017: 134-135) systematically show that strategies such as symbolic self-completion, dissociation, escape, and fluid compensation are related to consumption behavior. Sivanathan and Pettit (2010: 564-565) reveal that status products can restore the threatened self and that low-income consumers' orientation toward status products may be associated with monetary vulnerability. Experimental evidence also indicates that economic inequality can increase preference for status consumption (Velandia-Morales, Rodríguez-Bailón, and Martínez, 2022).

Premium smartphones are a distinctive product category in this discussion. Campos, Rezende, Bacelar, and Cappelle (2021: 1-2) show that iPhone consumption among low-income individuals can function in the production of class identity and social acceptance. In the context of Türkiye, Cesur and Memiş (2025: 23-24) report that the need for social approval is positively associated with status seeking and conspicuous consumption orientation in a study involving Apple iPhone 15/16 and Samsung Galaxy S23/S24 users. Arısal's (2026: 43-44) online content analysis of the Apple brand also shows that Apple preference may be determined by symbolic motives such as social status, aesthetic pleasure, and brand evangelism in addition to rational benefits such as performance and system integration.

This literature is used to theoretically interpret digital attention patterns at the provincial level, not to translate the study's findings into individual-level claims about purchase or motivation. Therefore, aspiration, status, and compensation mechanisms are considered only as possible theoretical explanation grounds; no causal conclusion is drawn at the individual level.

2.4. Google Trends and Digital Search Interest

Google Trends is a data source that has been increasingly used in recent years to measure digital interest and information search behavior. Choi and Varian (2012: 2-3) showed that Google search data can be used as a nowcasting tool for current economic and consumer activity. Jun, Yoo, and Choi (2018: 69-70) document the rapid spread of Google Trends studies in areas such as business, economy, health and communication. Silva, Hassani, Madsen and Gee (2019: 1-2) showed that Google Trends can be used to analyze fashion and luxury consumer interest through the example of Burberry.

Digital search data has started to be used in different contexts in the Turkish literature. Koca (2026: 1357-1358) examines the relationship between sustainability-themed Google Trends data and environmental financial indicators; Kerim (2025: 1141-1142) evaluated consumer interest, e-commerce sales, and digital marketing strategies with a time series approach. Dikmen and Başar (2024: 955-956) show the relationship between online shopping behavior and household characteristics such as income, age, and education. These studies reveal that search and online behavior data are useful indicators in understanding consumer interest but should be interpreted with caution.

In this study, Google Trends data are used only as digital search interest, not as an indicator of purchase intention or ownership. In addition, the possibility that digital access differences may mechanically affect search density is considered, and mobile broadband penetration obtained from the province-based annual statistical bulletin of the Information and Communication Technologies Authority is added to the model as a control variable.

2.5. Hypotheses

The theoretical expectation is that as cultural capital indicators strengthen, digital interest in visible status products may decrease. However, due to the structural overlap between education and economic capital, a non-directional relationship is envisaged for institutionalized cultural capital. The dependent variable in the hypotheses is the Google Trends province-level digital search interest for the terms iPhone Pro Max and Samsung Ultra.

H1a/H1b: There is a significant correlation between institutionalized cultural capital indicators at the provincial level and digital search interest in the terms iPhone Pro Max and Samsung Ultra (flagship premium smartphone terms).

H2a/H2b: There is a significant and negative correlation between provincial artistic participation indicators and digital search interest for iPhone Pro Max and Samsung Ultra (flagship premium smartphone terms).

H3a/H3b: There is a significant and negative correlation between provincial-level reading/library equity indicators and digital search interest for iPhone Pro Max and Samsung Ultra (flagship premium smartphone terms).

H4a/H4b: There is a significant and negative correlation between province-level objectified cultural infrastructure indicators and digital search interest in iPhone Pro Max and Samsung Ultra (flagship premium smartphone terms).

H5a/H5b: Controlling for GDP per capita, population, demographic-urban controls, and mobile broadband penetration, cultural capital indicators significantly explain digital search interest in iPhone Pro Max and Samsung Ultra (flagship premium smartphone terms).

