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## **Evolution of Entry into U.S. Food Retailing: Implications for Local Competition**

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*This work is supported by USDA National Institute of Food and Agriculture Project 2022-67023-36405*

*Selected Paper prepared for presentation at the 2023 Agricultural & Applied Economics Association  
Annual Meeting, Washington DC; July 23-25, 2023*

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## 1. Introduction

The onset of the coronavirus pandemic in 2020 elevated the importance of food retailers by shifting consumer from food-away-from-home establishments (e.g., restaurants, cafeterias, and other dining establishments) to food-at-home retailers (e.g., grocery stores, supercenters, etc.). In fact, the share of food bought at grocery stores reached record levels (Ellison et al., 2021; Zeballos & Dong, 2021). Grocery price inflation became salient. In September 2022, the CPI for food-at-home increased by 23% compared to the same period in the 2019, respectively (U.S. Bureau of Labor Statistics, 2022).

The food retailing landscape continues to evolve quickly due to the entry and exit of various food retailers. Large national chains and nontraditional store formats (supercenters, warehouse clubs, and dollar stores) are growing in terms of size and the number of outlets. In contrast, traditional formats such as conventional supermarkets continue to decline (Stevens, 2021), underscoring growing industrial concentration in the United States (Zeballos, Dong, and Islamaj 2023). Food retailers compete not only over prices but also services, quality, and assortment, etc., and even though more than half of consumer expenditures for food-at-home (54%) still happened at grocery stores in 2021, the share is declining significantly compared to 1997 (72%).<sup>1</sup> At the same time, sales shares in warehouse clubs and supercenters increased from 8% in 1997 to 23% in 2021.

The entry and exit of various retail formats play an important role in the evolution of the food retail landscape and local competition. A recent and growing literature analyzing market dynamics in retail markets examines how the entry of nontraditional food retailers, especially supercenters, affects competitors through prices (Arcidiacono et al., 2020; Basker & Noel, 2009), quality and service (Matsa, 2011), and sales and survivals (Lopez, Marchesi, and Steinbach 2023). The entry of new food retailers also impacts the local labor market through wages, employment, and workers' benefits (Basker 2005a; Dube,

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<sup>1</sup>Food Expenditure Series, Economic Research Service, <https://www.ers.usda.gov/data-products/food-expenditure-series/>

Lester, and Eidlin 2007; Lopez et al. 2023; Lopez et al. 2023; Neumark, Zhang and Ciccarella 2008). Studies also investigate how entry and exit of various retail formats affect food accessibility (Chenarides et al., 2021; Courtemanche et al., 2019).

There is little empirical evidence on the general entry and exit pattern in U.S. food retailing related to the competitive effects of nontraditional format entry. While Stevens (2021) describes the evolution of the number of outlets, sales, and employment among various food retailers in rural America from 1990-2019, he did not explore the entry and exit patterns behind the evolution. Hanner et al. (2015) do consider the entry and exit literature in their study of the grocery industry, but they overlook the rest of the food retail industry.

Local grocery stores are essential channels of local job opportunities that also ensure food access and generate tax revenues. However, they face pressure in the evolving food retail market. Whether grocery store contraction is a problem of low entry, high exits, or both is a worthwhile question to explore, particularly given the limited evidence currently available. Hanner et al. (2015) suggest that entry and exit are quite common for independent grocery stores and small local chains, while large supermarket chains have relatively low rates of entry and high rates of exit. However, they did not dive deeply into the contributing factors of small local grocery stores' entry and exit.

To fill those two gaps in the literature, this study has the following main objectives. First, we aim to uncover the entry and exit patterns of various food retailers in the nonmetro U.S. from 1990 to 2021. Second, we study the downward pressure on traditional grocery retailers in the evolving food retail industry and shed light on the reasons for the contraction. Our contribution is two-fold. First, we add to the literature on the entry and exit patterns, which illuminates competition in U.S. food retailing. From the perspective of policymaking, this research will help inform policies on sustainable and healthy competition, for example, antitrust regulations. Second, we shed light on whether grocery store contraction is a problem of low entry,

high exits, or both, which can inform policies to provide incentives for entry or to regulate the existing market.

The remainder of this paper is as follows. Section 2 introduces the background of evolving food retailing in the United States. Section 3 describes the dataset, and section 4 present the results. Conclusions limitations are presented in Section 5.

## **2. Background**

### **2.1 Increasing Concentration in U.S. Food Retailing**

Food retailing is economically important. Food and beverage grocery sales in the U.S. surpassed \$803 billion in 2021 and supported over 3.7 million jobs—more than all the jobs in farming and food manufacturing combined. The top four retailers accounted for approximately one-third of food sales (Statista, 2021; U.S. Bureau of Labor Statistics, 2021).

Food retailing has experienced increasing market concentration in the United States (Zeballos et al., 2023). A notable trend is increasing mergers and acquisitions driven primarily by supermarkets' response to the expansion of general merchandise retailers like Walmart into the food retail space (Çakır et al., 2020; Ellickson, 2007). Over 300 food industry mergers and acquisitions were recorded in 2019 alone (USDA ERS, 2021). This increasing concentration has attracted government attention. For example, President Biden signed an executive order to tackle the rampant concentration across the U.S. economy, including food and farming, but mergers and acquisitions continue: Two of the largest supermarkets, Kroger and Albertsons, announced a merger agreement in October 2022.<sup>2</sup>

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<sup>2</sup> Two of the largest supermarkets in America are merging, <https://www.cnn.com/2022/10/14/business/kroger-albertsons-merger/index.html>

Statistically, 20 firm concentration ratios (i.e., the market share of the 20 largest firms) were above 60% in the food retail industry in 2020 (Zeballos et al., 2023). National statistics on increasing concentration in food retailing say nothing about concentration in local market, however. At the national level, market concentration is relatively lower when compared to the state, metropolitan statistical area (MSA), and county levels (Zeballos et al., 2023). Rossi-Hansberg, Sartre, and Trachter (2018) suggest that the average local market concentration declined while national market concentration increased, and the narrower the geographic definition, the faster the decline in local concentration.

The increasing concentration in this sector has raised concerns regarding its impact on horizontal competitors, upstream farmers, and downstream consumers. Previous studies noted that only modest levels of market power exercised at multiple stages of the market channel could cause dramatic shifts in the distribution of welfare among farmers, marketers, and consumers (Sexton & Zhang, 2001). Under perfect competition, marketers receive no surplus, but they would be able to capture half or more of the market surplus with market power under the assumption of constant returns to scale. Even though the pure deadweight loss effect is rather small with modest market power, the impact on distribution may be large.

The COVID pandemic showed how the increasingly concentrated grocery supply chain is highly vulnerable to shocks and disruptions (Hobbs, 2020). The concentrated market emphasized cost efficiency, which resulted from food retailers' just-in-time approach, with relatively low stock and continuous product flows. When a severe economic downturn occurs, demand falls and retailers may squeeze the supply chain to reduce costs, which creates challenges for food processors and suppliers. Small food retailers with limited bargaining power may also face challenges.

## **2.2 Competitive Effects of Non-traditional Food Retailer Entry on Traditional Grocers**

The food environment is a mix of diverse outlets, and those outlets serve the same or different groups of consumers. The entry-location decision made by a food retailer is based on an evaluation of

whether it can recover the cost of opening a new store and generate profits in the future. The profitability of an outlet is based on population density, consumer characteristics, its own product assortment, overall store size, and quality level, as well as the absence or existence of other food retailers in the community. From the perspective of consumers, the outlets could substitute for or complement each other. Targeting distinct segments of consumers, food retailers serve heterogeneous populations that could overlap with those of their rivals. Therefore, when supercenters enter a new market, incumbent grocers might act differently than they do when other retail formats, such as warehouse clubs, dollar stores, specialty food stores, or convenience stores, enter. Furthermore, the entry and exit decision-making process could be different based on the surrounding environment at a specific location.

As the local food retail landscape changes with the entry or exit of different retailers, consumer preferences for what and where to purchase adapt. The location, product variety, and marketing strategies of various food retailers significantly impact consumer shopping basket. Furthermore, the ever-evolving nature of the food retail environment not only impacts consumers but also has implications for local economic development, especially in rural areas. Since the 1990s, big-box discounters and wholesalers like Walmart, Costco, and Target have grown markedly in the United States. In rural America, where an economically viable grocery retail sector is important to the sustainability of local communities, traditional grocery stores have continued to disappear. A handful of studies have investigated the impact of Walmart supercenters on competing food retailers (especially traditional grocers and supermarkets) in terms of price (Arcidiacono et al., 2020; Basker, 2005b; Basker & Noel, 2009; Hausman & Leibtag, 2007; R. J. Volpe & Lavoie, 2008), sales and revenue (Artz & Stone, 2006), employment (Basker, 2005a; Dube et al., 2007; Ellickson & Grieco, 2013; Neumark et al., 2008), entry and exit (Ellickson & Grieco, 2013), and product variety and quality (Matsa, 2011). In terms of price, the famous race-to-the-bottom pricing strategy of Walmart lures price-sensitive consumers, numbs their response to promotional activities, and leaves the rest of the market with more price-inelastic consumers and lower demand (Cleary & Lopez, 2013). Although numerous studies suggest that Walmart's entry decreases competitors' prices (Basker, 2005b;

Hausman & Leibtag, 2007; R. J. Volpe & Lavoie, 2008), more recent studies have found no discernible, long-run impact of supercenter entry on grocery prices (Arcidiacono et al., 2020). Supermarket responses to Walmart entry include non-price competition, such as services and product quality. Matsa (2011) found that supermarkets competing with Walmart were less likely to have stockouts or shortages, which also suggested an increase in product quality.

