NO. 1–2026 JANUARY 2026
FEDERAL RESERVE BANK OF ATLANTA'S *POLICY HUB*

Geographic Inequality in Food Inflation

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Summary:

Using NielsenIQ Retail Scanner data, we study how food inflation varies across regions with different income levels and the role of retailer market structure. From 2006 to 2020, for the average consumer, food prices—as measured by the personal consumption expenditures (PCE) price index for food and beverages—rose by by about 1.8 percent per year. However, this aggregate increase masked substantial spatial heterogeneity. Poorer metropolitan statistical areas (MSAs) experienced annualized food inflation that was half a percentage point higher than that of richer ones—amounting to a cumulative difference of 8.8 percentage points over the period. We show that higher retailer concentration—that is, markets with less retailer competition—in poorer areas is one contributing factor to the higher food inflation that consumers in these locations faced.

Key Findings:

1. Consumers experienced higher food inflation in poorer areas relative to richer areas from 2006 to 2020.
2. During this period, annualized food inflation was half a percentage point higher in the poorest decile of MSAs relative to the richest decile of MSAs.
3. Using a natural experiment of the 2014–15 bird flu episode, we can establish a causal link between market concentration and inflation.

Center Affiliation: Economic Survey Research Center

JEL Classification: E31, I31, R12

Keywords: inflation, spatial inequality

https://doi.org/10.29338/ph2026-01

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Acknowledgments: We thank Salome Baslandze, Brent Meyer, and Lei Fang for assistance in writing this *Policy Hub* paper. We also thank the RESET team for providing the infrastructure to address our research project. This research is funded by the Washington Center for Equitable Growth. Researcher(s)' own analyses are calculated (or derived) based in part on data from Nielsen Consumer LLC and marketing databases provided through the NielsenIQ Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business. The conclusions drawn from the NielsenIQ data are those of the researcher(s) and do not reflect the views of NielsenIQ. NielsenIQ is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported herein. Michael Navarrete worked on this paper while a PhD student at the University of Maryland. The views expressed here are the authors' and not necessarily those of the Federal Reserve Bank of Atlanta nor the Federal Reserve System. Any remaining errors are the authors' responsibility.

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1 Introduction

Inflation is a key economic indicator with broad implications for economic growth, stability, and household well-being. Yet inflation is typically measured and analyzed at the national level, and both research and policy discussions often overlook substantial heterogeneity in inflation rates across regions.[1]

Our research, Kim and Navarrete (2025), studies the spatial heterogeneity in food inflation by exploiting rich micro-level data on product prices across different stores in the United States. Understanding local variation in food inflation is particularly important for several reasons. First, food is a necessity and constitutes a disproportionately large share of spending for low-income and vulnerable households.[2] Second, food markets are local: most consumers buy groceries near where they live and rarely purchase food in other MSAs.[3] As a result, spatial variation in food inflation can have meaningful implications for consumer welfare and spatial inequality—yet these distributional dimensions of inflation remain largely underexplored in the literature.

From 2006 to 2020, annualized food inflation was half a percentage point higher in the poorest decile of MSAs relative to the richest decile of MSAs. We also investigate alternative mechanisms behind systematic differences in local food inflation between rich and poor MSAs, such as differences in basket composition, and find that higher retailer concentration in poorer areas leads to higher prices after exogenous supply shocks.

2 How We Measure Inflation across Areas

Our primary dataset for analyzing heterogeneous inflation rates across regions is the NielsenIQ Retail Scanner (RMS) dataset. The RMS dataset enables us to measure inflation rates across regions by analyzing sales and price data from retailers for food products at the product level. The RMS data—provided by the Kilts Center at Chicago Booth—include weekly pricing, volume, and store merchandising information from more than 100 retail chains and more than 40,000 stores across US markets.[4]

To study spatial variation in food inflation, we aggregate these data to the MSA by food category for each quarter. We then sort these MSAs into deciles based on their average income

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[1] The Bureau of Labor Statistics (BLS) provides official regional price indexes, but only for a limited subset of large metropolitan areas. Specifically, these data are available for 23 core based statistical areas (CBSAs), which are mostly high-income areas. See more details at https://www.bls.gov/cpi/regional-resources.htm.

[2] Schanzenbach et al. (2016) report that low-income households spend nearly 20 percent of their total expenditures on food, compared to 13 percent for middle-income households and an even smaller share for high-income households, based on the Consumer Expenditure Survey.

[3] See Kim and Navarrete (2025).