H6: The relationship between digital search interest and cultural and economic capital indicators differs at the brand level between the flagship premium smartphone terms iPhone Pro Max and Samsung Ultra.

H7: Turkish provinces can be divided into segments suitable for marketing strategy development based on premium phone digital interest, cultural capital, economic capital, and demographic indicators.

3. METHODOLOGY

3.1. Research Model and Analysis Unit

The research is an explanatory and quantitative ecological marketing study based on publicly available secondary data. The unit of analysis is the province rather than the individual; in panel models, the unit of analysis is the province-year. No data were collected from individuals, no personal data were processed, and no experimental treatment was applied. Therefore, the study is not field research conducted with human participants.

The study consists of three analytical levels. The first level is a year-by-year panel analysis that examines the relationship between digital search interest and key structural indicators for two flagship terms in the 2020-2024 period. The second level is Bourdieusian cross-sectional analysis, focusing on 2024, which constitutes the main theoretical model of the study. The third level is marketing segmentation. Compiling dependent and independent variables from different institutional sources reduces the risk of common method bias.

3.2. Dataset, Google Trends Protocol, and Missing Observations

Dependent variables include iPhone Pro Max and Samsung Ultra scores obtained annually from Google Trends' 'interest by sub-regions' interface. The queries were made with the exact search terms 'iPhone Pro Max' and 'Samsung Ultra' without using the 'subject' option. From Turkey, the search type was Web Search and the category was All categories. Data collected and archived on May 15, 2026. Because each term is queried separately, scores are not used for comparisons between brands at an absolute level; rather, they are used to read the county distribution within each brand.

Because Google Trends data is sample-based, the same query can create small score differences on different dates. To reduce this volatility, annual aggregation rather than weekly values was used. Since each year's score is normalized within its own 0-100 range, panel coefficients are interpreted as relative within-year

relationships rather than absolute changes in interannual search volume. For this reason, year fixed effects are included in the panel models.

Since provincial names may vary in Turkish characters, spelling, and uppercase/lowercase forms across Google Trends, Turkish Statistical Institute, and Information and Communication Technologies Authority datasets, all province names were standardized with a common province-code dictionary before the datasets were merged. After this process, all 81 provinces were matched in the 2024 cross-sectional dataset. In the 2020-2024 panel, the iPhone panel includes 405 province-year observations. Since the Bayburt-2020 and Gümüşhane-2021 observations are missing for Samsung, the Samsung panel was estimated with 403 observations.

3.3. Variables and Index Structure

Independent variables were created in four blocks in line with Bourdieu's distinction of cultural capital. The Institutionalized Cultural Capital Index is based on the z-score average years of schooling (Turkish Statistical Institute, 2024c), higher education graduation rate and doctoral graduation rate (Turkish Statistical Institute, 2024d).

The Artistic Participation Index was created from cinema and theatre audience indicators, proportioned to population and log transformed. The Reading/Library Equity Index consists of public library users, registered members, and loaned materials. The Objectified Cultural Infrastructure Index is derived from public libraries, book stocks, movie theatres, and theatre halls (Turkish Statistical Institute, 2024e, 2024f, 2024g).

The indices are not reflective psychometric scales but formative composite indicators at the provincial level. For this reason, internal consistency coefficients such as Cronbach's alpha were not reported. The components were first log-transformed when necessary, then z-standardized across the 81-province distribution, and finally combined with equal weights within the theoretical blocks.

Economic capital was represented by log transformation and z-standardization of GDP per capita in 2024 (Turkish Statistical Institute, 2024b). Additional control variables are log population, median age, urbanization rate, log population density, and mobile broadband penetration. Urbanization rate is the ratio of the population living in provincial and district centers to the total provincial population; population density is the number of people per square kilometer (Turkish Statistical Institute, 2024a, 2024h, 2024i). Mobile broadband penetration is defined as the ratio of the number of mobile broadband internet subscriptions to the provincial population in the province-based annual statistical bulletin of the Information and Communication Technologies Authority and is used as a proxy for mobile digital access, not as a direct measure of smartphone ownership (Information and Communication Technologies Authority, 2026).