Walmart supercenter entry also corresponds to a reduction in supermarket sales and revenues (Arcidiacono et al., 2020; Artz & Stone, 2006; Ellickson & Grieco, 2013), although the perishable nature of groceries and the significant travel costs associated with shopping at Walmart supercenters contribute to localized impacts. Ellickson and Grieco (2013) suggest that only firms within a two-mile radius of a Walmart are affected, while Arcidiacono et al., (2020) found that an incumbent within one mile of a supercenter entry experienced a sharp reduction (16%) in revenue.

Ultimately, incumbents that were unable to compete with Walmart end up exiting the market. However, previous studies have not definitively identified which types of stores are more likely to exit. One of the common criticisms of Walmart is their negative impact on small businesses. Jia (2008) suggested that Walmart entry causes 40 to 50% of small discount stores to exit the market. Çakır et al. (2020) also concluded that Walmart entry is associated with the decreasing number of independent grocery retailers in rural markets. According to Matsa (2011), competitors who fail to improve their product quality and engage in price competition with Walmart stores are more likely to end up exiting the market. Those who cut prices are low-end, small-scale grocery stores, while the big retailers are more likely to maintain uniform prices (Basker & Noel, 2009).

Contrary to evidence on the detrimental impacts of Walmart stores on small business closures, Arcidiacono et al. (2016) suggest that the expansion of Walmart into the grocery sector primarily affected large incumbent chain stores rather than the small businesses that had previously suffered due to Walmart's dominance in the general merchandise sector. Independent grocery retailers actually thrive when Walmart



enters, which leads to a reduction in market concentration (Arcidiacono et al., 2016). Similarly, Ellickson and Grieco (2013) found no significant impacts of Walmart on retailers other than large chain stores. Hicks, Keil, and Spector (2012) showed that Walmart entry has discernable impacts on large retailers, but not on small ones located in downtown areas.

Local grocers are impacted not only by supercenters but also by other competitors such as the remarkably growing format: warehouse clubs. Compared to Walmart supercenters, warehouse clubs sell goods in bulk quantities and provide less variety within each product category. Moreover, consumers need to pay a membership fee to shop in the clubs' low-amenity environments, which feature high-stacked, relatively low-priced goods. Consumers are more likely to build brand loyalty to warehouse clubs because they face a higher transaction cost to transfer to find alternatives. The competitive effect of warehouse clubs will therefore be intrinsically different from that of the low-price supercenter. Warehouse clubs affect not only the pricing strategies of incumbent retailers but also the product assortment. Incumbent retailers are likely to increase prices and reduce assortment for highly storable products, and decrease prices and increase assortments for less storable products (Bauner & Wang, 2019).

The discussion of dollar store expansion is mostly focused on food accessibility in rural and low-income areas (Caoui et al., 2022; Chenarides et al., 2021, 2023), but there is some evidence of the impact of dollar stores on food retail competition. Grigsby-Calage et al. (2021) study the spatial dimension of dollar store expansion and suggest that given their small market areas, low costs, and low prices, dollar stores can operate in competitive environments that conventional grocers or larger big-box discounters cannot survive in. (Chenarides et al., 2023) speak specifically to the entry effects of dollar stores and find that their entry is likely to benefit large-format grocery retail stores and big-box discounters. Lopez, Marchesi and Steinbach (2023) suggest that independent grocery retailers are 2.3% more likely to exit the market following a dollar store entry, leading to a 3.7% reduction in employment and 5.7% lower sales.

### **3. Data**

#### **3.1 National Establishment Times Series**

This research used the National Establishment Time Series (NETS) database to investigate the dynamic evolution of the food retail industry. NETS is a product of Walls & Associates. The source data for NETS is collected by Dunn & Bradstreet (D&B) for the Duns Marketing Information file, consisting of longitudinally linked Dun & Bradstreet establishment-level data on business employment, sales, location, and other essential establishment characteristics from 1990 to 2021. Although establishments are not legally obliged to participate or report to D&B, the organization has built a strong profit-based incentive system to compile accurate data. Therefore, NETS covers essentially all firms and establishments.

NETS provide several establishment characteristics variables. For our purpose, variables of interest at the establishment level are business name and detailed address, first and last year that the business was active, NAICS code, employment, annual sales in dollars, etc.

We filtered all food retail establishments as follows. First, we specified four common store formats based on the NAICS code: supermarkets and other grocery stores (445110), convenience stores (445120 & 447110), specialty food stores (445210, 445220, 445230, 445291 & 445299), and warehouse clubs (452311). In addition to those four common store formats, we also identify dollar stores and supercenters to capture all food retailing establishments. Stores with the words DOLLAR, 99, DIME, VALUE, CENT, DISCOUNT, etc., in their names (i.e., NAICS 445110, 445120, 452210, 452311 and 452319) are specified as dollar stores.

We placed stores with WALMART, WAL-MART, and Walmart in the company and trade name with Walmart Inc. (NAICS 452210 & 452319). To validate that the NETS essentially covers most of the Walmart stores in the United States, we also compared the information obtained from the NETS to

Walmart's annual reports.<sup>3</sup> Even though we could not capture all Walmart stores as listed in the annual reports, we did capture most of them (Figure A1 and Figure A2)<sup>4</sup>. We combine the NETS data with that posted on Walmart Store Status Public Data (WSSPD) to classify the Walmart store types.<sup>5</sup> The Walmart Store Status Public Data lists all types of Walmart stores throughout the U.S. in April 2023, including the coordinates of each store. This public data is updated regularly and presents the most up-to-date situation of all Walmart stores. Comparing the two sets of coordinates from NETS and WSSPD, we assigned the store formats for each Walmart store if the geographic distance between the two data points is short (less than 250 meters). More than 90% of Walmart stores in the 2021 NETS database was assigned store formats successfully.<sup>6</sup> One potential limitation is that we may not have captured all the supercenters that were converted from discount stores during the initial phase of supercenter expansion, despite our efforts to collaborate with the available dataset from (Holmes, 2011) to track the conversions.

We create indicators to classify grocery stores into independent grocery retailers (IGRs), local chain grocers, regional chain grocers, and national chain grocers. A grocery store is IGRs if it operates a single store. A retailer who operates multiple stores in a single state is classified as a local chain grocery retailer, one who operates in two to 10 states is classified as a regional chain grocery retailer, and a retailer operating in more than 10 states is classified as national chain grocery retailer.

### **3.2 Entry, Exit, Market Share, and Relative Size**

Following Dunne, Roberts, and Samuelson (1988), we focus on three aspects of entry and exit patterns of various food retailers in the U.S. from 1990-2021: (1) entry and exit rate for each type of food retailer; (2) relative importance of entry and exit establishments (market share and relative size); (3) post-

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<sup>3</sup> Walmart Annual Report <https://stock.walmart.com/financials/annual-reports/default.aspx>

<sup>4</sup> Figure A1 is from [Volpe and Boland \(2022\)](#) and Figure A2 is from NETS.

<sup>5</sup> Walmart open data hub: <https://walmart-open-data-walmarttech.opendata.arcgis.com/>

<sup>6</sup> Even though this procedure cannot assign store formats for those that closed before 2021, we expect a low failing-assigned rate because of the low number of closed Walmart stores.

entry performance of entry establishments (long-term market shares and average size). We calculate entry/exit rates, market share, and relative size at both the national and local county levels.

We capture the entry and exit year of an establishment by the first and last active year provided in NETS.<sup>7</sup> Through the integration of entry and exit data, coupled with the geographic, sales, and employment data of each establishment, we can gain a comprehensive understanding of the dynamic changes occurring within the food retail landscape across the entire United States.

Let  $N_{it}$  denote the total number of firms in the market  $i$  in year  $t$ ;  $NE_{it}$  is the number of entry establishments between year  $t$  and  $t - 1$ , and  $NX_{it-1}$  is the number of firms that exit the market between those years. We define the entry and exit rates as  $\frac{NE_{it}}{N_{it-1}}$  and  $\frac{NX_{it-1}}{N_{it-1}}$ .

