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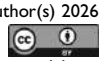
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Buyer Power in Advertising: Healthy Food Pays More for Visibility

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Abstract

Television advertising is a powerful influence on dietary behavior, particularly among vulnerable consumers, such as children, shaping food preferences and consumption patterns. Yet, little attention has been paid to the role of advertising market structure, specifically the buyer power of large food advertisers in shaping the visibility of healthy (minimally processed) versus unhealthy (ultraprocessed) foods. This study examines how pricing mechanisms in TV advertising can structurally favor unhealthy food promotion. Using comprehensive TV advertising data, the study shows that producers of unhealthy foods—typically large conglomerates—may benefit from volume discounts, securing premium advertising slots at lower costs per rating point and per second of exposure. In contrast, healthy food brands face significantly higher advertising costs, especially in child-targeted programming, which may limit their visibility and competitiveness. The Herfindahl–Hirschman index reveals a highly concentrated advertising market in which a small number of dominant unhealthy food advertisers exercise disproportionate influence. Policy solutions are needed to rebalance the market, including targeted subsidies for healthy food advertising, taxes on unhealthy food advertising, increased pricing transparency, equitable access rules for premium slots, and cooperative bulk-purchasing mechanisms. The findings reveal structural inequities in food advertising markets and inform regulatory strategies to support healthier consumer environments.

Keywords

healthy food, unhealthy food, TV advertisement, negative externalities, market structure

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Public policy debates about food marketing, both globally and in Colombia—the setting of this study—have largely focused on the content, frequency, and placement of advertising, particularly in environments that reach children (Boyland et al. 2016; Correa et al. 2019; Powell et al. 2024; Velasquez et al. 2020). Governments in many countries have introduced restrictions on child-directed marketing, front-of-package labeling, and fiscal measures such as taxes on sugar-sweetened beverages and ultraprocessed food (UPF) (Popkin et al. 2021). These interventions aim to improve the informational environment surrounding food choices and mitigate diet-related health risks. Yet considerably less attention has been paid to the structure of the advertising marketplace itself—specifically, how pricing dynamics and buyer power within media markets may shape which products gain visibility and at what cost.

Advertising markets are not neutral platforms. Prices for audience attention are determined through negotiations between media sellers and advertisers, often within concentrated industries (Shapiro, Hitsch, and Tuchman 2021). Firms with greater purchasing volume, diversified portfolios, and repeated contracting relationships may secure more favorable rates. When demand-side concentration exists, large buyers may influence pricing and access conditions. In consumer goods industries characterized by substantial asymmetries in firm scale, these dynamics raise a policy-relevant question: Are healthier food products facing systematically different effective prices for visibility compared with less healthy products?

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A central empirical challenge is the limited availability of advertising pricing data, which has led many studies to assume uniform ad costs across firms (Hristakeva and Mortimer 2023). Emerging evidence shows that firms frequently pay different prices for similar slots due to nonlinear pricing and market segmentation. Under volume discounting, larger advertisers may obtain lower effective rates; under segmented pricing, rates can vary with advertiser characteristics, including product category, not solely with slot attributes (Hristakeva and Mortimer 2023). If such pricing structures interact with concentrated buyer dynamics, structural disparities in access to television visibility may arise even without explicit regulatory barriers.

Prior research consistently documents the predominance of UPF advertising on television, especially during children's programming (Boyland et al. 2016; Correa et al. 2019; Powell et al. 2024; Velasquez et al. 2020). However, the role of advertising market structure in shaping competitive access to visibility has received little attention.

Using occurrence-level television advertising data from Kantar IBOPE Media (2016–2017), this study examines advertising costs and exposure across minimally processed food (MPF) and UPF categories in Colombia, an upper-middle-income country with a robust media monitoring system and active nutrition policy engagement (Burki 2023). Core structural features—limited pricing oversight, advertiser concentration, volume-discount practices, and low pricing transparency—are common across many media markets, including those in low- and middle-income countries (Noam and International Media Concentration Collaboration 2016; OECD 2013). Colombia hosts major multinational food companies (e.g., Nestlé, Mondelēz, Kellogg's, Grupo Bimbo) alongside domestic producers, making it a relevant context for examining how advertising market structure intersects with nutrition policy debates.

We analyze cost per rating point (CPP), cost per second, exposure distribution, temporal placement, and advertiser concentration using Herfindahl–Hirschman and Pareto measures. Focusing on branded food advertisers observed in the television marketplace, this Policy Note contributes to marketing systems and public policy research by assessing how structural features of advertising markets may influence competitive access to visibility within food-marketing environments.

Buyer Power in TV Advertising Markets

Television advertising follows a structured buying process shaped by market power and engagement incentives (Shapiro, Hitsch, and Tuchman 2021). About 80% of slots are purchased in advance through the up-front market, where bulk buying yields discounts for large advertisers (Hristakeva and Mortimer 2023; Shapiro, Hitsch, and Tuchman 2021). Remaining inventory enters the scatter market, where prices are higher and ad placement is less strategic. This system enables price discrimination (volume discounts), as dominant firms secure lower costs through scale, while smaller brands pay more per slot (Shapiro, Hitsch, and Tuchman 2021). Additionally, seller concentration often allows networks to grant volume discounts and preferential access to large advertisers, while smaller buyers pay higher effective rates—reinforcing cost disparities (Crawford and Yurukoglu 2012).

While prior research documents the prevalence of unhealthy food advertising (Velasquez et al. 2020), less attention has been paid to how the organizational structure of the ad-buying market may systematically shape cost disparities and exposure imbalances. Our analysis shows that healthy food ads cost 9% more per rating point than unhealthy ones—particularly in child-targeted programming. A Herfindahl–Hirschman index (HHI) of 2,532 indicates high concentration, with just 4% of unhealthy food advertisers accounting for 30% of total spending.

Data and Methods

Overview

This study examines the structure of television food advertising costs and exposure using data from Kantar IBOPE Media in Colombia (January 2016–December 2017, the most complete period available). Kantar IBOPE is a commercial audience-measurement firm (analogous to Nielsen) that collects occurrence-level TV ad data via real-time monitoring of national and regional channels, reporting brand/product, channel, time stamp, duration, advertising expenditures, and rating points. The dataset is proprietary; we accessed it through a research collaboration with the Global Food Research Program at the University of North Carolina at Chapel Hill. The age groups—child (age 4–11) and general audiences—are defined by the data provider, consistent with prior work on TV food advertising (Velasquez et al. 2020).

Advertising Dataset

The dataset captures all television advertisements for food products aired between 6 a.m. and 1 a.m. across 75 cable and over-the-air TV channels in Colombia during the study period. The dataset provides occurrence-level data, meaning that each ad airing is recorded as a separate observation, including brand name, product name, TV channel, program, date, placement timing, duration (seconds), cost, and rating points.