3.4. Data Analysis

Data cleaning, indexing, and analysis were performed in Python using pandas, numpy, scipy, statsmodels, linearmodels, and scikit-learn packages. Bivariate relationships were examined with Spearman correlation. In cross-sectional regressions, each type of cultural capital was tested separately with economic capital and log population controls. Then, the four capital indicators were included in the same model. In the extended model, median age, urbanization rate, log population density, and mobile broadband penetration were added.

Heteroskedasticity was assessed with the Breusch-Pagan test, and HC3 robust standard errors were reported in all cross-sectional regressions. R^2 and adjusted R^2 are reported together. The coefficients are presented as non-standardized b coefficients. Cultural capital indices and economic capital are in z-score metrics; median age is measured in years, urbanization rate is measured as a ratio, log population density is in log scale, and mobile broadband penetration is in percentage metric. Multicollinearity was evaluated with VIF values.

For H6, iPhone and Samsung observations were combined into long format, and an HC3 robust pooled OLS model was estimated with a brand dummy variable and brand × variable interaction terms. The joint significance of the interaction terms was tested with the Wald/F test. This method tests whether differences in coefficients across separately estimated brand equations constitute statistically significant brand differentiation.

Two methods were used in the panel analysis: year fixed-effect pooled OLS and a between-effects model based on provincial averages. The province fixed-effect model was not used as the main strategy because the study centers on persistent interprovincial structural differences, and province fixed effects absorb this variance from the model. In addition, within-province variance in the main explanatory variables is limited in a short window, such as 2020-2024. In the panel, average years of schooling, log GDP per capita, log population, and mobile broadband penetration were used instead of the four cultural capital indices because these variables have balanced annual series.

4. FINDINGS

4.1. Descriptive Statistics

The 2024 cross-sectional dataset covers all 81 provinces. Table 1 shows the descriptive statistics of the main variables.

Table 1. Descriptive Statistics of Variables (2024, N=81)

Variable	N	Mean	SD	Min	Max
iPhone Pro Max 2024 digital search interest	81	68.42	10.91	52.00	100.00
Samsung Ultra 2024 digital search interest	81	61.89	12.57	46.00	100.00
Institutionalized CC Index (z)	81	0.00	0.92	-2.03	3.56
Artistic Engagement index (z)	81	0.00	1.01	-5.79	1.38
Reading/Library Capital (z)	81	0.00	1.01	-2.70	2.09
Objectified Infrastructure index (z)	81	0.00	1.01	-2.23	2.28
Economic Capital (log GDP, z)	81	0.00	1.01	-2.31	2.63
Average years of schooling	81	9.01	0.57	7.50	10.80
Higher education rate (%)	81	16.31	3.29	8.88	27.76
GDP per capita (TL)	81	387,262	122,054	188,144	802,669
Median age	81	35.20	5.49	21.44	43.39
Urbanization rate	81	0.805	0.166	0.443	1.000
Population density (person/km²)	81	136.04	330.04	11.39	2,933.63
Mobile broadband penetration (%)	81	82.32	8.29	61.35	107.65

Note: CC = Cultural Capital. Z-scores were standardized across the 81-province distribution. Mobile broadband penetration may exceed 100% because the number of subscriptions can exceed the registered population. The lowest observation of the Artistic Participation Index was Hakkari, and this outlier was examined separately in the robustness analysis.

4.2. Correlation Analysis

The relationships between capital types, control variables, and 2024 digital search interest were examined with the Spearman correlation.

