STUDYING PATH DEPENDENCIES
OF BUSINESSES, INSTITUTIONS,
AND TECHNOLOGIES

The Tipping Point: Path-Dependence in Restaurant Markets

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THE TIPPING POINT: PATH-DEPENDENCE IN RESTAURANT MARKETS

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Abstract

Do economies tend toward unique equilibrium? Or are markets path-dependent, leading to different, and potentially inefficient outcomes depending on initial conditions? In this paper we try to answer this question using data from the restaurant industry in the United States. Almost thirty percent of half a million private eating and drinking places in the U.S. are operating in the form of chain restaurants, and these chain restaurants are much more heavily located in newly developed areas. We investigate 110,464 chain restaurants in 14,761 zipcode areas across 331 Metropolitan Statistical Areas. Different chain restaurants came to existence at different points in time, penetrating into the new market areas at times when they faced less competition and expected to reap higher profit. It turns out that those chains that settled down to those new market areas were able to withstand the arrivals of later competitors. As a result, we observe that different chain restaurants are available in areas where current market conditions are very similar, suggesting that history has persisting effects on market outcomes, rendering them path-dependent.

*Preliminary and incomplete; please do not cite without permission.

1. Introduction

Do markets tend toward unique and efficient equilibrium? Or are markets path-dependent, leading to different, and potentially inefficient, outcomes depending on initial conditions? In short, does history matter? Few questions have generated as much interesting scholarship – and heated invective – as this one. The topic traces its recent intellectual history to works by Paul David and W. Brian Arthur arguing for path-dependence.[1] David offers the vivid example of the QWERTY typewriter keyboard which, he argues, was an inferior design adopted to slow typists to within the capacity of early machines. Once adopted, the argument goes, this standard has proven hard to shake even though better keyboard layouts are available. Liebowitz and Margolis (1990) dispute David's evidence on typing speed and go on to argue at length that it is difficult for markets to follow paths to inefficient equilibria.

The dispute over path-dependence persists, in part, due to the difficulty of finding convincing evidence for one side or the other. The reason for this, in turn, is that it is in general impossible to observe multiple markets with different initial conditions, asking whether they arrive at the same equilibrium. Instead, one must look to the historical development of markets for comparisons sharing some features of this ideal. To this end, this study makes use of comparisons across geographic restaurant markets. The idea is simple. Different residential areas developed at different times. In each period since about 1950, different chain restaurants stood ready to enter the geographic areas as

[1] See David (1985) and Arthur (1989).

residential development created demand for restaurants. For instance, the set of restaurants that might initially have entered an area that developed in 1960 is not the same as the set of restaurants ready to enter areas developed in 1970. How are both of these markets configured in 2004? If the products that became available later replaced the incumbents who entered earlier, then initial conditions will have no effect on available products, and history does not matter. On the other hand, if the restaurants that are currently operating in an area differ by the initial conditions, then history matters.

Unlike most contexts where scholars seek evidence of path-dependence or lock-in, this one has low switching costs. The usual case has complementary "platforms" and "applications," such as trains and track, or hardware and software. Here, the only switching cost is the cost of trying – and coming to prefer – a new restaurant over an old one. Hence, our approach offers a "one-sided test": a failure to detect effects of history is uninformative, while detected effects of history – in a context without explicit switching costs – will provide evidence that a wide range of markets can be path-dependent.

We use detailed Census data on the nature of demand (demographic characteristics), as well as information on the location of each restaurant from 169 chains. We know when each individual restaurant outlet opened, if it opened after 1984, as well as the date that each chain was founded along with fragmentary data on the timing of each chain's growth prior to 1985. These chain restaurants make up roughly thirty percent of all restaurants in the U.S. We have data on the total number of restaurants in each zipcode from the Economic Census. Finally, the Census of Population and Housing provides information on the median age of housing in each zipcode, which we use as a

measure of the time when demand arrived in the local market. Using these data, we can ask whether older areas have older chains, and so on.

The paper is organized as follows. Section 2 presents theoretical background and reviews the extant empirical literature on path-dependence. Section 3 describes the data used in the study and presents brief histories of the chain restaurants in the dataset. Section 4 describes the empirical strategy and results. Section 5 concludes.