Food advertisements are categorized using the NOVA classification system (Monteiro et al. 2018), which emphasizes processing level over nutrient content. MPF (healthy) ads include fruits, vegetables, unprocessed meats and fish, eggs, and milk. UPF (unhealthy) ads include items such as candy, cookies, baked goods, frozen desserts, and salty snacks. For firms with mixed portfolios, we classified each ad at the product level under NOVA, based on the main product or objective advertised (e.g., flavored milk is not counted as "minimally processed" even if the brand also sells plain milk). The dataset spans 237 unique brands across eight food production sectors—both MPF and UPF—capturing a broad spectrum of products.

Advertising Exposure and Cost Metrics

The dataset provides detailed information on advertising exposure and cost, enabling a comprehensive analysis of food ads

per second of exposure. Exposure is measured in rating points, with one point representing 1% of the target audience reached. Ratings are recorded for both the general audience and the child audience (age 4–11), allowing for audience-specific comparisons. We also track the number of ads aired, their geographic reach (Andean, Pacific, Caribbean, or national), and their timing by hour (6 a.m.–1 a.m.), day of the week, and month of the year.

For the advertising cost metrics, the total ad cost was expressed in 2024 U.S. dollars (USD) and represents the amount paid for airing each advertisement. The CPP captures the price paid to reach 1% of the target audience, calculated as the total cost of an ad divided by its rating points. Another key cost indicator is the cost per second of TV advertising, which measures the expense of ad exposure per second, derived by dividing the total ad cost by the ad duration (in seconds). All of these indicators are constructed from advertising occurrences. In short, these are common metrics to assess the efficiency in the penetration of TV advertisements.

Analytical Strategy

We employ a comprehensive descriptive analytical approach to explore the structure of television food advertising costs and exposure.

We first analyze the distribution of advertisements across food sectors, examining frequency, TV coverage, rating points, and cost metrics per occurrence, including duration, reach, and total cost by food type. Second, we assess exposure and cost disparities by analyzing rating points and cost per second across hours, days, and months. This temporal breakdown identifies whether UPF ads dominate high-exposure slots and whether MPF brands face higher costs per exposure. Third, we test for statistical differences in CPP and cost per second between food types. Significant disparities would indicate that current pricing structures systematically favor dominant UPF advertisers, reinforcing their advantage and creating structural barriers for MPF promotion.

Fourth, we estimate differences in CPP across time dimensions—hourly, daily, and monthly—to assess whether pricing disparities persist over time. Consistent gaps would suggest structural biases rather than short-term fluctuations. We repeat this analysis for the child audience to determine whether disparities are more pronounced among vulnerable consumers. Additionally, as a robustness check, we examine the top five MPF and top five UPF advertisers to explore whether cost advantages persist even among the largest brands in the market.

To examine market concentration and potential buyer power, we applied the approach of Silk and King (2013) using the HHI based on advertising expenditures across eight food sectors. The HHI—calculated as the sum of squared market shares—categorizes markets as competitive (<1,500), moderately concentrated (1,500–2,500), or highly concentrated (>2,500). High HHI values suggest that a few dominant firms exert disproportionate control over TV advertising. This may reflect a market where larger advertisers gain preferential pricing and access, raising entry barriers for MPF brands and distorting competition.

We analyzed the hourly distribution of MPF versus UPF ads to assess dominance in high-exposure time slots. Mapping ad frequency across the day reveals whether scheduling favors UPF products, particularly during prime time. A concentration of UPF ads in peak hours may reflect structural imbalances, where dominant firms leverage greater bargaining power to secure lower-cost, high-reach slots. We also examined total ad spending by category; a substantial gap favoring UPF brands suggests resource asymmetries that enhance visibility, reinforce brand recognition, and reflect market power.

To assess market dominance, we conducted a Pareto distribution analysis of the top ten food advertisers. Consistent with the Pareto principle, the concentration of most advertising spending among a few firms underscores how large brands use economies of scale to outspend competitors, thereby raising barriers for MPF brands. UPF brand dominance also points to volume discounts: Large advertisers negotiate lower per-unit rates and prime-time access via up-front bulk purchases, while smaller, often MPF brands are relegated to the scatter market, facing higher costs, reduced access, and less inventory predictability.

Findings

Distribution of Advertising Volume and Exposure Across Food Production Sectors

Figure 1 and Tables 1 and 2 present the distribution of television advertising characteristics for both MPF and UPF production sectors, revealing stark disparities in advertising volume, exposure, and costs.

Figure 1 reveals strong imbalances in food advertising distribution. UPF food ads dominate airtime across the day—especially during prime time (7–10 p.m.), when viewership peaks. Both categories increase in frequency throughout the day, yet UPF ads consistently outnumber MPF ones in every slot. During peak hours, this gap widens sharply, with UPF brands capturing most high-impact exposure. MPF ads remain marginal and only rise modestly in the evening. These patterns may indicate a structural advantage for UPF advertisers, who are associated with greater visibility and reach—which may reflect market asymmetries and consumer exposure.

Table 1 (MPF producers) shows few TV ads overall: Milk leads (N = 12,749), followed by meat and fish and then eggs, while fruits and vegetables receive the least (N = 150). By contrast, Table 2 shows that UPF sectors dominate the TV advertising market: salty snacks and chips (N = 74,767) top the market, followed by chewing gum and hard candy, cookies and baked goods, and ice cream and frozen desserts (N = 28,386).

MPF ads lasted 17–40 seconds on average, compared with 14–19 seconds for UPF ones. Yet, longer duration did not translate into higher exposure: As shown in Tables 1 and 2 and Figure 1, UPF ads are associated with achieved greater total rating points. Among MPF sectors, milk reached the highest exposure (17,760 points), still far below chewing gum and candy (38,700 points), cookies and baked goods (36,325 points), and salty snacks and chips (32,694 points). Thus, UPF ads

