Millions of Brand Co-visits Reveal Socioeconomic Status Boundaries in Daily Consumption

Keywords: social networks, inequality, socioeconomic status, consumption behavior, mobility

Extended Abstract

It is widely accepted that consumption behavior is associated with socioeconomic status (SES), but how they are associated is not yet resolved. Thorstein Veblen's notion of *conspicuous consumption* captures the idea that some consumption practices are not economically practical but strategically employed to impress or show off to others. Pierre Bourdieu's theory of *habitus* indicates that people engage in high-brow cultural consumption practices to distinguish higher social status. However, recent consumer research suggests that high-SES people, especially those with higher cultural capital, tend to enjoy *inconspicuous consumption* – preferring subtlety to visibility (Berger and Ward 2010). There is also increasing evidence suggesting that high-SES individuals tend to be *omnivorous* in cultural consumption, engaging with various cultural genres instead of focusing on high-brow practices (de Vries and Reeves 2021).

Existing computational social science research has used debit/credit card transaction data to reveal that higher-SES individuals make more diverse purchases across product and service categories and vendors (Dong et al. 2020; Leo et al. 2018). Extending this line of inquiry, we use more easily accessible data to investigate the socioeconomic inequality in daily consumption at the level of brands. In a previous paper, we extended the cultural omnivorousness theory and argued that high SES is associated with more diverse consumption practices for all forms of consumption. We confirmed the hypothesis by showing that higher-SES individuals visit more diverse brands, brands of more diverse SES, and brands of more diverse price levels. In this paper, we further integrate the omnivorousness and inconspicuous consumption concepts. We argue that when economic constraints are weakened, distinction along social and cultural factors becomes more prominent and important and hence, high SES individuals are more likely to splinter into lifestyle-based consumption sub-groups. Therefore, we hypothesize that SES boundaries of consumption practices are reflected in the co-visits network between brands (H1), where higher-SES individuals tend to engage in more niche consumption practices (H2).

To test the hypotheses, we combine data from three sources: SafeGraph, US Census, and Yelp. SafeGraph is a company that curates geospatial data linked with mobile tracking data for a large panel of US smartphones (SafeGraph 2023). SafeGraph provides data on visits to stores of more than 7,000 distinct brands, covering all the major brands in the US. The data include the brand's North American Industry Classification System (NAICS) category, the store's street address, counts of visits, home CBGs of the visitors, and other brands that the visitors visited in the same month, etc. From SafeGraph, we select brands in NAICS categories related to daily consumption. We utilize the data about the home CBGs of the visitors, linking it to the US Census to obtain the CBG's median household income. We also match brands with Yelp data to get a measure of the price level of the brands in the form of dollar signs ($) from one to four. We aggregate the data on the other brands visitors visited in the same month to build a weighted directed network of co-visits to brands and analyze the co-visit network to test our hypothesis.

The study is ongoing, and here we present preliminary results. Currently, we use data for New York State from October 2019. We choose October 2019 because it is the latest month not affected by Covid-19 nor holiday shopping. We pick New York State because it is one of the most populous states in the US and contains diverse urban/rural settings, including both a metropolitan New York City and a rural Upstate. Figure 1 shows the weighted directed network of co-visits to 931 brands, where the color of the nodes represents the brands' Yelp price level (148 brands without available Yelp price levels are colored grey), and the size of the nodes means the brands' SES, measured by the median income of their visitors' home CBGs. The network is clustered by the Walktrap algorithm into three main communities. One community contains mainly low-price/SES brands (e.g., Dollar General, Save A Lot), one includes many high-price/SES brands (e.g. Dior, Whole Foods Market), and the other contains a mixture of different prices/SES. The average price levels in the communities are 1.73, 2.43, and 2.04; the average SES (median income of visitors) are $78,178, $96,352, and $89,439. These results provide initial support for H1. Next, we will refine the results and conduct additional network analyses to identify niche consumption: we will study the "ego networks" of brands, use centrality measures to find outliers, and identify sub-groups within communities. For example, we expect to find more sub-groups within the high-SES cluster than the low-SES cluster. We also redo the community detection by weighing the co-visits with potential confounders such as the geographic proximity between brands and the number of stores for a brand.