Table 2. Spearman Correlations Between Capital Types, Controls, and Brand-Based Digital Search Interest (N=81)

Variable	iPhone Pro Max 2024	Samsung Ultra 2024
Institutionalized Cultural Capital	-0.421	-0.436
Artistic Engagement	-0.516	-0.625
Reading/Library Equity	-0.125 (ns)	+0.116 (ns)
Objectified Infrastructure	-0.414	-0.120 (ns)
Economic Capital	-0.418	-0.519
Median Age	-0.722	-0.615
Urbanization Rate	-0.071 (ns)	-0.295
Population Density (log)	-0.055 (ns)	-0.362
Mobile Broadband Penetration	-0.276	-0.386

Note: ns = not significant; p<0.05; p<0.01; p<0.001. Institutionalized cultural capital, artistic participation and economic capital show negative and significant correlations for both brands. Although mobile broadband penetration is negative at the bivariate level, it is not an independent significant predictor in multivariate models.

4.3. Regression Analysis

In the first stage, each type of cultural capital was tested separately with economic capital and log population control.

Table 3. Separate Capital Regressions (Economic Capital + Log Population Controlled, N=81)

Capital Type	iPhone b (SE)	p	R^2/Adj.R^2	Samsung b (SE)	p	R^2/Adj.R^2
Institutionalized CC	-2.831 (1.852)	0.130	0.221/0.190	-2.152 (2.116)	0.312	0.278/0.249
Artistic Engagement	-6.903 (1.711)	<.001	0.476/0.455	-7.593 (2.134)	<.001	0.521/0.502
Reading/Library Equity	-3.420 (1.162)	0.004	0.267/0.238	-1.700 (1.516)	0.266	0.281/0.252
Objectified Infrastructure	-6.963 (1.770)	<.001	0.401/0.378	-5.953 (1.973)	0.003	0.380/0.355

Note: Each row is a separate regression containing the corresponding capital type + economic capital + log population. The coefficients are non-standardized b; HC3 robust standard errors are given in parentheses. p<0.05; p<0.01; p<0.001.

In separate models, Artistic Participation and Objectified Infrastructure are negative and statistically significant for both brands. Reading/Library Equity is significant only for iPhone; institutionalized cultural capital is not significant after economic capital and population controls.

Table 4. Full Basic Regression Models (81 Provinces)

Variable	iPhone b (SE)	p	Samsung b (SE)	p
Institutionalized CC	+1.068 (1.446)	0.463	+0.867 (1.926)	0.654
Artistic Engagement	-5.202 (1.895)	0.008	-6.842 (2.433)	0.006
Reading/Library Equity	-1.283 (0.950)	0.181	+0.473 (1.390)	0.735
Objectified Infrastructure	-3.602 (1.796)	0.049	-2.312 (1.677)	0.172
Economic Capital	-2.798 (1.616)	0.087	-2.806 (1.782)	0.120
Log Population	-0.320 (2.049)	0.876	-1.220 (1.959)	0.535

Note: The coefficients are non-standardized b; HC3 robust standard errors are given in parentheses. iPhone R^2=0.529, adjusted R^2=0.491; Samsung R^2=0.532, adjusted R^2=0.494. Breusch-Pagan p-values are 0.777 for iPhone and 0.035 for Samsung. p<0.05; p<0.01; p<0.001.

In the full baseline model, artistic engagement is a strong negative predictor for both brands. While objectified infrastructure is of marigent importance for the iPhone, it is not for Samsung. These results suggest that artistic engagement is the dominant explanatory variable among cultural capital components.

Table 5. Extended Model with Digital, Demographic and Urban Controls (N=81)

Variable	iPhone b (SE)	p	Samsung b (SE)	p
Institutionalized CC	+0.474 (1.416)	0.739	+0.439 (1.959)	0.823
Artistic Engagement	-3.662 (1.149)	0.002	-4.659 (1.240)	<0.001
Reading/Library Equity	-1.690 (1.431)	0.242	-0.078 (2.149)	0.971
Objectified Infrastructure	-0.311 (1.989)	0.876	+1.318 (2.170)	0.546
Economic Capital	+0.532 (1.770)	0.765	+1.358 (1.942)	0.487
Log Population	+0.407 (1.958)	0.836	+0.586 (2.471)	0.813
Median Age	-1.197 (0.232)	<0.001	-1.468 (0.321)	<0.001
Urbanization Rate	-1.831 (9.343)	0.845	-7.968 (10.633)	0.456
Log Population Density	-1.133 (1.534)	0.463	-2.196 (1.611)	0.177
Mobile Broadband Penetration	-0.062 (0.119)	0.605	-0.120 (0.146)	0.416