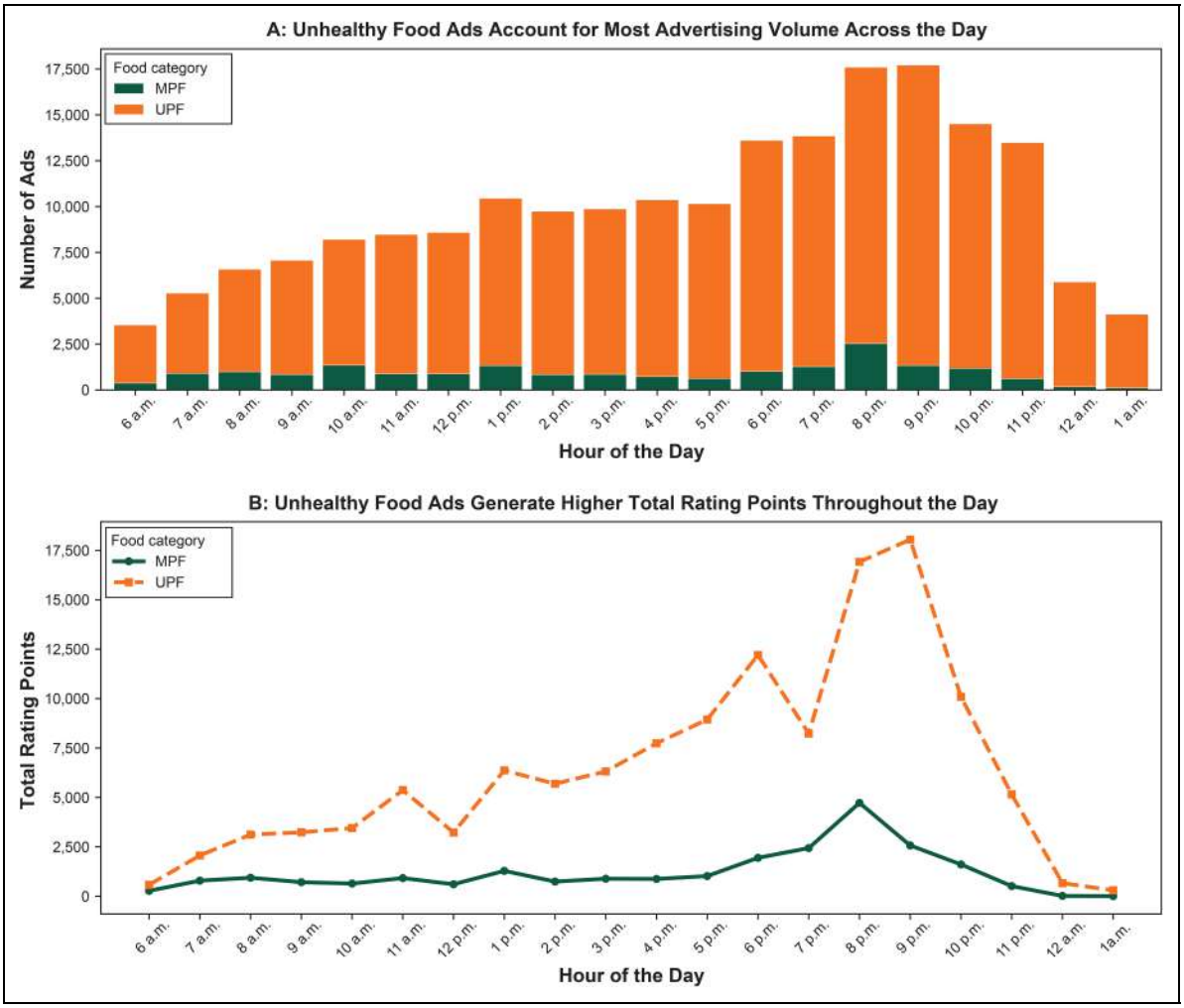

Figure 1. Hourly Distribution of TV Advertising Volume and Audience Exposure for MPF and UPF.
Notes: Panel A presents the number of advertisements aired per hour for MPF (lower bars across most hours) and UPF (upper bars across most hours). Panel B illustrates total rating points for both categories, with MPF following the lower trajectory and UPF the upper trajectory across most hours.

not only aired more often but also are associated with reaching far larger audiences. Advertising costs reveal sharp disparities between MPF and UPF products (Tables 1 and 2). Total spending on MPF was far lower—for example, fruits and vegetables received only $103,935, versus $20.1 million for ice cream and frozen desserts. Even milk, the top MPF category ($13.8 million), trailed salty snacks and chips ($36.3 million) and cookies and baked goods ($28.3 million). Beyond total spending, cost per ad also diverged: For general audiences, MPF ads were 61% more expensive, and in child programming they were 88% costlier. These pricing gaps show that cost structures may disproportionately disadvantage MPF foods, especially in child-targeted content, which could limit their visibility and competitiveness in the TV ad market.

Finally, MPF ads consistently were associated with higher costs per second than UPF ones across all time slots, with sharper disparities in child-targeted programming (Figure 2). The gap widened during peak hours (7 p.m.–10 p.m.), when prices for MPF ads surged. These patterns are consistent with structural financial disadvantages that MPF brands may face in securing television visibility.

CPP Analysis

The CPP differed notably between MPF and UPF ads. As shown in Table 3, MPF food ads are associated with higher CPPs across both audiences. For the general audience, CPP averaged $3,296 for MPF versus $3,014 for UPF—a $282 difference ($p = .000$). Among children, the gap widened: $1,486 versus $1,111, a $375 difference ($p = .000$).

CPP at Different Points in Time

Across hours of the day (Figure 3), MPF ads consistently are associated with higher CPP, with disparities peaking during prime-time hours (7–11 p.m.). Day-of-week patterns show a similar trend, with costs especially elevated from Thursday to Saturday, when competition for ad slots intensifies.

Table 1. Distribution of TV Advertising Characteristics by MPF Production Sectors.

Variables	MPF Sectors							
	Fruits & Vegetables		Meat & Fish (Beef, Poultry, Seafood)		Eggs		Milk	
Total no. of ads	150		3,454		2,483		12,749	
TV Coverage								
Andean region, n (%)	88	58.7	256	7.41	1,058	42.61	1,832	14.37
Caribbean region, n (%)	0	.00	693	20.06	37	1.49	711	5.58
Pacific region, n (%)	0	.00	867	25.10	34	1.37	20	.16
National coverage, n (%)	62	41.3	1,638	47.43	1,354	54.53	10,186	79.90
Ad average duration in seconds, mean (SD)	40.15	(55.74)	17.29	(11.56)	21.76	(23.59)	20.51	(11.56)
Cost and Rating per Audience								
Total TV rating points	212.16		3,967.94		1,564.37		17,760.52	
TV ad rating point average: general audience, mean (SD)	1.41	(2.05)	1.14	(2.21)	.63	(1.61)	1.39	(2.22)
TV ad rating point average: child audience (age 4–11), mean (SD)	1.02	(1.54)	.62	(1.36)	.44	(1.21)	.77	(1.41)
Ad total cost in USD	103,935		2,927,273		1,279,866		13,772,400	
Ad average cost in USD: general audience, mean (SD)	693	(465)	848	(1,515)	515	(1,016)	1,080	(2,215)
Ad average cost in USD: child audience (age 4–11), mean (SD)	842	(283)	2,265	(2,152)	1,657	(1,752)	2,018	(3,071)

Table 2. Distribution of TV Advertising Characteristics by UPF Production Sectors.