[4] For more details, see Ehrlich et al. (2023).

per capita. Using these aggregates, we construct price indexes for food by MSA income deciles that track how food prices evolve across regions with different income levels.[5] The geometric Laspeyres bilateral price index is constructed by taking the geometric mean of price relatives over two consecutive quarters, using shares from the previous quarter as weights. These one-period rates of changes are then cumulated to construct the chained geometric Laspeyres price index. Since the index uses lagged expenditure weights, our price index starts from 2006Q2.

3 Poorer Areas Face Higher Food Inflation

Figure 1 presents the chained geometric Laspeyres price index for aggregated food, constructed from the NielsenIQ Scanner data by income decile. We report results for the first (poorest), fifth, and tenth (richest) income deciles, alongside the official PCE food price index for comparison, and we set the base quarter to 2006Q2.

The general trend in the figure indicates that the poorest decile ("Decile 1") experiences consistently higher food price growth than the richer deciles ("Decile 5" and "Decile 10"). On average, annualized food inflation is approximately half a percentage point higher in MSAs in the bottom income decile compared to MSAs in the top income decile. Over the sample period, this difference corresponds to a cumulative inflation gap of nearly 8.8 percentage points between the poorest and richest deciles. For comparison, food prices—as measured by the the PCE price index for food and beverages—increased by 30 percent over the same period.[6] Additionally, the PCE price index and the richest decile (decile 10) closely track each other in levels as shown in figure 1. The PCE price index should look most similar to the richest decile because the richest decile comprises larger MSAs that account for a disproportionate share of total expenditures. It is also worth noting that the official price index includes far fewer MSAs than are present in the NielsenIQ analysis.[7]

4 Role of Retailer Market Structure

We document systematic differences in retailer market structure, consumption baskets, and inflation across regions using NielsenIQ data grouped by income-per-capita decile. Poorer areas exhibit more concentrated retail markets—reflected in higher concentration measures of the Herfindahl-Hirschman Index (HHI) and fewer retailers and stores—alongside lower total sales. HHI measures how competitive a market is where higher HHI values correspond to less competition and higher retailer concentration. These markets also offer fewer goods, with a larger share of consumption concentrated in a common set of goods. Because differences in

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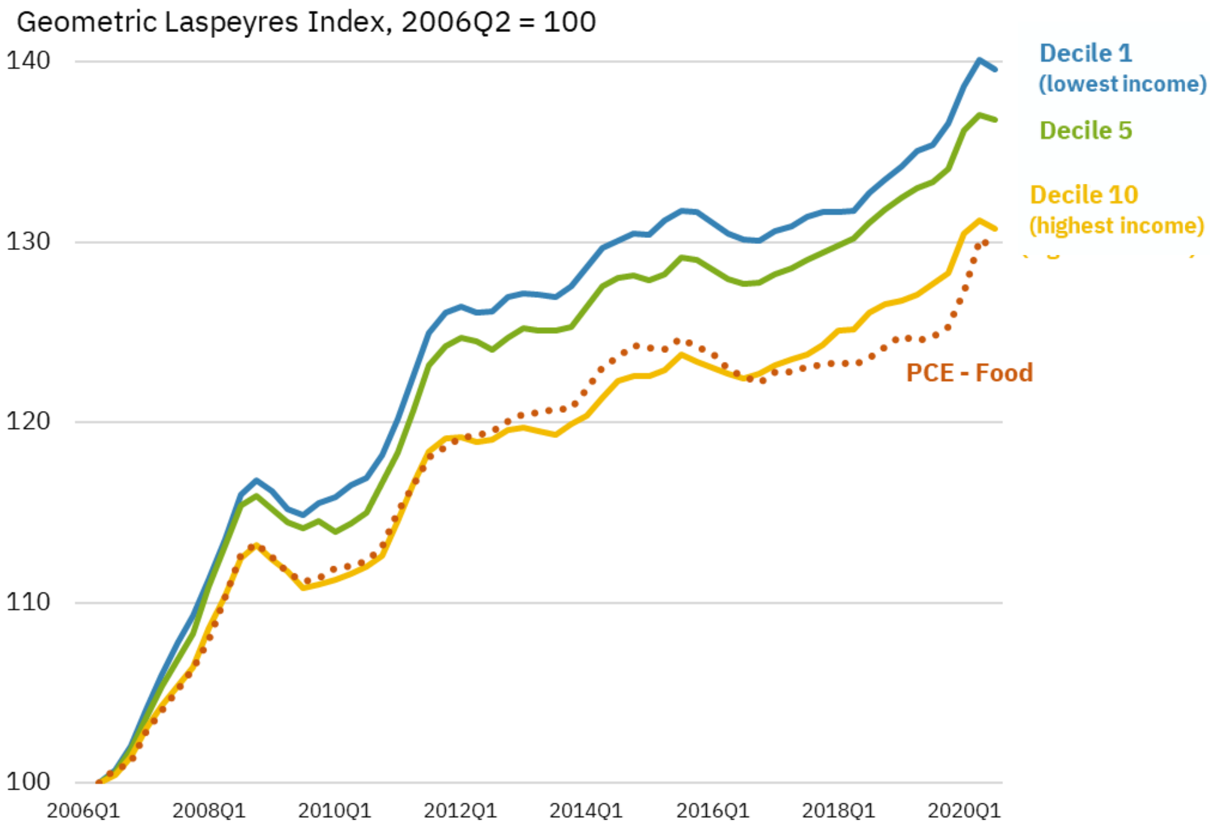
[5] Kim and Navarrete (2025) show how the NielsenIQ Retail Scanner is well designed to measure price indexes across MSAs.