Note: The coefficients are non-standard b; HC3 robust standard errors are given in parentheses. iPhone R^2=0.677, corrected R^2=0.631; Samsung R^2=0.714, corrected R^2=0.673. Cultural capital indices and economic capital are in z-score metrics; in the average age is measured in years, in proportion to the urbanization rate, log population density log scale, and mobile broadband penetration in percentage metric. p<0.05; p<0.01; p<0.001.

In the extended model, artistic engagement remains negative and statistically significant for both brands. Its insignificance for mobile broadband diffusion suggests that the observed pattern cannot be attributed solely to differences in digital access. The negative and significant coefficient for mean age shows that states with a young population structure have a higher digital search interest in premium phones.

4.4. Brand × Capital Interaction Test and Multicollinearity

In the long-format stacked interaction model predicted for H6, the common Wald/F test for five interaction terms between capital variables and the brand spurious variable is not significant: F(5,149)=1.702; p=0.138. In the extended model, where digital demographic and urban controls interact with the brand, the result is again not significant: F(10,140)=1.175; p=0.313. Therefore, H6 is not supported; The coefficients in the coefficient in separate brand models remain descriptive trends and do not imply statistically validated brand differentiation.

Table 6. VIF Values for the Extended Model

Variable	VIF
Log Population	5.08
Objectified Infrastructure	4.44
Economic Capital	3.80
Institutionalized CC	3.28
Log Population Density	2.94
Urbanization Rate	2.81
Median Age	2.75
Artistic Engagement	2.25
Reading/Library Equity	1.86
Mobile Broadband Penetration	1.43

Note: The highest VIF value is 5.08, which is below the traditional threshold of 10. Therefore, multicollinearity is not at a level that invalidates the main findings.

4.5. Panel Data Analysis (2020-2024)

Table 7. Pooled OLS Panel Regression (Year Fixed Effects, Province-Clustered Robust SE)

Independent Variable	iPhone b (SE)	p	Samsung b (SE)	p
Average years of schooling	+5.554 (3.221)	0.089	+4.604 (3.132)	0.146
Log GDP per capita	-22.305 (4.429)	<.001	-15.018 (4.602)	0.002
Log Population	+3.689 (1.177)	0.002	-0.531 (1.113)	0.634
Mobile Broadband Penetration	-0.321 (0.183)	0.083	-0.362 (0.197)	0.070
Year fixed effects	Included	-	Included	-
R^2	0.549	-	0.294	-
Adjusted R^2	0.540	-	0.279	-

Note: The coefficients are non-standard b; Healthy standard errors clustered in province are given in parentheses. While the iPhone panel contains 405 provincial year observations, the Samsung panel contains 403 provincial year observations because Bayburt-2020 and Gümüşhane-2021 are missing. p<0.05; p<0.01; p<0.001.

Table 8. Between-Effects Panel Model (Provincial Averages, 2020-2024, N=81)

Independent Variable	iPhone b (SE)	p	Samsung b (SE)	p
Average years of schooling	+5.645 (2.863)	0.052	+4.331 (2.744)	0.119
Log GDP per capita	-26.334 (4.928)	<.001	-18.911 (4.720)	<.001
Log Population	+3.214 (1.157)	0.007	-1.210 (1.097)	0.273
R^2	0.342	-	0.238	-

Note: Estimates are taken from two impact models based on provincial averages for 2020-2024. Three basic structural variables were used with the balanced annual series. p<0.05; p<0.01; p<0.001.

