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Analyzing Generational Consumption Shifts through DID Model: Evidence from the U.S. Consumer Expenditure Survey

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Abstract:

Young people often behave differently from older groups when it comes to how they spend money, especially in uncertain times. This paper focuses on Generation Z (ages 18–24) and examines how their entertainment and digital expenditures changed before and after recent disruptions between 2019 and 2023. The analysis uses microdata from the Consumer Expenditure Survey (CE), which is conducted by the U.S. Bureau of Labor Statistics and offers detailed household spending and demographic information. To explore this issue, the study combines Ordinary Least Squares regression with a Difference-in-Differences (DID) approach, allowing both descriptive and causal insights. The research results indicate three main points. First, Gen Z consistently spent less on entertainment compared with young Millennials (ages 25–35). Second, during the disruptive years, overall entertainment spending declined across groups, reflecting precautionary saving behavior. Third, although descriptive trends suggest Gen Z may have shifted more quickly toward digital substitutes such as streaming and gaming, the regression evidence does not show a statistically significant difference compared to Millennials. Overall, the findings underline both the structural limits faced by Gen Z and the tentative signs of adaptability visible in descriptive data, though these patterns are not statistically significant. The study contributes to understanding how younger consumers react to shocks, and its findings are relevant for firms designing digital strategies as well as for policymakers concerned with digital equity and financial literacy.

Keywords: Generation Z; Consumer Expenditure Survey; DID; Entertainment Spending; Digital Consumption.

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1. Introduction

The patterns of consumption among younger generations have become a central topic in both economic research and public debate. Over the past few years, sudden global disruptions have highlighted the fragility of household budgets and the uneven ways in which people adjust their spending. In particular, entertainment and digital consumption have emerged as areas where the differences between age cohorts are especially visible. Understanding how Generation Z responds to such shocks is important not only for measuring short-term economic outcomes but also for anticipating how consumer markets may evolve. This perspective is valuable because Gen Z represents the next large segment of the workforce and will carry significant influence on cultural and market trends in the coming decades.

Existing studies already suggest that younger cohorts display distinctive behaviors. Gen Z, often described as "digital natives" are deeply shaped by online interactions and social media, which influences their choices as consumers [1]. Digital goods can function as extensions of personal identity, helping spending in these categories to recover quickly even under stress [2]. At the same time, pandemic-era analyses show that households in general reduced discretionary expenditures when uncertainty increased [3]. The literature on digital adoption and inequality further documents that uptake accelerated but with persistent gaps in skills and usage [4,5]. Taken together, the evidence indicates both vulnerability and adaptability, yet there is still limited causal work directly comparing Gen Z with slightly older cohorts under disruption.

This paper addresses that gap by combining descriptive and causal strategies. Using nationally representative microdata from the Consumer Expenditure Survey, it compares entertainment and digital spending patterns of Gen Z with young Millennials (ages 25–35) across the period 2019–2023 [6]. Methodologically, the analysis employs Ordinary Least Squares (OLS) regression alongside a Difference-in-Differences (DID) design [7]. The OLS model establishes baseline relationships, while the DID specification isolates the effect of the disruption by comparing pre- and post-event behavior across groups. The aim is to provide a clearer picture of how Gen Z's structural limitations—such as lower income and unstable employment—interact with their cultural strengths as digital adopters. This paper contributes to both academic research on generational economics and policy debates on digital inclusion.

2. Methodology

2.1 . DID model

The analysis combines descriptive and causal strategies. This paper uses OLS regressions to describe baseline relationships. Because OLS cannot rule out omitted variables, the author also implement a DID design, comparing Gen Z and Millennials before and after 2020 [7]. The DID model is specified as:

$$y_{it} = \beta_0 + \beta_1 \mathrm{GenZ}_i + \beta_2 \mathrm{Post}_t + \beta_3 \left(\mathrm{GenZ}_i \times \mathrm{Post}_t\right) + \gamma^{\top} X_{it} + \epsilon_{it} \quad (1)$$

Where y_{it} enotes the quarterly entertainment expenditure (2019Q1 dollars) for household (i) $inquarter(t)$. If the age is between 18-24 years old, GenZ_i is set to 1, otherwise it is set to 0; The variable Post_t for 2021-2023 is 1 and 0 for 2019–2020. The interaction term $\mathrm{GenZ}_i \times \mathrm{Post}_t$ captures the relative change in Gen Z spending after the disruption compared to young Millennials. X_{it} includes income, gender, household size, education; ϵ_{it} is the error term.