[6] On an annualized basis, food prices rose about 1.8 percent during this period.

[7] Argente and Lee (2021) find that the Laspeyres index from NielsenIQ Consumer Panel closely tracks the CPI-U at the food-at-home level.

Figure 1: Price Index for Aggregated Food



Notes: This figure represents the chained geometric Laspeyres price index constructed using NielsenIQ Retail data (solid lines) as well as the official personal consumption expenditures (PCE) index from the Bureau of Economic Analysis (dashed line) for aggregate food and beverages. The sample period begins in 2006Q2 and ends in 2020Q3, and the series is normalized at the initial quarter. Each solid line corresponds to a decile of the income per capita ranking of MSAs, with decile 1 containing the MSAs with the lowest income per capita and decile 10 containing the MSAs with the highest income per capita. We map the NielsenIQ UPCs to the PCE definition of food purchased for off-premises consumption using a product module concordance provided by the US Bureau of Labor Statistics.

basket composition may mechanically contribute to observed inflation gaps across income groups, we impose a common-goods restriction to construct comparable price indexes, limiting the sample to goods observed in all deciles.[8] Even under this restriction, we continue to observe higher food inflation in poorer, more concentrated markets, although the gap between the highest- and lowest-income deciles is attenuated relative to figure 1.

Although we observe higher food inflation in poorer MSAs with higher market concentration, this correlation does not establish causality. Consumers in poorer MSAs might,

[8] The common-goods restriction requires that the basket of goods (UPCs) be identical across income deciles. This restriction is done in a pairwise manner between quarter t and quarter $t-1$.

for example, have different preferences from those in richer MSAs or be less price-sensitive. To address this limitation, we perform an event study using the 2014–15 highly pathogenic avian influenza (bird flu) outbreak as an exogenous supply shock to examine the price-sensitivity of eggs across MSAs. The outbreak, which began in 2014Q4, substantially affected both the price and quantity of eggs sold. Based on US Department of Agriculture (USDA) reports, 36 million layers (birds that lay eggs) were lost due to the bird flu by June 2015. This reduction in egg supply caused a sharp spike in egg prices nationwide. We exploit geographic variation across MSAs in both the timing and severity of the bird flu outbreak and implement a triple-difference research design to identify how the pass-through of the supply shock to local egg prices varies with retailer concentration. We find that, among MSAs exposed to the bird flu shock, those with higher retailer concentration experienced faster growth in egg price relatives following the onset of the outbreak than less concentrated MSAs.

5 Implications for Policy and Measurement

In Kim and Navarrete (2025), we investigate spatial variation in food inflation and the role of retailer market structure. Using NielsenIQ Retail Scanner data, we show that poorer MSAs experienced higher food inflation than richer areas and that these poorer MSAs also have fewer product varieties, fewer retailers, a higher share of large chains, and greater market concentration. Exploiting the 2014–15 bird flu outbreak as an exogenous supply shock, we find that MSAs with more concentrated retail markets experienced larger inflation spikes and weaker price declines afterward. This asymmetry suggests that market concentration plays a significant role in shaping how retailers pass through cost shocks to consumers. Temporary shocks can therefore have persistent effects, contributing to long-run differences in inflation and real income across regions.

These findings have important implications for both inflation measurement and policy. By documenting higher food inflation in poorer areas—driven in part by greater retailer concentration—they highlight the need for disaggregated data not only to capture inflation heterogeneity, but also to uncover market structure as a key underlying mechanism. Poorer, more concentrated markets experience larger and more persistent food price shocks, amplifying the burden on low-income households. National price indexes, constructed using expenditure-weighted aggregates from a limited set of MSAs, might obscure these disparities by underweighting or omitting poorer markets altogether. Understanding local market structure is thus essential for interpreting local food inflation dynamics, evaluating consumer welfare, and designing policies that address the affordability challenges that households in less competitive markets face.

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