Variables	UPF Sectors							
	Chewing Gum & Hard Candy		Cookies & Baked Goods		Ice Cream & Frozen Desserts		Salty Snacks & Chips	
Total no. of ads	39,422		37,825		28,386		74,767	
Total TV Coverage								
Andean region, n (%)	203	.51	147	.39	42	.15	854	1.14
Caribbean region, n (%)	0	.00	15	.04	16	.05	127	.17
Pacific region, n (%)	13	.04	24	.06	0	.00	135	.18
National coverage, n (%)	39,206	99.45	37,639	99.51	28,328	99.80	73,651	99
Ad average duration in seconds, mean (SD)	14.26	(6.66)	18.42	(6.63)	19.36	(8.14)	18.43	(8.16)
Cost and Rating per Audience								
Total TV rating points	38,700.34		36,324.51		19,994.21		32,693.99	
TV ad rating point average: general audience, mean (SD)	.98	(1.99)	.96	(1.96)	.70	(1.56)	.44	(1.16)
TV ad rating point average: child audience (age 4–11), mean (SD)	.73	(1.35)	.63	(1.28)	.63	(1.14)	.34	(.82)
Ad total cost in USD	22,979,033		28,307,868		20,130,560		36,322,572	
Ad average cost in USD: general audience, mean (SD)	583	(1,228)	748	(1,405)	709	(1,521)	486	(1,035)
Ad average cost in USD: child audience (age 4–11), mean (SD)	1,043	(1,709)	1,349	(2,033)	1,151	(2,118)	870	(1,709)

Figure 4 shows that CPP for healthy foods is more volatile across the month, with spikes between the 10th and 25th—especially in child-targeted programming—likely reflecting household spending cycles around paydays. Monthly trends also reveal peaks in January, February, and December, coinciding with New Year health campaigns, holiday marketing, and back-to-school promotions. For children, additional cost surges appear after major school breaks (January, April, August), which may indicate that advertising MPF foods is most expensive when routines resume.

Potential Mechanisms Behind Cost Disparities in TV Food Advertising

The observed disparities in the CPP between MPF and UPF advertisements can be attributed to several structural and market dynamics shaping the TV advertising landscape. Our findings highlight three key mechanisms that likely contribute to the higher cost burden faced by MPF advertisers: market concentration and dominance by UPF brands, disproportionate ad spending on UPF, and structural biases in advertising time slots and audience reach. Conditions may be indicative of disadvantages related to buyer power for MPF food brands.

Market Concentration and Dominance of UPF Brands

An HHI of 2,532 is associated with a highly concentrated TV food ad market. As shown in Figure 5, less than 4% of UPF advertisers account for 30% of total spending, underscoring market power. Scale might enable dominant firms to secure up-front buys, bulk discounts, and prime-time access at lower CPP, while smaller (often MPF) advertisers may be pushed to

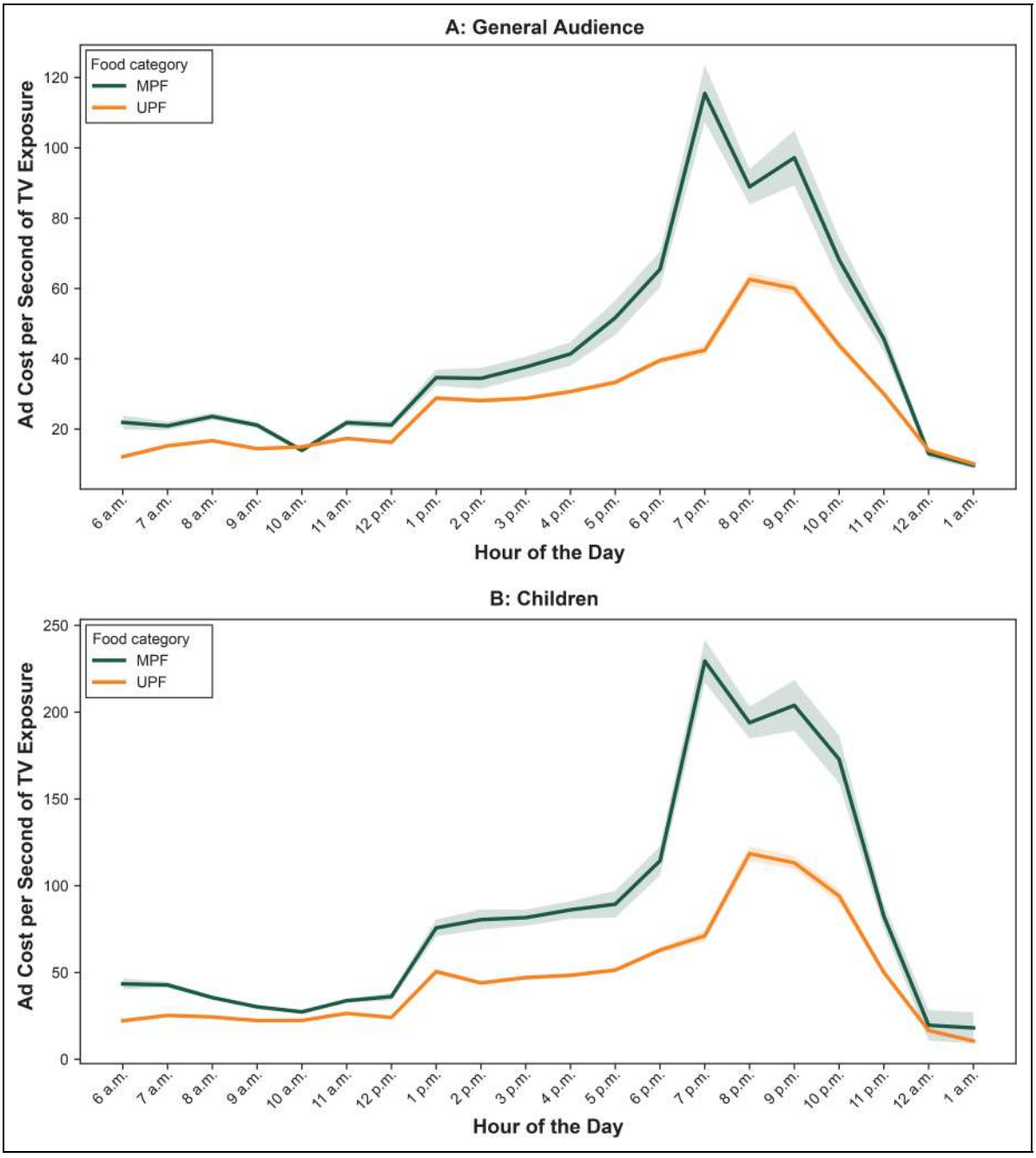

Figure 2. Cost per Second of TV Advertising for MPF and UPF Across the Day.
Notes: Figure 2 shows the cost per second of TV advertising for MPF (upper trajectory across most hours) and UPF (lower trajectory across most hours). Shaded areas represent 95% confidence intervals. Panel A refers to the general audience, whereas Panel B focuses on children age 4–11 years.

the scatter market, where they may pay more with limited premium access—consistent with volume-based pricing.

Disproportionate Advertising Spending on UPF

UPF brands significantly outspend MPF counterparts in TV advertising. Tables 1 and 2 show that UPF advertising reached $107.7 million, while MPF advertising was substantially lower at $18.1 million. This spending disparity is consistent with competitive disadvantages for MPF brands, as higher investment is associated with greater bargaining power and cost advantages in securing premium slots. Dominant UPF brands could influence pricing structures, making advertising more cost-effective for themselves, while smaller MPF advertisers may face higher CPP, limiting their visibility.

Table 3. Comparative TV Advertising Costs for MPF and UPF Across Audiences.