We also investigate the relative market size of entry and exit establishments. Denote  $S$  as the total sales,  $SE$  the sales of entry establishments, and  $SX$  the sales of exit establishments. We define the market shares of entry and exiting establishments as  $sE_{it} = SE_{it}/S_{it}$  and  $sX_{it-1} = SX_{it-1}/S_{it-1}$ , respectively. Market shares denote the contribution of entry in the year that they entered the market, and the contribution of the exit establishments in the year when they exit the market.<sup>8</sup> We construct the average size of entry and exit establishments relative to incumbents/surviving establishments as follows:

$$ERS_{it} = \frac{SE_{it}/NE_{it}}{(S_{it} - SE_{it})/(N_{it} - NE_{it})}$$

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<sup>7</sup> Note that we define the local entry and exit status of an establishment as occurring at the establishment level without regard to the status of the parent firm.

<sup>8</sup> Sales are deflated using the regional food and beverage retail price index obtained from the Bureau of Labor Statistics (2021).

$$XRS_{it-1} = \frac{SX_{it-1}/NX_{it-1}}{(S_{it-1} - SX_{it-1})/(N_{it-1} - NX_{it-1})}$$

## 4. Results

### 4.1 The Evolving Food Retail Landscape Across Rural America, 1990-2021

Before delving into the entry and exit patterns of different food retailers, we first provide an overview of the food retail landscape in nonmetro counties from 1990 to 2021, which supplements the findings presented in Stevens (2021).<sup>9</sup> We focus on three aspects of the landscape: (1) the evolution of the number of establishments; (2) the evolution of sales and employment; and (3) market share in terms of sales and employment across formats.

#### 4.1.1 Evolution of the Number of Establishments

Figure 1 shows an increase in food retail establishments from 1990 until the Great Recession in 2008 (around 70,000), followed by a decline (around 58,000 in 2021). The opening of new stores before 2008 created more job opportunities. After 2008, despite the closure of establishments, employment remained stable, indicating a distribution effect among different types of food retailers. In the early 1990s, there was approximately one food retailer per 1000 persons in nonmetro counties (Figure 2). This ratio increased to about 1.5 food retailers per 1000 persons before the Great Recession, but later returned to one.

The composition of the food retail industry keeps evolving (Figure 3). In sum, the number of nontraditional food retailers such as dollar stores, specialty food stores, supercenters, and warehouse clubs

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<sup>9</sup> We focus on nonmetro counties for several reasons. First, there has been a significant expansion of nontraditional food retailers, particularly supercenters, in rural areas, leading to an increase in consumer spending at these retailers. Second, rural food retailers, which are more likely to be independent grocery stores, contribute to the local economy but have experienced a decline in recent years, possibly due to competition from supercenters and other chain stores. Last, while studies like Allcott et al. (2019) argue that consumer diet quality is a demand issue rather than a supply side issue, there is evidence suggesting that the growing number of nontraditional food retailers in rural areas is associated with poor diet quality among consumers.

in nonmetro counties increased, while traditional retail format grocery stores and convenience stores declined markedly after the Great Recession. After that, the number of grocery stores and convenience stores trends steeply downward, while dollar stores, specialty food stores, supercenters, and warehouse clubs keep expanding. The number of traditional grocery stores had been stagnant for almost two decades before 2008 (around 26,000), but had declined to 18,000 by 2021. Even though grocery stores have shrunk in terms of the number of outlets, it is still the format with the most outlets, followed by convenience stores, specialty food stores, and dollar stores. Supercenters and warehouse clubs are the food retail formats with the least number of outlets. In 2017, the number of specialty stores exceed the number of convenience stores for the first time. IGRs, which account for approximately 80% of grocery stores (Figure 4), play a significant role in the decline of grocery stores.

In Figure 5 (Panel A), we examine the percentage growth in the number of various food retailers from 1990 to 2021, comparing it to the levels in 1990. Among these retailers, warehouse clubs and supercenters stand out with the highest rate of physical expansion. This can be attributed to their initially limited number of establishments and their aggressive expansion efforts, which started in the 1990s. The growth of dollar stores ranked third. Even though the number of convenience stores has been declining since 2010, their percentage growth is positive at the base of 1990. The grocery store is the only food retail format that has shown negative growth compared to 1990.

Figure 5 (Panel B) illustrates the significant decline in two categories of grocery stores: independent grocery retailers (IGRs) and local chain stores. National and regional chain stores show growth rates similar to those of other food retailers, but IGRs experience negative growth, with contraction accelerating after the Great Recession. After a temporary expansion in the 1990s, local chain stores have gradually declined in market presence.

To examine the geographic expansion of various food retailers across the U.S., we create maps displaying the number of supercenters, grocery stores, and dollar stores. In 1995, only 11% (220/1941) of

nonmetro counties had supercenters (Figure 6). However, by 2020 this figure had risen to half of the nonmetro counties (917/1941). Among the counties with supercenters, 84% them had only one supercenter, while the remaining 16% had multiple supercenters. The expansion of supercenters appears to be wide- and evenly spread across the United States over the past three decades. Figure 7 reveals a different pattern for grocery stores compared to supercenters. Overall, there has been a decline in the number of grocery stores over time. Specifically, the southeastern region had experienced a significant decrease in the number of grocery stores by 2020, compared to 1990. Dollar stores rank third in physical expansion. Distinct from the larger service area of a supercenter, dollar stores serve smaller regions, which corresponds to a higher number of outlets that penetrate the market. Figure 8 indicates that approximately 39% (752/1941) of nonmetro counties did not have any dollar stores in 1995. However, by 2020 this number decreased to 11%. Additionally, in 1995 there was only one county with more than 10 dollar stores. In contrast, by 2020 there were 181 counties with more than 10 dollar stores. The expansion of dollar stores does not appear to be concentrated in any specific region.

#### **4.1.2 Evolution of Sales and Employment**

Overall, the food retail industry has experienced stagnant sales and employment since 2000. While the overall size of the industry has remained relatively unchanged, there have been significant shifts in market share among different retail formats. Grocery stores have seen a decline in market share, dropping from approximately 80% in 1990 to 40% in 2021 (Figure 9). On the other hand, supercenters have experienced significant growth, increasing their market share from less than 10% to around 40%. The remaining 20% of the market is shared by four other retail formats. This shift in market dynamics has resulted in supercenters replacing sales that previously accrued to grocery stores, potentially leading to closures of the latter. This trend is also reflected in employment figures (Figure 10).

#### **4.2 Entry and Exit Patterns**

We investigate the evolving food retail industry by entry and exit rates over time. On average, 8% establishments entered this sector each year from 1990-2020, while 7% of establishments exited the industry. Figure 11 shows a shift in business dynamics, with entry rates dominating before the Great Recession in 2008, but since then, exit rates have exceeded entry rates.

We observe heterogeneous entry and exit patterns among various food retailers (Figure 12). On the one hand, grocery stores, convenience stores, and specialty food stores were significantly affected by the Great Recession, experiencing the highest rate of closures, while the other formats remained relatively stable. On the other hand, each type of food retailer exhibits unique patterns of entry and exit. Dollar stores demonstrate relatively higher entry rates and lower exit rates. Specialty food stores experience a dynamic market with high entry and exit rates. Supercenters entered the market mainly during the 1990s and have shown limited exits since then. Warehouse clubs exhibit the highest entry rates and low exit rates, resulting in significant expansion over the past three decades. In the case of grocery stores, prior to the Great Recession, the entry and exit rates were relatively balanced. However, following the recession, the exit rates remained consistent, while the entry rates declined. After analyzing the entry and exit rates based on chain status (Figure 13), it is evident that grocery stores, in general, demonstrate relatively lower entry rates compared to other food retailers. Furthermore, IGRs exhibit higher exit rates, whereas chain grocery stores do not experience the same level of volatility in exiting the market. In sum, the contraction of grocery stores is due to the low level of entry and the high level of exit, especially for IGRs. Dollar stores, specialty food stores, supercenters, and warehouse clubs are just the opposite, and their higher entry rates combined with lower exit rates result in proliferation. The analysis of geographic entry and exit patterns (Figures A3 and A4) does not reveal any discernible trends, suggesting the need for further investigation.

### **4.3 Entry and Exit Market Shares**

Analyzing the contribution of entry and exit establishments to overall industry sales is crucial, particularly considering their smaller size compared to other firms (Figure 14). On average, a new food



retailer represents approximately 4% of the total sales of an incumbent, while an exit accounts for around 3%. The differences between the two are not significant. Examining the trend, the market share of exiting establishments remains relatively stable, with a slight decrease after the Great Recession. On the other hand, the market share of entry establishments was considerably higher during the 1990s, suggesting a relatively friendly environment at that time.

## **5. Conclusion and Limitations**

Since 2000, the food retail industry has experienced a general stagnation in total sales and employment. Although the overall size of the food retail industry has remained relatively unchanged over the past three decades, there have been significant shifts in the distribution among different retail formats. Grocery stores have witnessed a decline in the number of establishments, sales, and employment that can be attributed to lower entry rates compared to other formats. Most of the exits in the grocery store sector occurred among local independent grocery stores. Supercenters have emerged as the dominant food retailers, characterized by low entry and exit rates. They experienced rapid expansion in the 1990s, but the pace of new store openings has since slowed down. The sales growth in supercenters is primarily driven by incumbents rather than new store openings, given the low entry market share.