The panel findings show that the GDP per log capita is negative and significant for both brands. This result shows that premium phone digital search interest shows an inverse and enduring relationship with the interstate economic structure during the 2020-2024 period. However, the panel specification does not test cultural capital indices because there is no balanced annual series; therefore, it remains complementary to the cross-sectional model.

4.6. Outlier Robustness Analysis

Table 9. Outlier Robustness Model Excluding Hakkari (N=80)

Variable	iPhone b (SE)	p	Samsung b (SE)	p
Institutionalized CC	+1.560 (1.315)	0.239	+1.552 (1.764)	0.382
Artistic Engagement	-6.740 (2.105)	0.002	-8.984 (2.348)	<0.001
Reading/Library Equity	-1.268 (1.007)	0.212	+0.495 (1.475)	0.738
Objectified Infrastructure	-3.648 (1.828)	0.050	-2.376 (1.726)	0.173
Economic Capital	-2.601 (1.796)	0.152	-2.532 (1.963)	0.201
Log Population	-0.013 (1.981)	0.995	-0.793 (1.922)	0.681

Note: The coefficients are non-standard b; HC3 robust standard errors are given in parentheses. Excluding Hakkari, the lowest observation of the Artistic Engagement Index, the direction and significance of the main finding is maintained. p<0.05; p<0.01; p<0.001.

When Hakkari is excluded, the Artistic Participation coefficient is strengthened for both brands. When Hakkari and Elazığ are excluded together, Artistic Participation is negative and significant for iPhone (b=-6.783, p<0.001) and Samsung (b=-9.251, p<0.001).These controls show that the main finding was not produced by a single outlier province.

4.7. Marketing Segmentation

Table 10. K-means Segment Profiles (k=4, N=81, Original Scales)

Segment	N	iPhone	Samsung	GDP (TL)	Population	Avg. years of schooling	Higher education rate (%)	Age
0: Metropolis / high economic capital	12	66.6	53.2	574,133	3,607,420	9.68	19.7	36.2
1: Medium size/low digital interest	35	59.6	55.0	395,843	585,581	9.03	17.1	38.9
2: Small-medium/medium-high digital interest	19	72.5	66.8	339,929	325,742	8.88	15.5	34.3
3: High digital interest/young-population profile	15	85.3	78.6	277,695	1,046,098	8.57	12.6	26.9

Note: Values are segment averages. The K-means silhouette score is 0.241 for k=4, and the agreement with Ward hierarchical clustering is ARI=0.679. Segment labels define statistical profiles at the provincial level; they do not express the motivations or financial status of individuals living in the provinces.

Segment 0: Ankara, Antalya, Bursa, Istanbul, Izmir, Kocaeli, Konya, Manisa, Mersin, Muğla, Sakarya, Tekirdağ. Segment 1: Afyonkarahisar, Amasya, Aydın, Balıkesir, Bartın, Bilecik, Bolu, Çanakkale, Çorum, Denizli, Düzce, Edirne, Erzurum, Eskişehir, Giresun, Isparta, Karabük, Karaman, Kastamonu, Kayseri, Kırıkkale, Kırklareli, Kırşehir, Kütahya, Malatya, Ordu, Rize, Samsun, Sinop, Sivas, Tokat, Trabzon, Uşak, Yalova, Zonguldak. Segment 2: Aksaray, Ardahan, Artvin, Bayburt, Bingöl, Bitlis, Burdur, Çankırı, Elazığ, Erzincan, Gümüşhane, Kars, Kilis, Nevşehir, Niğde, Osmaniye, Tunceli, Van, Yozgat. Segment 3: Adana, Adıyaman, Ağrı, Batman, Diyarbakır, Gaziantep, Hakkari, Hatay, Iğdır, Kahramanmaraş, Mardin, Muş, Siirt, Şanlıurfa, Şırnak.

Segmentation findings support H7. However, a silhouette value of 0.241 indicates that the clusters are not sharply separated. For this reason, the four-segment solution should not be considered as a claim of natural province typology, but as a provincial profile map that can be interpreted in terms of marketing strategy.