	CPP			Cost per Second of Exposure		
Audience	MPF Mean	UPF Mean	*p*-Value	MPF Mean	UPF Mean	*p*-Value
General audience	$3,296	$3,014	.000	$52	$34	.000
Child audience	$1,486	$1,111	.000	$110	$61	.000

Notes: This table compares advertising costs for MPF and UPF across general and child (age 4–11) audiences. CPP reflects the expense to reach one rating point; "Cost per Second of Exposure" indicates airtime cost. The *p*-value indicates whether the mean difference in cost between food categories (e.g., MPF vs. UPF) is statistically significant.

Even among the top five advertisers in both categories, MPF brands—despite also having long-standing relationships in television advertising—consistently are associated with higher CPP, particularly during peak viewing hours and child-targeted programming (Figure 6). This pattern may underscore the structural advantages of UPF brands in the TV advertising market, where nonlinear pricing may allow high-volume advertisers to secure lower rates. Rather than stemming from systematic bias against MPF brands (product categories), these disparities may arise from economies of scale and preferential pricing mechanisms that could reflect market concentration. Additionally, greater volatility in CPP for MPF brands is consistent with higher reliance on the scatter market, where ad slots are often costlier and less predictable, potentially limiting their ability to compete.

Structural Biases in Advertising Time Slots and Audience Reach

UPF brands dominate prime-time advertising slots (7–10 p.m.) while incurring lower costs per second and CPP, as illustrated in Figures 1–3. This is consistent with the fact that high-volume, large-budget advertisers—primarily UPF brands—could leverage their market power to negotiate more favorable pricing structures. In contrast, MPF advertisers might face higher costs and greater volatility, particularly during periods of intensified

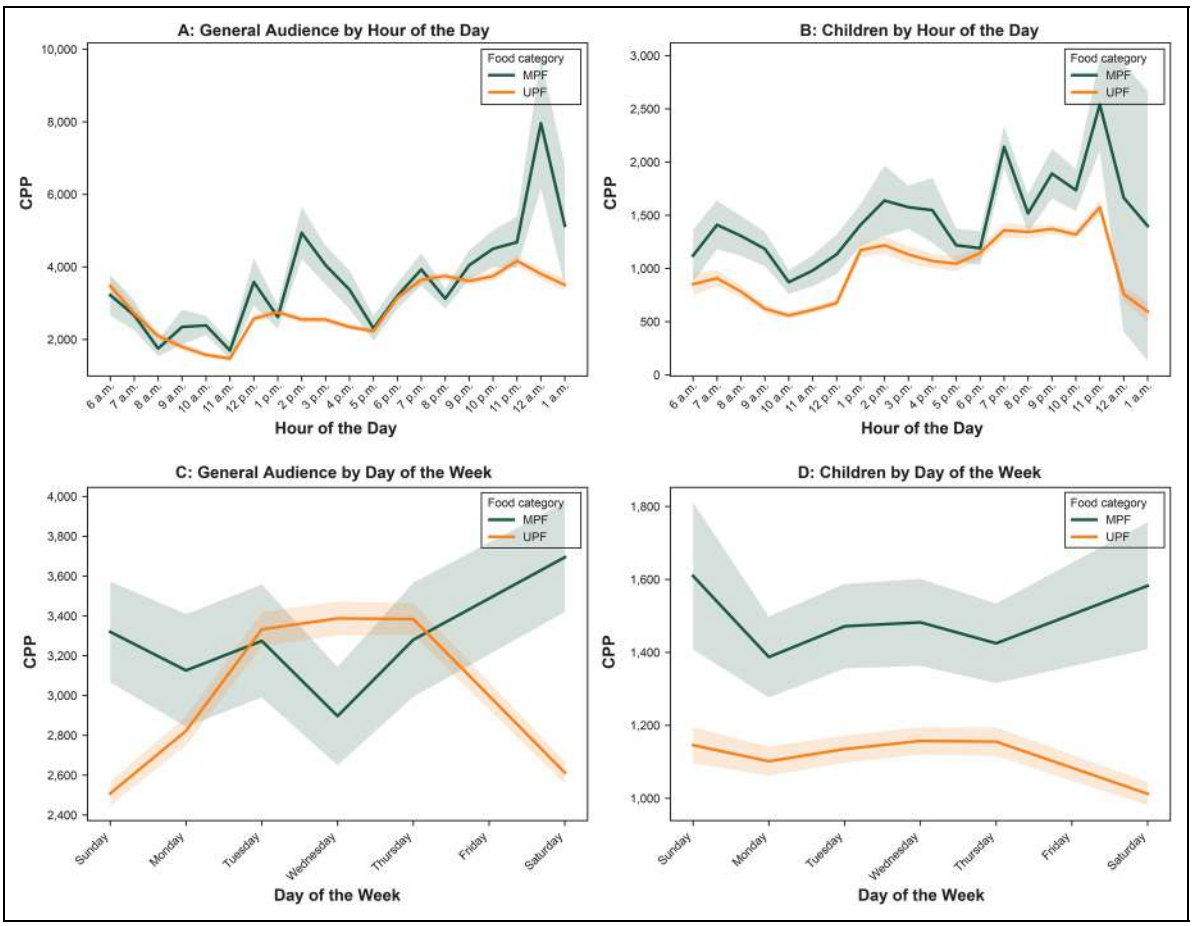

Figure 3. CPP for MPF and UPF Advertisements by Hour and Day of the Week.
Notes: Figure 3 displays the CPP for MPF and UPF advertisements. Panels A and B illustrate hourly trends for general (Panel A) and child (age 4–11) (Panel B) audiences, whereas Panels C and D depict CPP variation across days of the week. Across most time periods, CPP values for MPF follow the upper trajectory and those for UPF the lower trajectory. Shaded areas indicate 95% confidence intervals.