2.2 . Data source and processing

The study draws on the Consumer Expenditure Survey (CE) Public Use Microdata (PUMD) from the U.S. Bureau of Labor Statistics (2025). The CE provides detailed information on household expenditures, income, and demographics. The sample is restricted to individuals aged 18–35, allowing a clear comparison between Gen Z and young Millennials. The period analyzed is 2019Q1–2023Q4.

Entertainment is constructed from CE UCC categories such as audiovisual equipment, subscriptions, gaming, and live events. For example, video game hardware (UCC 360110) and streaming services (UCC 380260) are included. All expenditures are deflated to 2019Q1 dollars using CPI-U [8]. This paper drops incomplete records, minorize at the 1st and 99th percentiles within each year, and keep households observed for at least four consecutive quarters. A full list of UCC codes used for constructing entertainment is available upon request. The final balanced panel contains approximately 12,000 person-quarter observations.

3. Results

The OLS regression shows that non-Gen Z households spent an average of about USD 1,712 per quarter on entertainment before the disruption. The Gen Z dummy is –798, indicating that younger consumers spent nearly

USD 800 less than their older peers at baseline. This difference is statistically significant, reflecting the limited disposable income of younger individuals [9]. The disruption dummy is -95, meaning that entertainment spending fell across all cohorts after 2020. This is consistent with theories of precautionary saving, where households reduce discretionary consumption in uncertain environments [3]. Most importantly, the DID interaction term is –2738.84 and statistically insignificant (p = 0.156). This indicates that Gen Z did not recover their spending more strongly than Millennials in a statistically reliable way.

Table 1: Regression results on entertainment spending

Variable	Coefficient	P_Value
Intercept	88446.71	<0.001
\[{\text{GenZ}}_{i}\]	-8153.55	<0.001
\[{\text{Post}}_{t}\]	697.43	0.423
\[{\text{GenZ}}_{i}\times {\text{Post}}_{t}\]	-2738.84	0.156

The coefficient for the Gen Z dummy indicates that Gen Z households spent about 8153.55 U.S. dollars less per quarter even after accounting for other characteristics (see Table 1). This sizeable gap reflects structural income differences and highlights the economic constraints faced by younger consumers.