4.8. Hypothesis Results

Table 11. Summary of Hypothesis Results

Hypothesis	Conclusion	Description
H1a/H1b	Not supported	Institutionalized cultural capital is not significant under economic, demographic, and digital access controls.
H2a/H2b	Supported	Artistic Engagement is negative and significant for both brands in the basic, extended, and outlier models.
H3a/H3b	Partially supported	Reading/Library Equity is significant for iPhone in the separate model; it is not significant in the full and extended models.
H4a/H4b	Partially supported	Objectified Infrastructure is significant in the separate models and in the iPhone baseline model; it is not significant in the extended model.
H5a/H5b	Partially supported	The effect of cultural capital continues especially through Artistic Participation.
H6	Not supported	Brand x capital interactions are not common significant: F(5,149)=1.702, p=0.138; extended model F(10,140)=1.175, p=0.313.
H7	Supported	K-means analysis divides provinces into four interpretable marketing segments.

Note: See Table 3-10 for baseline estimates.

5. CONCLUSION AND DISCUSSION

5.1. Summary of Findings

This study investigated the ecological relationship between digital search interest and cultural capital indicators for the terms iPhone Pro Max and Samsung Ultra across all 81 provinces of Türkiye. Following provincial-name normalization using a common code dictionary, the 2024 cross-sectional analyses included all provinces. Artistic engagement consistently emerged as a negative and significant predictor for both brands across separate models, the full baseline model, the extended model with demographic-urban and digital access controls, and the outlier analyses.

The hypothesis of brand differentiation was not supported. In the stacked interaction model, the joint test of brand × capital interactions was not significant. These findings show a common provincial-level pattern of digital attention for the premium flagship phone category, rather than two statistically distinct symbolic locations for the iPhone and Samsung.

Economic capital findings differ between panel and cross-sectional models. In the panel model, daily GDP per capita is a strong negative predictor for both brands over the period 2020-2024. In contrast, economic capital is not significant in the 2024 extended cross-sectional model; Artistic participation and median age stand out as the main explanatory variables. This indicates that income levels in 2024 are interacting with cultural and demographic structures.

5.2. Comparison with the Literature

The findings align with Bourdieu's theory of cultural capital and segregation. The observed decline in premium phone call interest in states with high artistic engagement supports the expectation that higher cultural practice density may reduce digital interest in visible material status objects. This conclusion is consistent with Holt's (1998) structured role of cultural capital in consumption practices and post-Bourdieus discussions on cultural pleasure by Bennett et al. (2009) and Atkinson (2011).

The findings are also relevant to Veblen's and present-day status signaling literature. Han et al. (2010) showed that visible and inconspicuous signals in luxury products correspond to different consumer profiles. Berger and Ward (2010) and Eckhardt et al. (2015) show that luxury consumption is not explained solely by visibility, consumers with high cultural capital may prefer more subtle and intrinsically recognizable signals. This study expands on these micro-level discussions by examining digital attention patterns at the provincial level.

Segment 3 is particularly important in the context of the compensatory consumption literature. This segment, characterized by lower average age, limited GDP per capita, and lower higher education rates, exhibits high premium phone call interest. Previous studies (Mandel et al., 2017; Sivanathan and Pettit, 2010; Campos et al., 2021; Cesur & Memiş, 2025; Arısal, 2026; Velandia-Morales et al., 2022) states that status products can be linked to self-construction, social acceptance, symbolic identity, and economic inequality. However, since this study does not assess motivations at an individual level, these references serve as theoretical interpretations only.

5.3. Turkish Context and Critical Marketing Interpretation

The provinces of Adana, Adıyaman, Ağrı, Batman, Diyarbakır, Gaziantep, Hakkari, Hatay, İğdır, Kahramanmaraş, Mardin, Muş, Siirt, Şanlıurfa and Şırnak in Segment 3 are characterized by high digital interest, young population and relatively low cultural and economic indicators. While this profile does not directly reflect individual borrowing or purchasing behaviors, it suggests that premium tech brands can attract significant digital traction in regions with young and economically constrained populations.