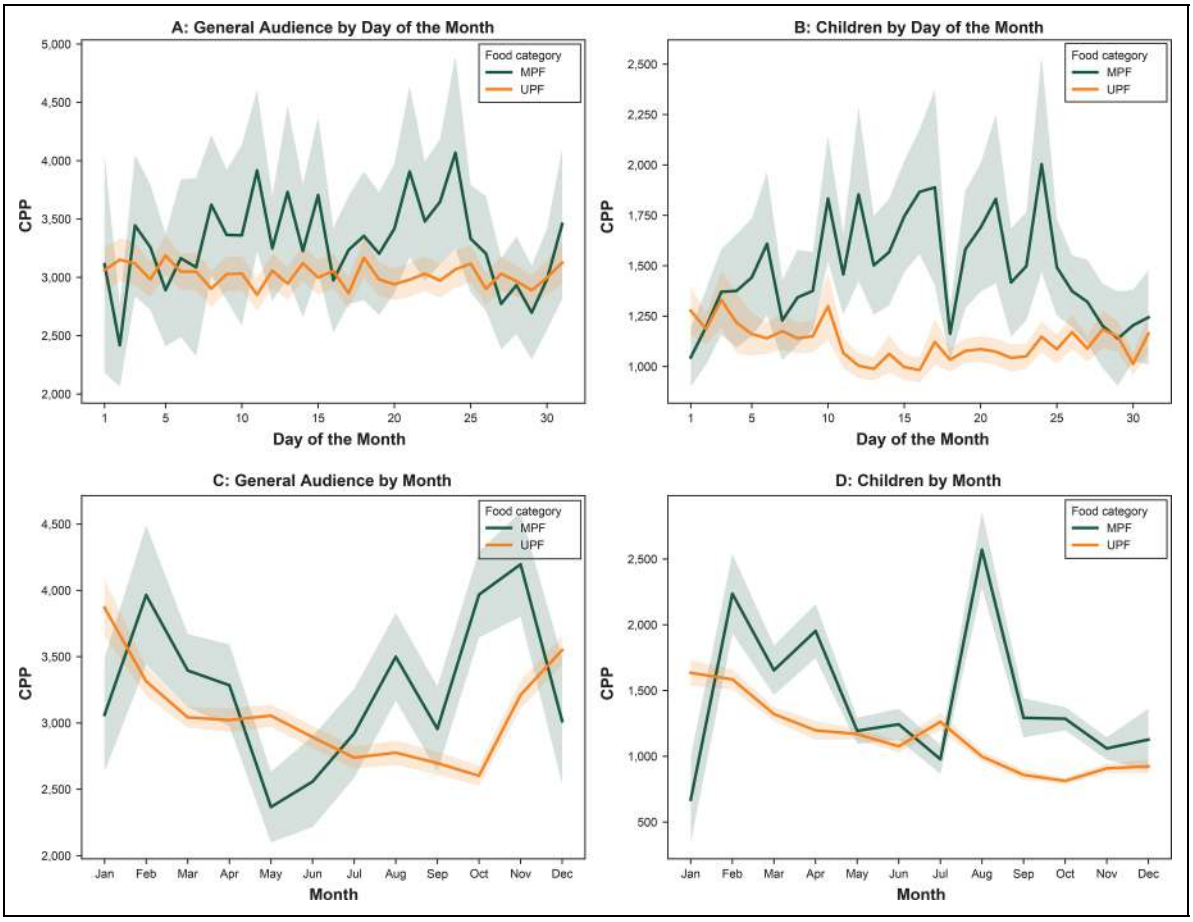

Figure 4. Daily and Monthly Trends in CPP of TV Food Advertising.
Notes: Figure 4 illustrates the CPP for MPF and UPF advertisements. Panels A and B display daily trends across the month for general (left) and child (age 4–11) (right) audiences, whereas Panels C and D show CPP variation across months. Across most periods, CPP values for MPF follow the upper trajectory and those for UPF the lower trajectory, particularly among child audiences. Shaded areas represent 95% confidence intervals.

demand, such as the end of the month and postholiday seasons (Figure 4). These disparities might highlight structural imbalances in the advertising market, where economies of scale and preferential pricing mechanisms favor dominant UPF brands and may limit the competitiveness of MPF alternatives.

Discussion

This study documents systematic differences in television advertising costs and exposure between MPF and UPF in Colombia. MPF advertisements were associated with higher CPP and lower overall visibility than UPF advertisements, particularly during prime-time and child-viewed programming. The television food advertising market was also highly concentrated, with a small group of UPF advertisers accounting for disproportionate spending.

A central mechanism consistent with these patterns is volume-based pricing. Large UPF advertisers often purchase airtime in bulk and maintain repeated contracting relationships that reduce the marginal cost of audience exposure (Hristakeva and Mortimer 2023; Shapiro, Hitsch, and Tuchman 2021). In concentrated advertising markets, scale can facilitate preferential access to premium inventory and lower effective prices (Bagwell 2007; Doraszelski and Markovich 2007), whereas smaller advertisers may rely on the scatter market, where prices are typically higher and more volatile. The persistence of higher CPP for MPF advertisers—even among the largest brands within each category—suggests that these disparities reflect broader market structures rather than only differences between small and large firms. The contribution of this Policy Note is therefore not to evaluate the effectiveness of specific interventions, but to identify pricing and exposure dynamics that may shape how existing food-marketing policies operate in practice.

These dynamics are relevant to nutrition-policy debates because television advertising remains a major source of food exposure for both adults and children. Prime-time hours represent peak viewership across demographic groups and, in Latin American contexts, often involve family coviewing (Combs et al. 2015). Late-evening CPP spikes among children may therefore reflect broader coviewing patterns rather than child-specific programming alone. As prime time draws both adult

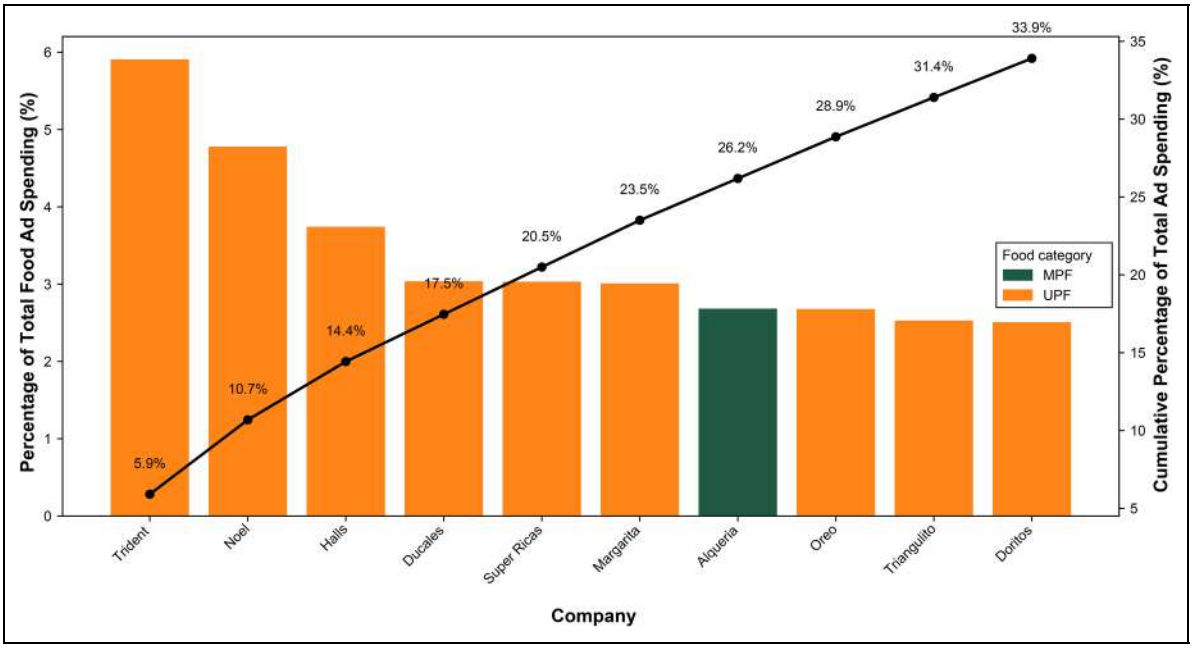

Figure 5. Top Ten Food Companies by TV Ad Spending in the Total Market.
Notes: Figure 5 displays the top ten food companies by their share of total TV advertising spending. Bars represent each company's percentage contribution, with Alquería classified as an MPF advertiser and the remaining companies classified as UPF advertisers. The cumulative line illustrates the share of total advertising spending accounted for by these top advertisers.

and child audiences, demand for premium slots may reinforce volume-based pricing advantages for high-volume UPF advertisers. Existing food-marketing policies focus primarily on advertising content, product labeling, and child-directed marketing restrictions, with less attention to how advertising visibility itself is priced and allocated. As a result, existing nutrition policies may operate on a structurally skewed advertising baseline in which premium visibility is disproportionately accessible to dominant UPF advertisers.