This study provides both theoretical and empirical contributions to the study of consumption inequality. Theoretically, we integrate the separate strands of research on cultural omnivorousness, conspicuous consumption, and inconspicuous consumption into one coherent theoretical argument. Empirically, by combining data from multiple sources, we offer large-scale evidence for the SES boundaries in daily consumption practices. We quantify the extent to which privileged niche consumption practices enjoyed by high-SES individuals are not accessible to low-SES people. The findings will also contribute more generally to cultural sociology, stratification, consumer, and marketing research.

References

Berger, Jonah, and Morgan Ward. 2010. 'Subtle Signals of Inconspicuous Consumption'. *Journal of Consumer Research* 37(4):555–69. doi: 10.1086/655445.

Dong, Xiaowen, Eaman Jahani, Alfredo J. Morales, Burçin Bozkaya, Bruno Lepri, and Alex 'Sandy' Pentland. 2020. 'Purchase Patterns, Socioeconomic Status, and Political Inclination'. *The World Bank Economic Review* 34(Supplement_1):S9–13. doi: 10.1093/wber/lhz008.

Leo, Yannick, Márton Karsai, Carlos Sarraute, and Eric Fleury. 2018. 'Correlations and Dynamics of Consumption Patterns in Social-Economic Networks'. *Social Network Analysis and Mining* 8(1):9. doi: 10.1007/s13278-018-0486-1.

SafeGraph. 2023. 'Welcome | SafeGraph Docs'. *SafeGraph*. Retrieved 14 January 2023 (https://docs.safegraph.com/docs/join-our-community).

de Vries, Robert, and Aaron Reeves. 2021. 'What Does It Mean to Be a Cultural Omnivore? Conflicting Visions of Omnivorousness in Empirical Research'. *Sociological Research Online* 13607804211006108. doi: 10.1177/13607804211006109.

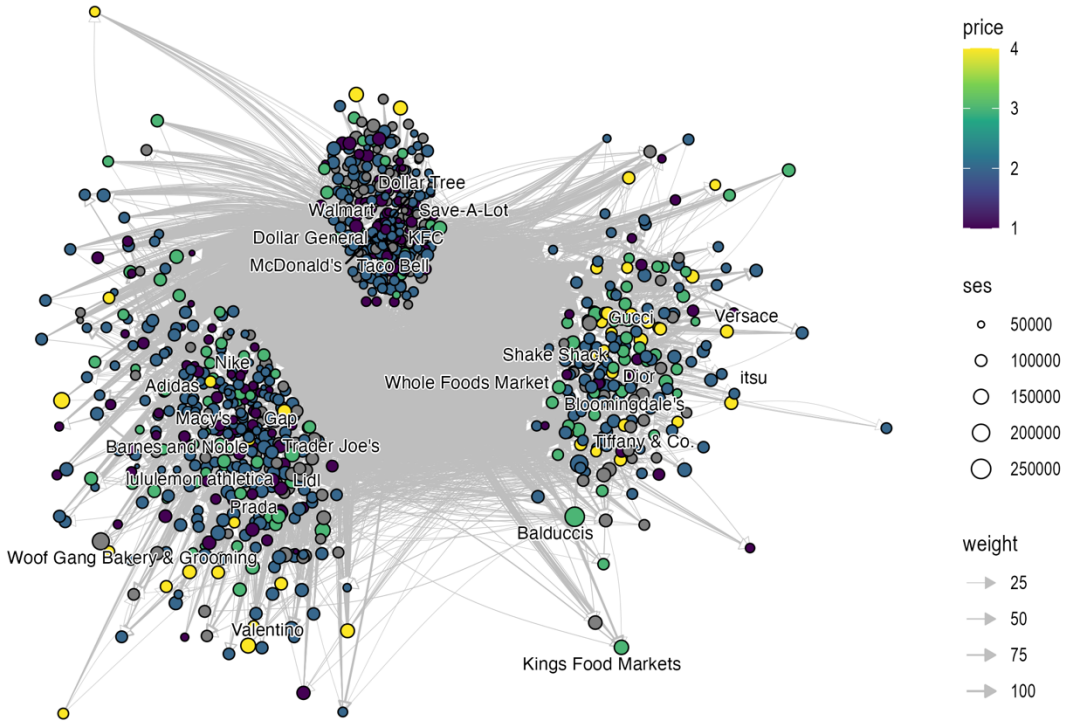

Figure 1. Co-visits to 931 Brands in New York State in October 2019.