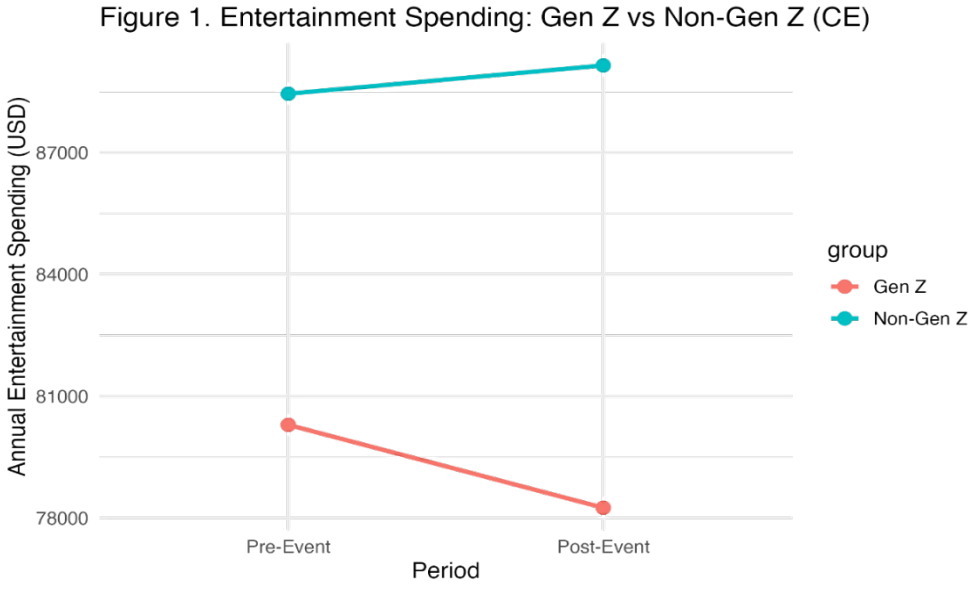

Figure 1: Entertainment spending by generation (2019–2023) (Photo credit: Original)

Figure 1 shows that Gen Z begins at a lower baseline and shows some rebound after 2020, while Millennials' expenditures remain more stable. However, the DID estimates indicate that these visual differences are not statistically significant.

4. Discussion

The analysis shows that Gen Z households began with lower baseline entertainment expenditures compared to Millennials. After 2020, descriptive trends suggest some rebound among Gen Z, but the DID estimates do not show a statistically significant difference relative to Millennials. This means the apparent faster recovery should be interpreted with caution. The lack of statistical significance may reflect limited sample size in the CE data and heterogeneity within age groups rather than a clear generational effect. The analysis shows that Gen Z households began with lower baseline expenditures compared to Millennials. After 2020, descriptive trends suggest some rebound among Gen Z, but the DID estimates do not show a statistically significant difference. Millennials' expenditures appear more suppressed in descriptive plots, yet these apparent divergences are not statistically reliable. While the upward curve for Gen Z may suggest a link between entertainment and digital identity, this interpretation re-

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mains tentative given the lack of statistical significance. For this cohort, online cultural products can serve social connection and self-expression, but the causal strength of this pattern is not established here.

Nevertheless, this study also points to structural risks. The strong responsiveness of Gen Z to digital entertainment markets may intensify dependence on platform monopolies and algorithmically-curated content, which scholars have argued exacerbates inequalities of visibility and choice [10]. Policymakers concerned with consumer welfare should therefore consider not only price competition but also the implications of concentrated control over cultural intermediaries. Additionally, these findings connect with broader economic theories of household behavior. The Life-Cycle Hypothesis, for instance, suggests that younger cohorts typically spend a larger share of their disposable income on immediate consumption rather than long-term savings. This framework helps explain why Gen Z may appear more responsive in descriptive data, even though the DID estimates do not show statistical significance. Millennials, by contrast, face heavier obligations like rent, childcare, and debt repayments, which limit flexibility. In other words, structural position within the life cycle is a crucial lens for interpreting generational differences in spending.

5. Conclusion

This paper examined how Generation Z and young Millennials adjusted their entertainment spending during 2019–2023 using Consumer Expenditure Survey microdata. Three main findings emerged. First, Gen Z consistently spent less on entertainment than Millennials at baseline. Second, overall spending declined for both groups after 2020, reflecting precautionary saving during uncertainty. Third, while Gen Z appeared to shift toward digital formats, the DID regression shows no statistically significant difference compared to Millennials. These findings contribute to the literature on generational consumption by showing how descriptive and causal approaches can yield different insights, and by highlighting the limitations of identifying statistically significant differences with current data. For policymakers, the results emphasize the importance of supporting digital inclusion and monitoring platform concentration. For researchers, they point to the value of combining expenditure data with qualitative approaches to better understand how cultural and economic pressures shape generational consumption.

At the same time, this study has some limitations. The data focus on expenditure and cannot capture subjective experiences or well-being associated with digital consumption. Moreover, the dataset only covers the years 2019–2023, which prevents us from evaluating whether these trends persist over the longer term. Future work could integrate survey evidence on psychological outcomes or explore cross-national comparisons to test whether Gen Z's resilience is unique to the U.S. context. Additionally, as digital platforms continue to evolve, long-term research will be needed to determine whether Gen Z's adaptability translates into sustained economic security or whether it masks deeper vulnerabilities.

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