The observed differences in advertisement length further suggest that pricing dynamics interact with strategic distinctions in message framing (Varan et al. 2020). UPF advertisements frequently rely on shorter, affect-laden formats—humor, animation, bright colors, and character-based branding—that generate positive affect and reduce critical processing (Meléndez-Illanes, González-Díaz, and Álvarez-Dardet 2022; Velasquez et al. 2023). In contrast, MPF advertisements may emphasize functional or health-related attributes requiring longer formats and greater cognitive engagement. Prior research indicates that younger children are particularly susceptible to emotionally engaging advertising and have more limited capacity to recognize persuasive intent (Moses and Baldwin 2005; Pechmann et al. 2005), although the aggregated 4–11 age range in our data limits assessment of developmental differences in advertising responses. Evidence suggests that well-designed MPF campaigns can influence purchase intent and consumption (Capacci and Mazzocchi 2011; Ni Mhurchu et al. 2010). Consequently, pricing structures that systematically advantage high-volume UPF advertisers may shape not only advertising volume, but also the competitive conditions under which different food-marketing strategies compete for audience attention. Table 4, Panel A, summarizes three policy mechanisms most directly supported by the observed pricing and exposure patterns to address these structural visibility disparities.

First, the CPP disparities point to a pricing transparency problem. Existing food-marketing policies generally regulate advertising content or placement, but rarely address whether advertising inventory is differentially priced across advertisers. Because lower effective CPP values were concentrated among high-volume UPF advertisers, CPP transparency across time bands and audience segments could clarify how pricing conditions shape access to television visibility. However, implementing disclosure requirements would likely face broadcaster and advertiser resistance because negotiated advertising rates are commercially sensitive. Monitoring compliance could also impose administrative burdens.

Second, the findings point to differential access to high-reach advertising inventory as a policy concern. CPP disparities were largest during prime-time and child-viewed programming, where exposure potential is greatest. Existing restrictions on child-directed food advertising may therefore operate within advertising markets where premium visibility remains structurally concentrated among high-volume advertisers. In this context, audience-threshold restrictions, reserved advertising inventory for nutritionally beneficial products, or public-interest broadcasting arrangements may represent possible mechanisms for reducing exposure imbalances in high-reach programming environments. Yet implementation would require reliable

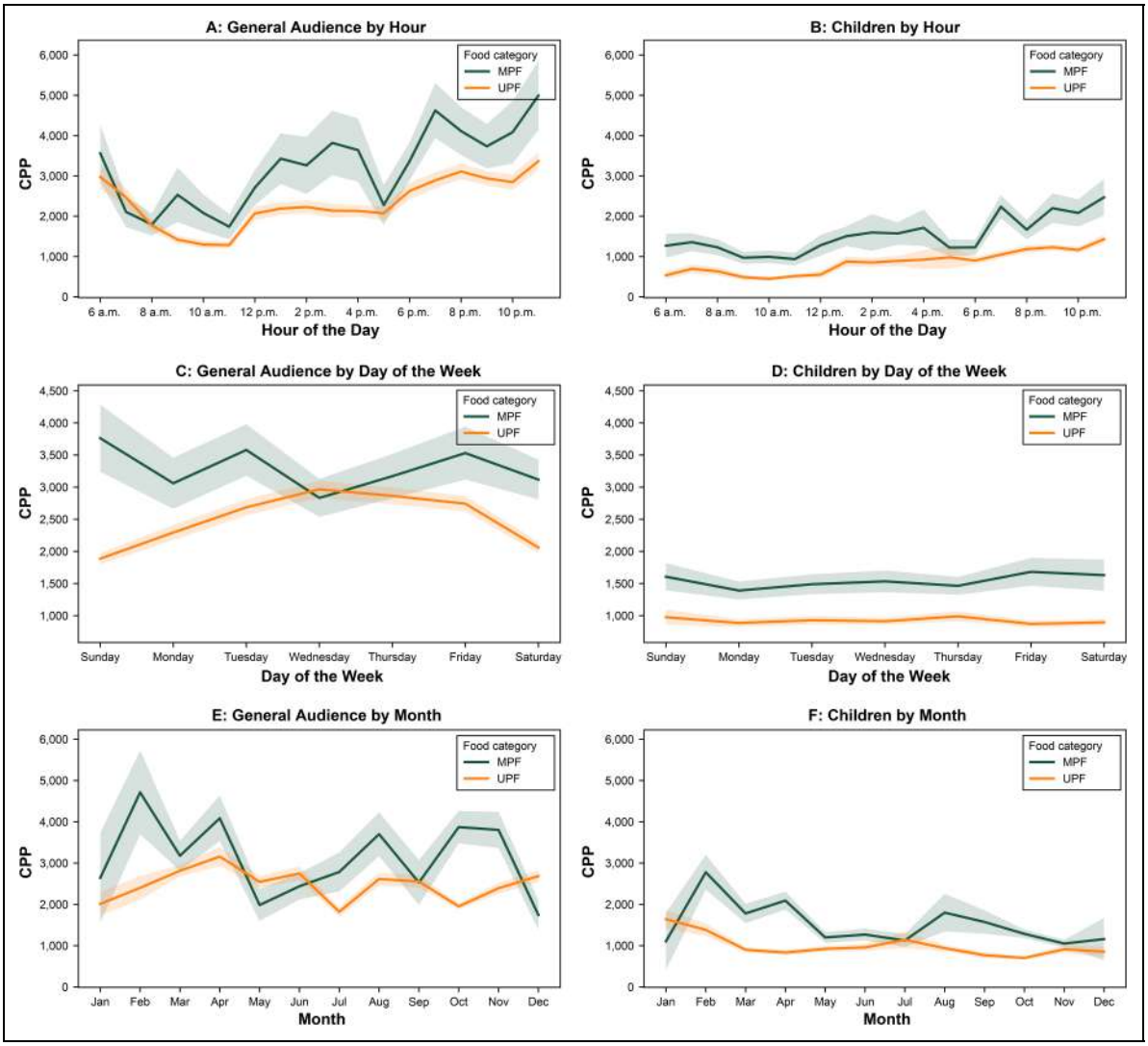

Figure 6. CPP Trends for Top 5 MPF and UPF Advertisers.