The main shortcoming to be noted in our analysis is the absence of information regarding the online food retail channel. While we have extensively examined the physical presence and performance of various food retailers, the growing significance of online platforms in the retail industry cannot be overlooked. Online food retailing has witnessed significant growth and consumer adoption in recent years, especially during COVID-19 pandemic. Incorporating data on online channels would provide a more comprehensive understanding of the food retail landscape, and future research should consider integrating online food retail data to gain deeper insights into the overall industry and its evolving patterns.

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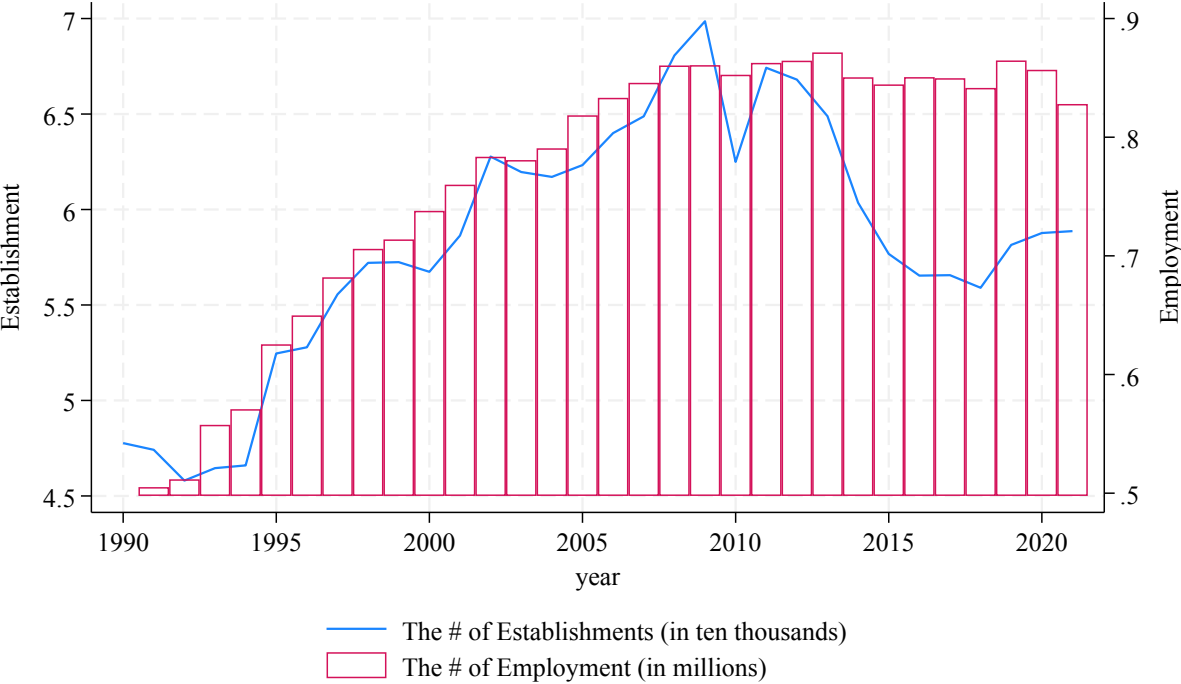
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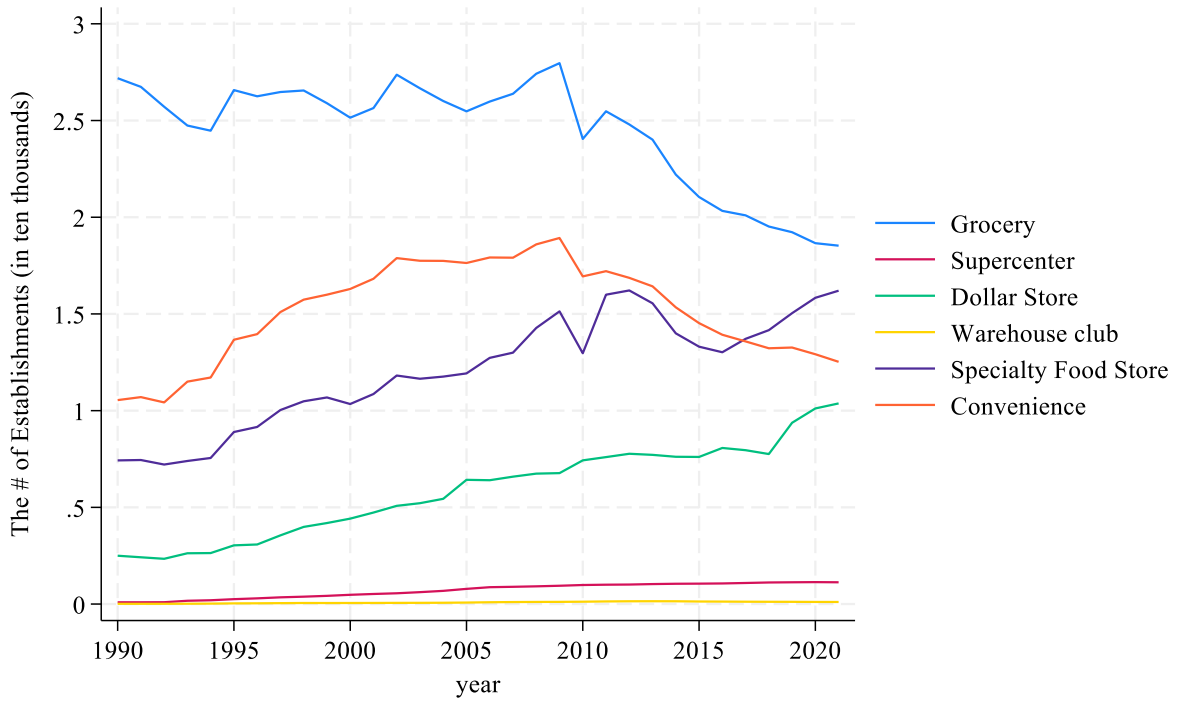
**Tables and Figures**



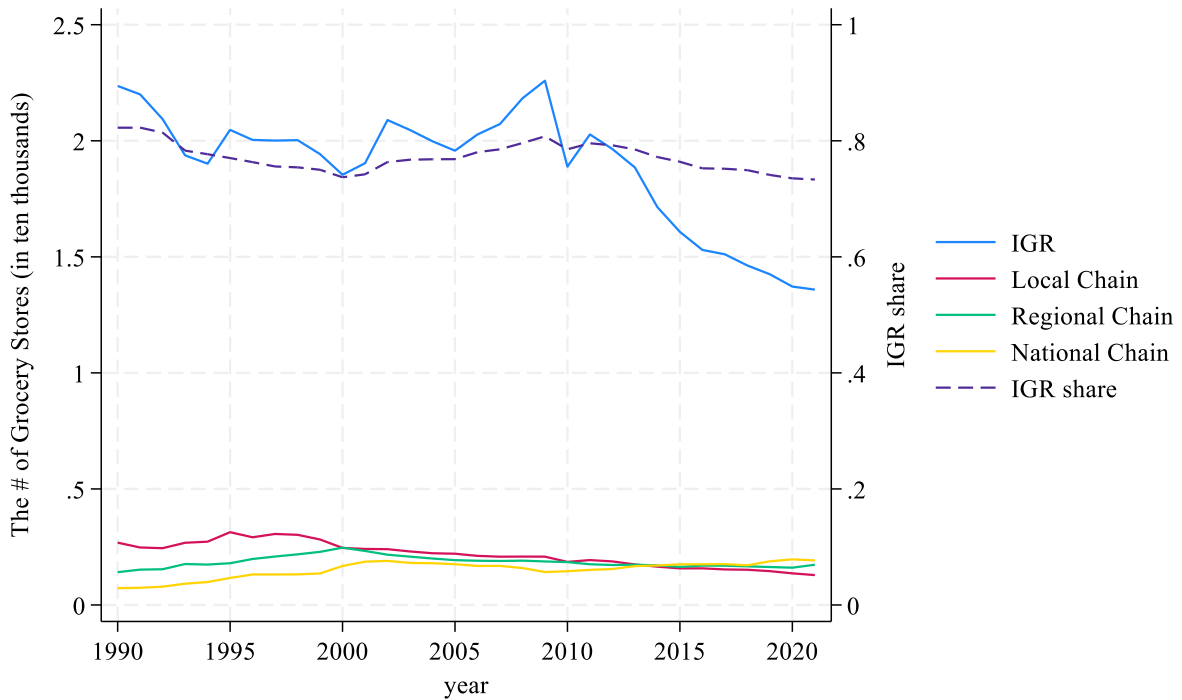
**Figure 1.** Evolution of the number of establishments and employment, 1990-2021