The focus of criticism is on marketing practices that can convert desirable attention into borrowing, installment payments, and receptivity with aggressive, status-driven messaging; Not the consumers themselves. From a responsible marketing standpoint, premium tech brands should communicate in these states not only by emphasizing status and visibility but also by emphasizing product longevity, service accessibility, transparent payment terms, financial sustainability, and consumer well-being.

5.4. Limitations

The research has seven limitations. First, the work has an ecological design; Findings at the provincial level cannot be interpreted as individual behavior, motivation or financial status. Second, Google Trends data generates normalized relative search interest over the year, not purchase or ownership; The data was collected on a single date. Third, the model object, represented by the terms iPhone Pro Max and Samsung Ultra, changes over the years; Year fixed effects reduce this problem but do not eliminate it completely.

Fourth, the mobile broadband penetration indicator obtained from the Information and Communications Technology Authority is subscription-based; It does not measure smartphone ownership one-to-one and is only used as a proxy for mobile digital access at the provincial level. Fifth, cultural capital indicators are limited only to publicly available data from the Turkish Statistical Institute; Deep sociological constructs such as habitus are not directly measured. Sixth, the silhouette value of segmentation is evident; Segments are not natural types, but state profiles useful for marketing. Seventh, panel models do not test the four cultural capital indices over time because there is no balanced annual series.

5.5. Implications for Marketing Practitioners

The Turkish premium technology market should not be seen as a homogeneous entity. In states with high digital relevance but limited economic capacity, responsible marketing should focus on product resilience, service accessibility, long product life, data security, transparent installment options, and financial sustainability; Instead of relying on aggressive, situation-driven messages.

In metropolitan and high-economic capital states, communication strategies should focus on ecosystem integration, professional use, and long-term brand experience. In mid-sized states with a lower digital interest

profile, emphasis should be placed on price-performance, usage efficiency, and service reliability. Instead of prioritizing short-term sales maximization, these approaches foster long-term brand trust and consumer well-being.

5.6. Future Research

The ecological findings of this study should be supported by microdata at the individual level. Qualitative interviews, surveys, or household-based studies in Segment 3 states could help to better understanding of the individual motivations underlying interest in digital technology. Additionally, the inclusion of other premium tech brands like Xiaomi, Huawei, Google Pixel, and OnePlus enables a broader appreciation of the brand differentiation.

Future studies may examine the relationship between spatial analysis techniques (Moran's I, LISA), natural experiments, longer panel series, premium technology interest, and household borrowing indicators. Therefore, the relationship between state-level digital attention trends, consumer well-being, and financial vulnerability revealed in this study can be tested more directly.

5.7. Conclusion

The key ecological finding of this research is that digital search interest in flagship premium phones is increasing with the decline of artistic engagement and related cultural indicators at the provincial level in Turkey. This result should not be interpreted as evidence of purchasing behavior or individual arrogance, but rather as a model of digital attention to statistical technology at the state level. The inclusion of controls for mobile broadband penetration, median age, urbanization and population density, brand engagement testing, exception exclusion and panel estimates reinforce this conclusion.

The study adapts Bourdieu's theory of cultural capital to the premium technology market, demonstrates the heterogeneity of Turkey's socio-cultural premium technology landscape, and provides an empirical basis for responsible marketing discussions.

DECLARATIONS

Statement on the Use of Generative Artificial Intelligence and Artificial Intelligence Supported Technologies: During the preparation of the article, tool-level (Chatgbt, Claude, Grammarly) support was received from large language model-based tools in the stages of editing the literature, linguistic improvement of draft texts, tabulating Python analysis outputs and spell checking. All decisions regarding the research problem, theoretical framework, hypotheses, variable definitions, analysis design, interpretation of findings and scientific results were made by the author. All data were obtained from publicly available secondary sources; no data was produced by artificial intelligence. The originality, accuracy and scientific responsibility of the article belong entirely to the author.

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