Notes: Figure 6 illustrates the CPP for TV advertisements placed by the top five MPF and UPF advertisers. Panels A and B display hourly trends for general (Panel A) and child (age 4–11; Panel B) audiences, Panels C and D depict CPP variation across days of the week, and Panels E and F show monthly trends. Across most periods, CPP values for MPF advertisers follow the upper trajectory and those for UPF the lower trajectory, particularly among child audiences. Shaded areas represent 95% confidence intervals.

audience-monitoring systems, coordination with broadcasters, and attention to potential substitution toward other media platforms.

Third, the findings raise broader questions regarding scale asymmetries in food advertising markets. Targeted access mechanisms—including subsidized CPP or reserved public-interest inventory for MPF advertisers—may therefore warrant consideration as potential strategies for reducing structural visibility disadvantages. However, whether these mechanisms would meaningfully alter exposure patterns depends on advertiser demand, broadcaster participation, and the extent to which firms substitute toward alternative media channels.

Several additional mechanisms summarized in Table 4, Panel B, remain exploratory and require further empirical evaluation in the context of advertising pricing and allocation dynamics. Cooperative purchasing arrangements, countermarketing campaigns, advertising taxes, or subsidy-based approaches may help mitigate scale disadvantages, but their feasibility and effectiveness for this specific purpose remain uncertain. Smaller MPF producers may lack the coordination capacity necessary to sustain collective advertising arrangements, while tax- and subsidy-based approaches would require additional public resources, administrative oversight, and careful allocation mechanisms.

Although this study does not estimate health outcomes directly, the potential implications for health outcomes remain relevant to policy discussions regarding food-marketing exposure and diet-related disease. Extensive evidence demonstrates that UPF advertising influences preferences, purchase requests, and consumption among both children and adults, contributing to obesity and chronic conditions (Boyland et al. 2016; Harris,

Table 4. Policy Mechanisms Linked to Observed Advertising Market Dynamics.

Policy Approach	Evidence from This Study	Mechanism	Implementation Examples
A: Policy Mechanisms Most Directly Supported by the Findings			
Time-based advertising restrictions	Cost and exposure disparities are largest during prime-time and high-reach programming.	Limits UPF access to premium time bands where volume-based pricing advantages translate into dominant exposure.	Example: Chile prohibits advertising of "high-in" UPF (defined as foods above specific nutrient thresholds) between 6 a.m. and 10 p.m. Restrictions apply regardless of program type (Dillman Carpentier et al. 2023).
Audience-threshold advertising restrictions (placement regulation)	Larger CPP differentials are observed for child audiences and child-viewed programming.	Restricts advertising when children represent a substantial share of viewers, reducing exposure disparities in vulnerable populations.	Example: Restrictions apply when children exceed a specified audience share (e.g., ≥20% of viewers), based on television ratings data (Dillman Carpentier et al. 2019).
Pricing transparency	CPP differences suggest preferential pricing for high-volume advertisers.	Transparency reduces information asymmetries and allows detection of preferential pricing.	Example: Broadcasters report average CPP or effective advertising prices by time band and audience segment. Price transparency regulations in advertising have reduced price dispersion and increased competition in regulated markets (Ater and Rigbi 2023).
Targeted access to high-exposure advertising slots	MPF advertisers face higher effective CPP and lower exposure levels.	Expands access to high-reach advertising inventory for nutritionally beneficial products without requiring broad price controls.	Example: Reserved advertising slots for minimally processed foods in high-exposure time bands. Public service announcement programs and public-interest broadcasting requirements demonstrate that governments can use high-exposure airtime for priority public health communication (Stein 2008).
B: More Exploratory Policy Mechanisms Requiring Additional Evaluation			
Countermarketing and public health media campaigns	UPF advertisers achieve higher exposure through scale advantages.	Shifts attitudes and norms; can reduce demand for heavily advertised categories; can also immunize audiences against marketing tactics.	Example: Mass-media campaigns discouraging UPF consumption (e.g., LiveLighter campaign) (Morley et al. 2018).
Collective marketing or cooperative advertising models	Small MPF producers face scale disadvantages in media purchasing.	Improves bargaining power and reduces coordination costs in advertising markets.	Example: Cooperative producer marketing campaigns, such as Organic Valley.
Economic incentives for advertising allocation (taxes or subsidies)	UPF advertisers obtain lower CPP and greater exposure in high-reach time bands.	Changes relative advertising costs to counteract volume-based pricing advantages and reduce exposure disparities.	Example: Higher advertising taxes for UPF in prime-time slots or subsidized CPP for minimally processed foods in high-exposure time bands. Governments subsidize advertising in priority sectors through commodity promotion programs (e.g., the U.S. Department of Agriculture's Agricultural Marketing Service), and fiscal policies are widely used to influence food environments. Because advertisers purchase television advertising inventory, taxes or subsidies could similarly alter their relative advertising costs (Alston et al. 2007; Thow et al. 2018)

Notes: Table 4 links potential policy approaches to the structural advertising market patterns documented in this study. Policies are organized according to the empirical evidence presented and the mechanisms through which they may influence access to television advertising exposure. Panel A includes mechanisms most directly supported by the observed pricing and exposure patterns, whereas Panel B summarizes more exploratory approaches requiring additional empirical evaluation. Implementation examples illustrate policy tools used in food-marketing regulation or related advertising markets and demonstrate potential feasibility. The table is intended to clarify the policy relevance of the empirical findings rather than to evaluate specific interventions.

Bargh, and Brownell 2009). In concentrated markets, scale may allow dominant firms to reinforce advertising advantages over time (Ackerberg 2001; Bagwell 2007). Persistent differences in advertising visibility may therefore matter not only for market competition, but also for the broader food-marketing environments within which dietary preferences are shaped. The present analysis remains descriptive and should not be interpreted as evidence that the observed pricing disparities directly produce downstream health outcomes, that the policy mechanisms discussed here would directly improve dietary behavior, or that MPF advertisers necessarily seek or would benefit from prime-time television exposure to the same extent as large UPF corporations.

Several limitations should be noted. The analysis focuses exclusively on television advertising and does not observe digital, social media, or in-store marketing channels. We do not evaluate policy effectiveness, downstream purchasing behavior, dietary outcomes, or health outcomes. Future research could leverage natural experiments in advertising regulation, difference-in-differences analyses around policy reforms, or linked advertising–purchase datasets to evaluate whether changes in pricing conditions or market concentration alter exposure composition or consumer behavior. Cross-platform analyses could clarify substitution patterns and budget allocation across media environments. Finally, our analysis includes only branded products, as unbranded food advertising is virtually absent in Colombian television markets.

By examining television advertising through the lens of market concentration and pricing structure, this Policy Note extends food-marketing policy discussions beyond advertising content alone. Understanding how audience visibility is priced and distributed may complement current approaches to healthier food-marketing environments.

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Ethical Considerations

This study used secondary, de-identified advertising data and did not involve human subjects. Therefore, ethical approval was not required.

Consent to Participate

Not applicable.

Author Note

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Data Availability

The data that support the findings of this study were obtained under a data use agreement with the Global Food Research Program at the University of North Carolina at Chapel Hill and are not publicly available. Requests for access to the data may be directed to the corresponding author and are subject to approval by the Global Food Research Program.

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