**Figure 2.** Evolution of the number of food retailers per thousand persons, 1990-2021

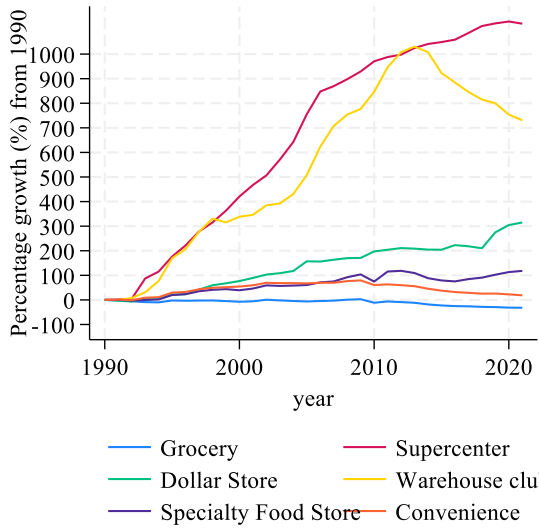


**Figure 3.** Evolution of the number of establishments by format, 1990-2021

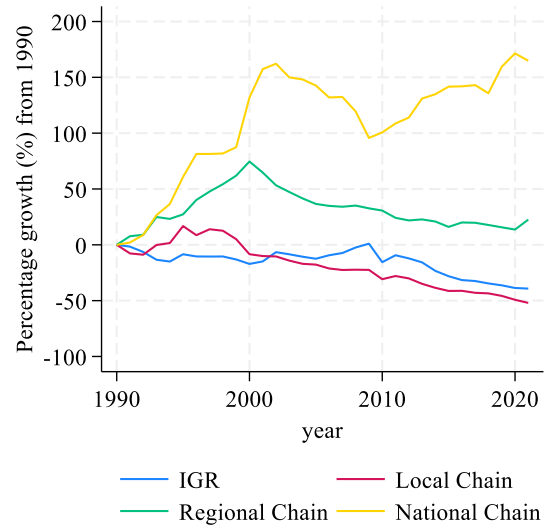


**Figure 4.** Evolution of the number of grocery stores by chain status, 1990-2021



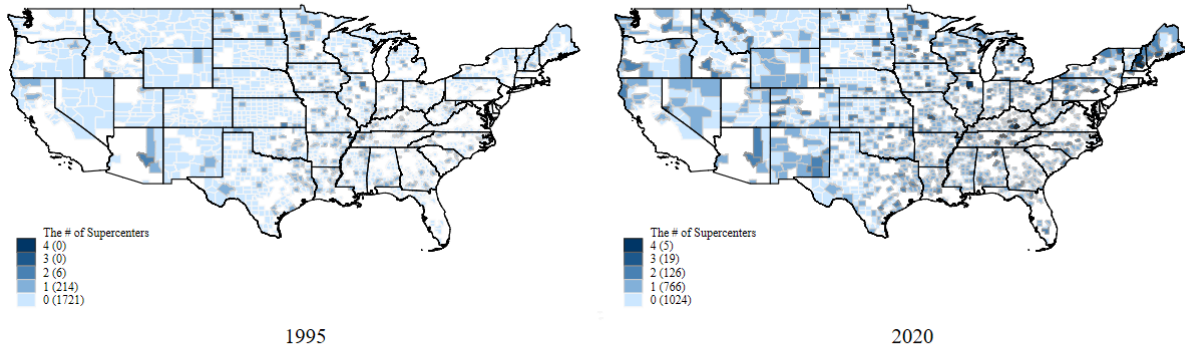


(A)

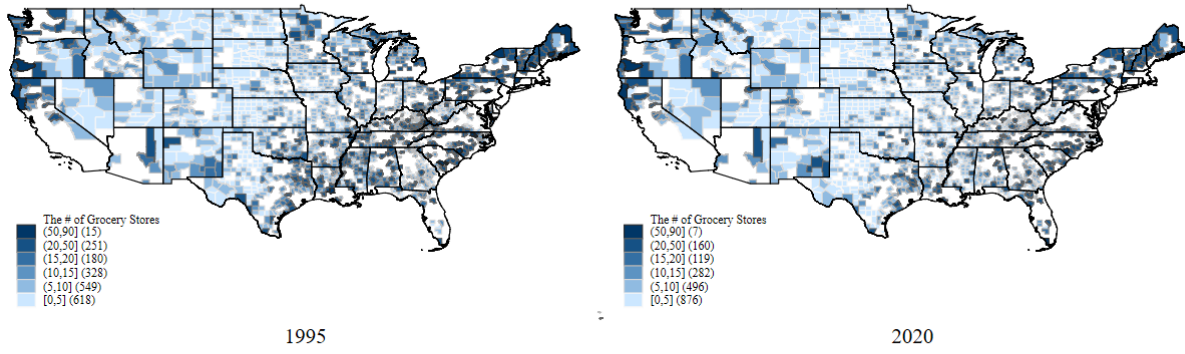


(B)

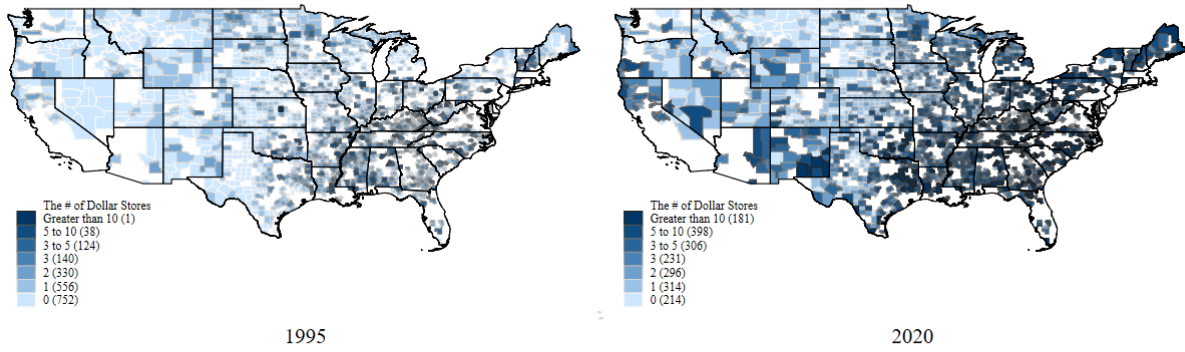
**Figure 5.** Percentage growth in number of establishments from 1990 by format (Panel A) and in number of grocery stores from 1990 by chain status (Panel B) in nonmetro counties, 1990-2021



*Figure 6.* Number of supercenters by county



*Figure 7.* Number of grocery stores by county



**Figure 8.** Number of dollar stores by county

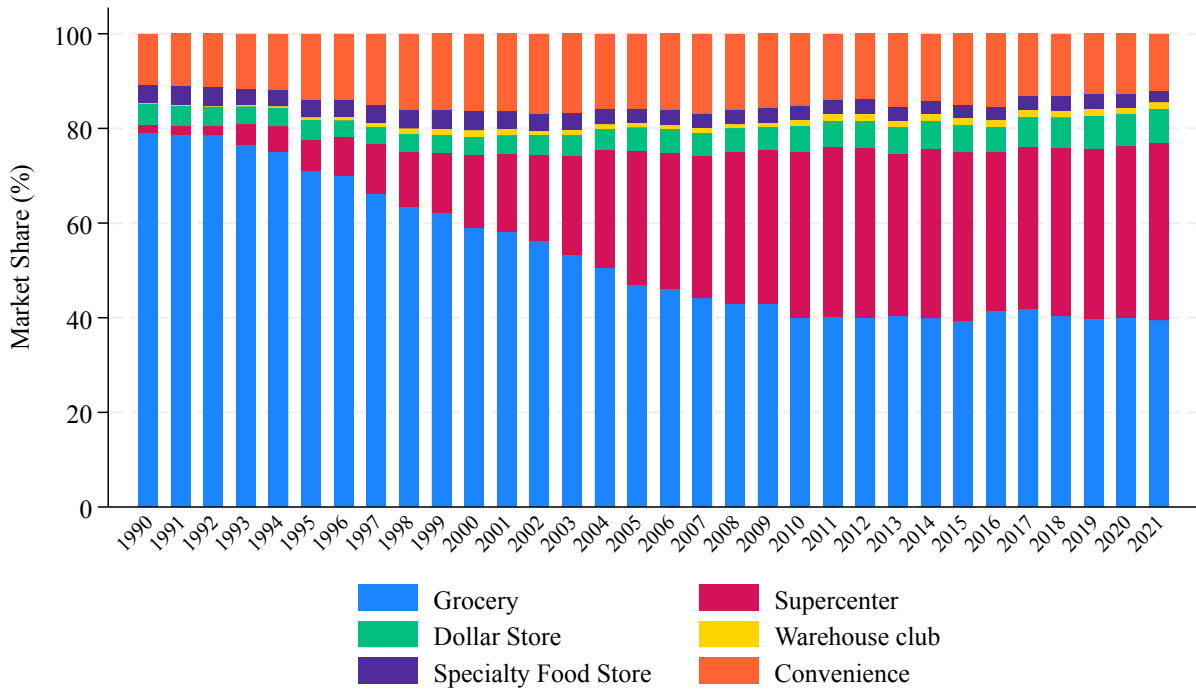
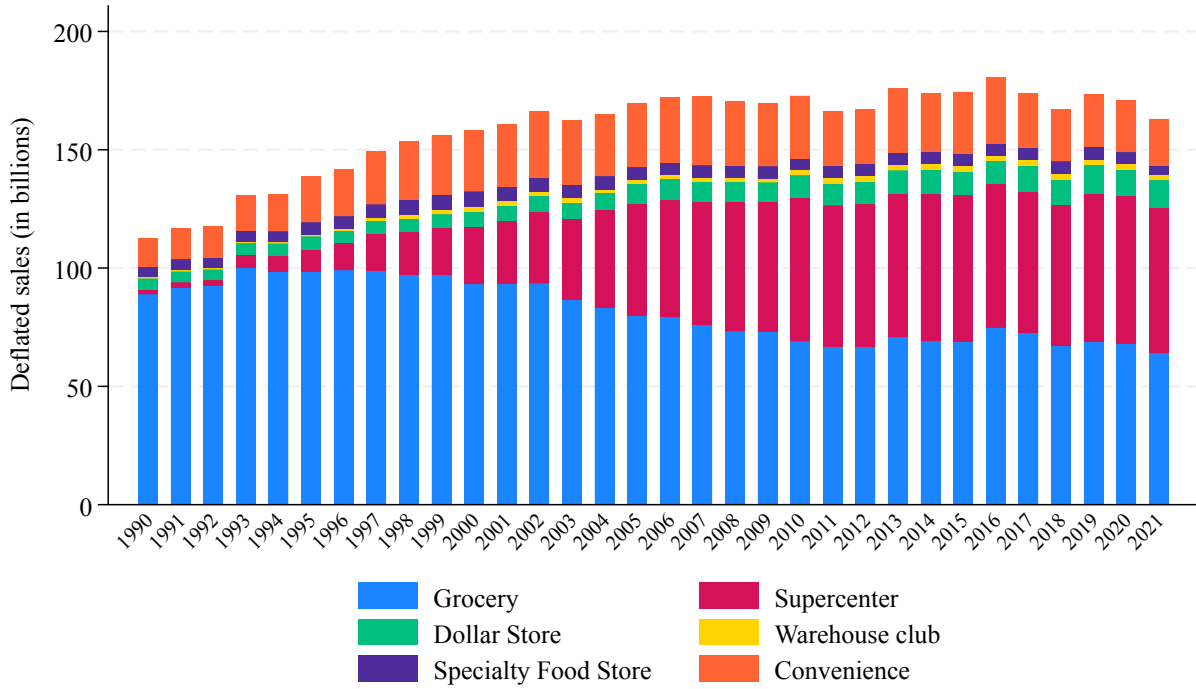


Figure 9. Deflated sales (in 2021 dollars) and market share based on sales

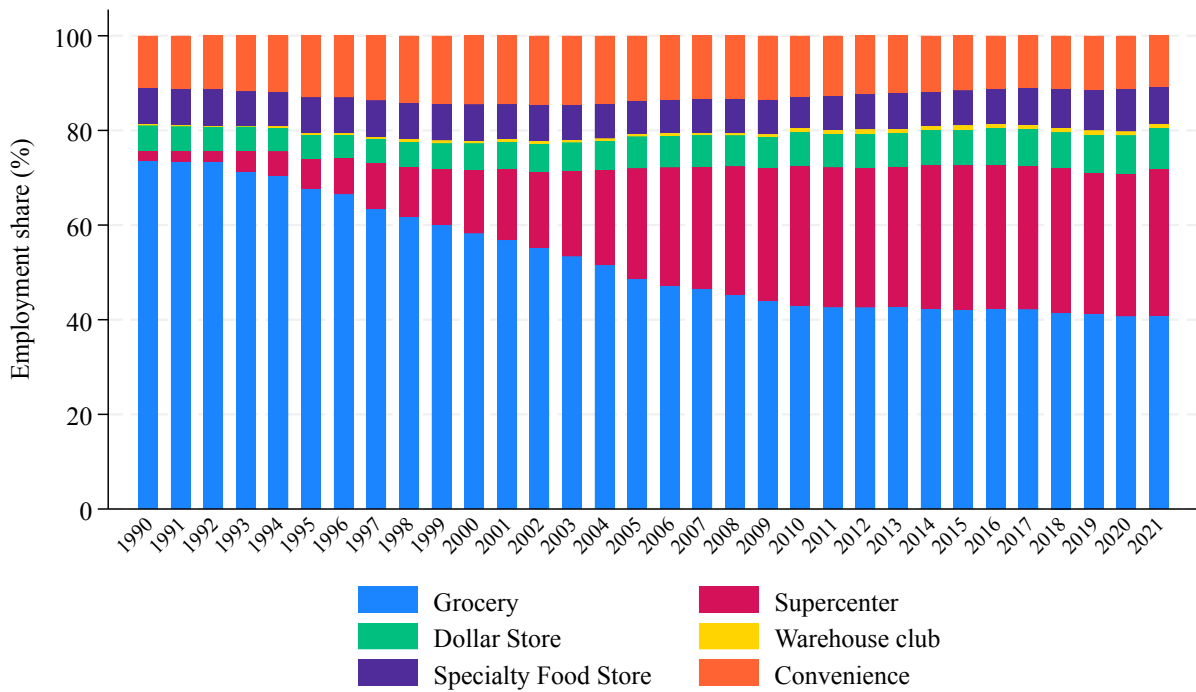
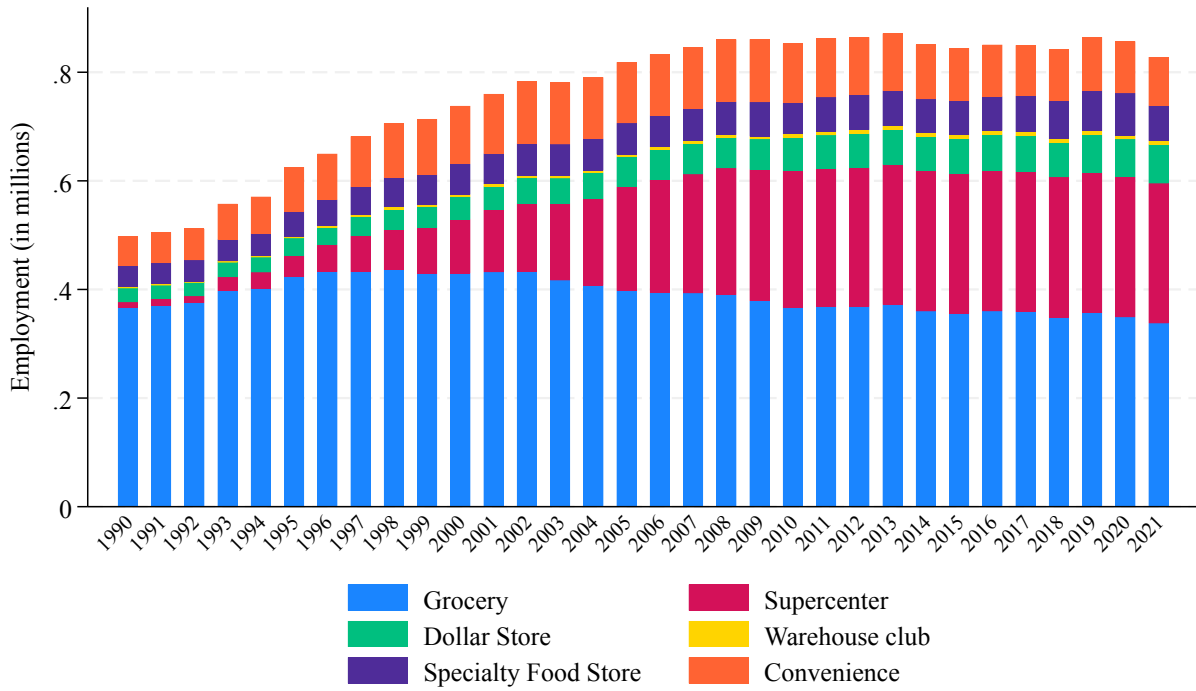
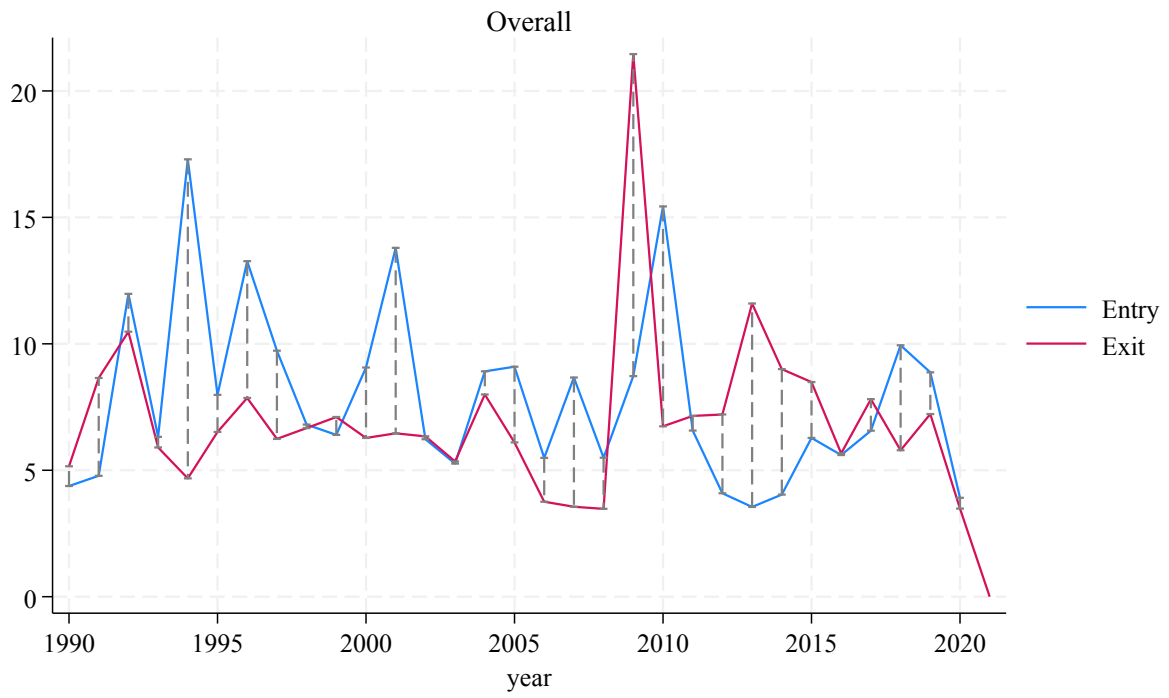
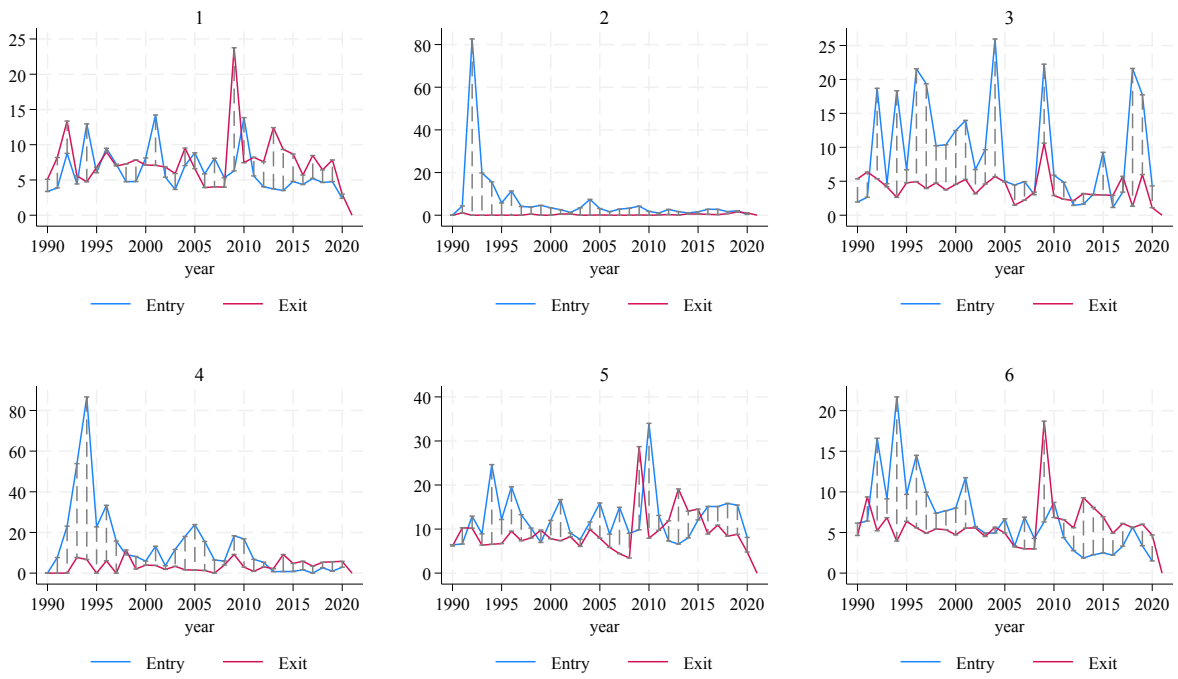


Figure 10. Employment and employment share



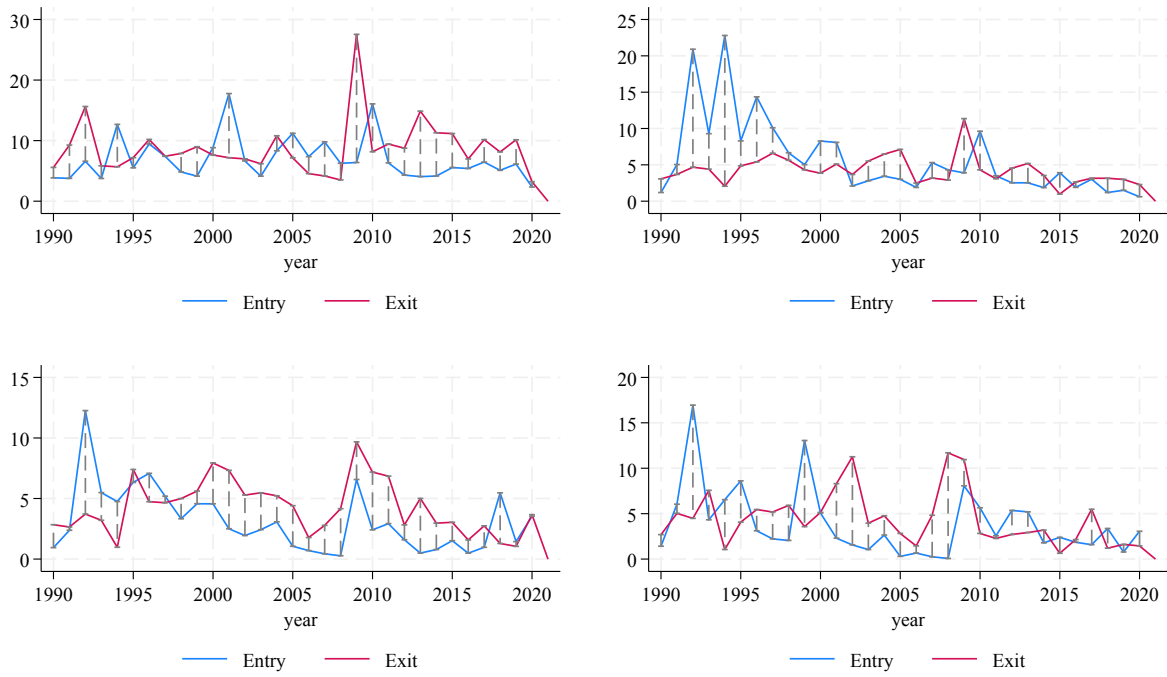
**Figure 11.** Entry and exit rates (%) over time



**Figure 12.** Entry and exit rates over time, by format

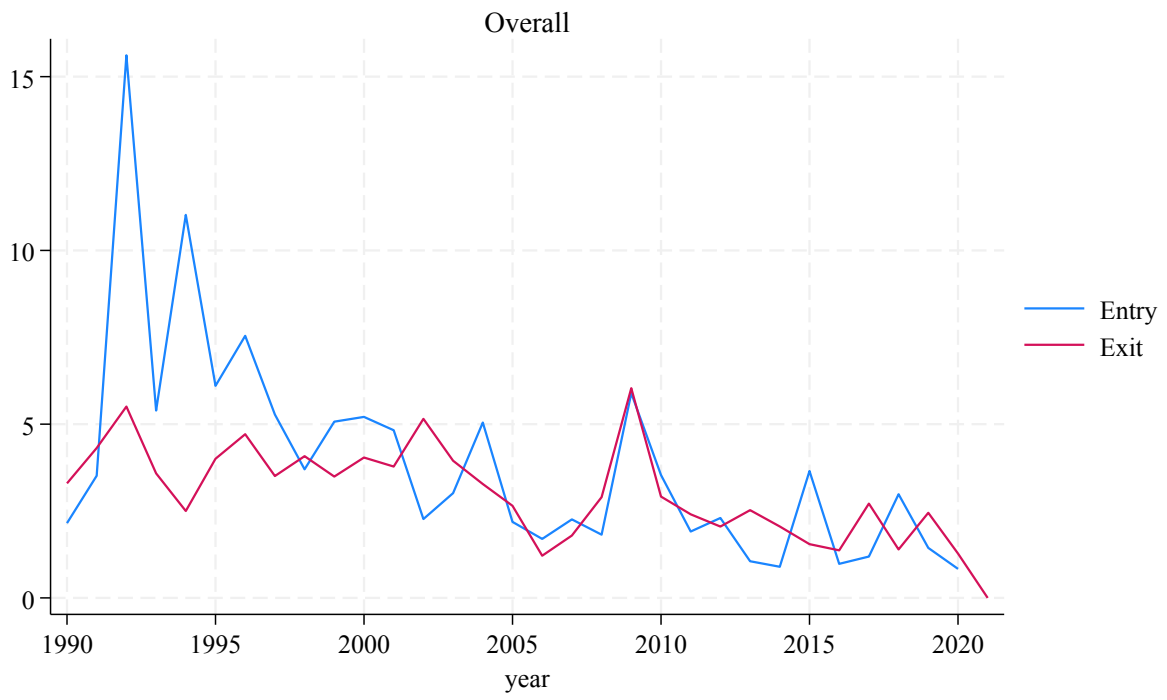
Notes: 1 = Grocery stores, 2 = Supercenters, 3 = Dollar stores, 4 = Warehouse clubs, 5 = Specialty food stores, 6 = Convenience stores





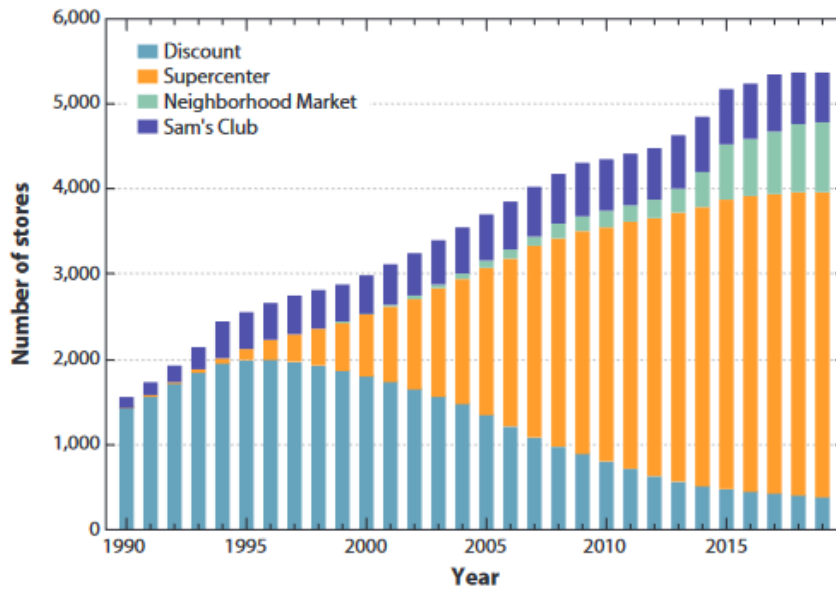
**Figure 13.** Entry and exit rates of grocery stores over time, by chain status

Notes: 1 = IGRs, 2 = Local chain grocery stores, 3 = Regional chain grocery stores, 4 = National chain grocery stores



**Figure 14.** Entry and exit market share (%) over time

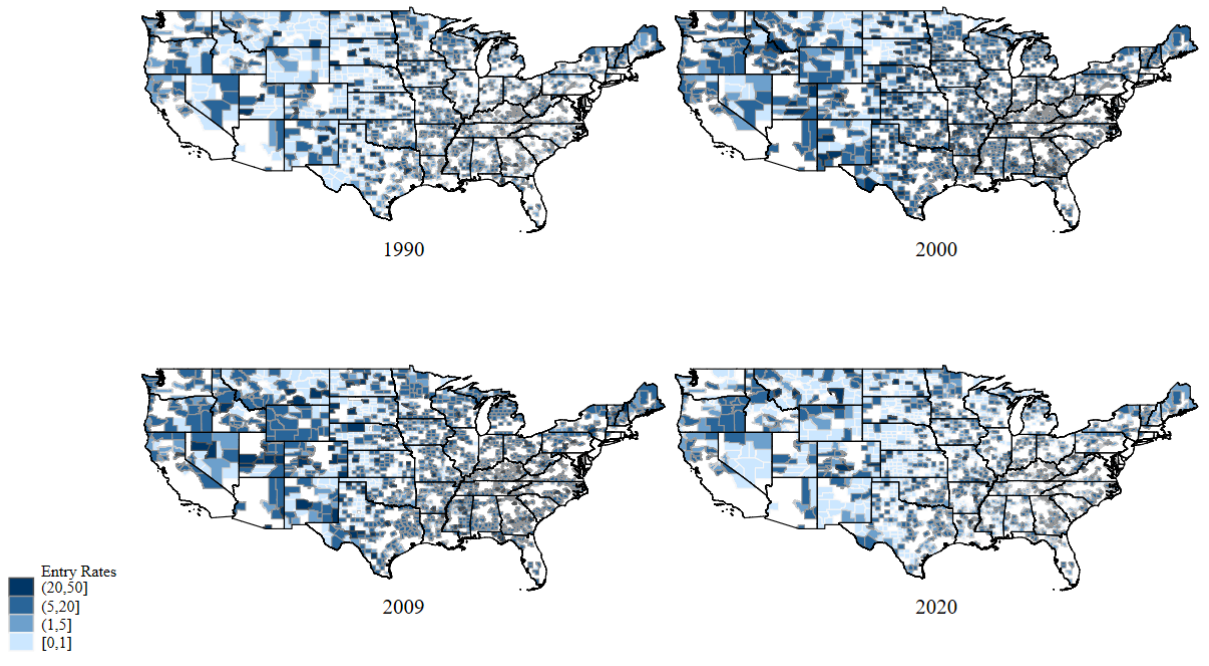
## Appendix



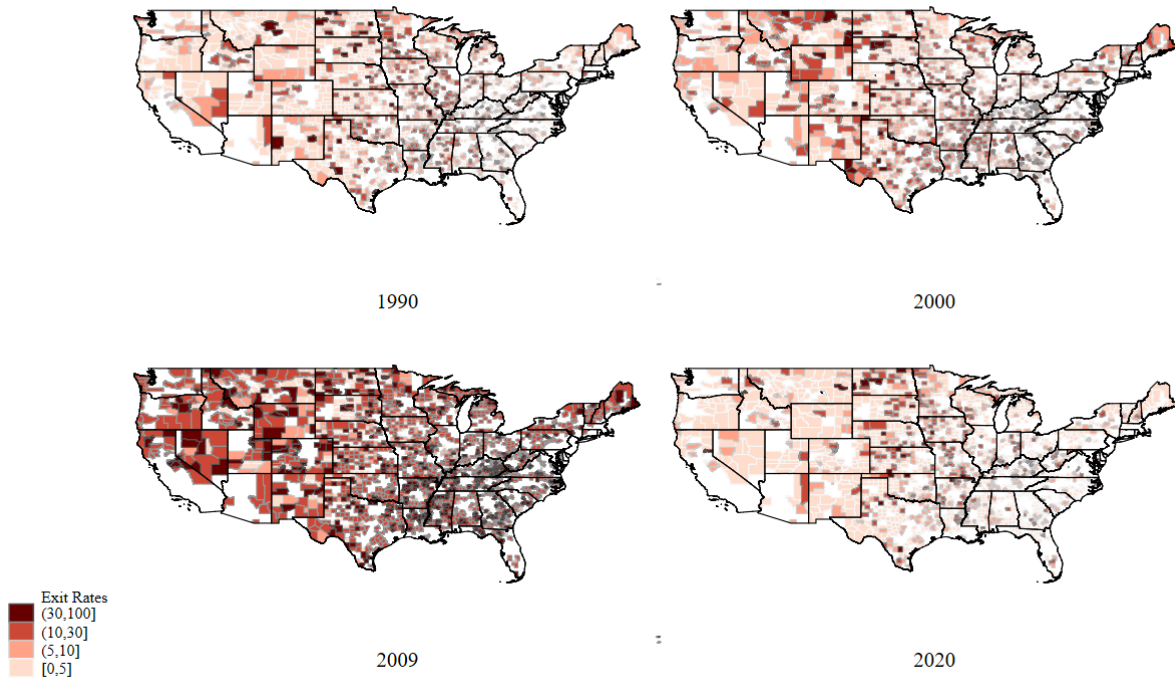
**Figure A15.** Number of stores in Walmart's four-store formats, 1990-2019, source: Volpe & Boland (2022)



**Figure A16.** The number of Walmart stores by three formats, source: NETS



*Figure A3.* Entry rates county map



*Figure A4.* Exit rates county map