2. Theoretical Background and Literature

This paper draws upon various streams of existing literature. The first is the literature debating over the existence of lock-in and path dependence, following David (1985), and Liebowitz and Margolis (1990). David (1985) argues that the technically superior standard of Dvorak keyboard was defeated by QWERTY keyboard in the battle for the standard, by no other reason than those events that could be characterized as 'historical accidents'. Arthur (1989) presents a theoretical model where agents choose between competing technologies, which improve as they gain in adoption. He shows that the economy, over time, can become locked-in, by "random" historical events, to a technological path that is not necessarily efficient.

The debate on path dependence caught the public's attention when the US Department of Justice filed a lawsuit against Microsoft for its anti-competitive behaviors. Believers of lock-in and path dependence sided with the DOJ and accused Microsoft of being an inefficient monopoly that had happened to dominate the market. And once it

dominated the market, they argued, it was trying to use its bottleneck operating system product in order to suppress all the other competitors that had the potential of developing technically superior products to its Windows operating system. Liebowitz and Margolis (1999) objected to the view, and argued extensively for the technical superiority of Microsoft's products – the operating system, the word processor, and the Internet browser. They also provided an argument that the existence of switching costs could not possibly lead to an inefficient outcome. In so doing, they categorize path dependence into three classes: the first-degree path dependence arises because some economic decisions involve dynamic optimization, which may not be optimal from a static point of view. In their example, you may purchase a house that maximizes you utility over the length of your stay in that house, but may be unnecessarily large at the moment. Second-degree path dependence arises due to limited foresight. A decision which is suboptimal ex post may well have been optimal ex ante, and this type of path dependence is not remediable. Third-degree path dependence is the kind of remediable inefficiency due to the lack of coordination that arises because you do not have the incentive to unilaterally change your behavior. They argue that only this type of path dependence causes inefficiency in the economic sense. Puffert (1999) criticizes Liebowitz and Margolis' categorization based on the fact that both foresight and remediability are matter of degree, therefore the distinction between second- and third-degree path dependence is not so clear after all.

Crucial in this debate is the existence of multiple equilibria. Krugman (1991a) theorizes that, in a situation with multiple equilibria, one of the two factors determines which equilibrium gets established: history and expectation. In his model, whether history or expectation plays a decisive role depends on three factors: interest rate,

the magnitude of the external economy, and the speed of adjustment. History matters more when people discount future more heavily, when the size of the external economy is smaller, and when the speed of adjustment is slower. The restaurant industry, typically with fairly low setup costs, can be characterized as low external economy / fast adjustment industry, and the only factor that sides with the history over expectation in determining the outcome in this industry is geography.

Krugman (1991b) argues that whether geography is path dependent relies on three factors: large setup costs that yield strong economies of scale, sufficiently small costs of transportation, and sufficiently large share of 'footloose' production not tied by natural resources. Restaurant industry has small setup costs, and the transportation costs are relatively large compared to the production costs. And even though restaurant industry is not bound by natural resources, it is heavily dependent upon the proximity to consumers. As Waldfogel (2004) argues, the restaurant industry is a highly local industry, just like agriculture. As such, the geography of restaurant industry is not quite likely to be path dependent. Therefore, this paper can be thought of as providing a one-sided test of whether history matters.

Even without explicit lock-in, history can matter for other reasons. First, new firms will prefer to avoid competition with established firms. Given a choice between entry in markets with and without established competition, a new firm would prefer to enter in a place that lacks competition. Given the localized geographic markets for restaurants, areas of new housing development constitute such new markets. Thus, we would expect new firms to enter in new markets and, until they seek direct competition with established firms, to be more likely to operate in new markets. That is, we

expect a positive relationship between the prevalence of new chains and the time that markets are established.

As a firm gets established – perhaps developing brand recognition putting it on equal footing with older firms - it can "defy history." That is, it can enter in proximity of established firms. Eventually, it stands on equal footing with existing chains, and – conditional on demand factors – the probability of entry is equal across markets of different vintages.

There is a second, related sense in which history can matter. Sunk costs of entry place a wedge between the auspicious conditions needed to prompt entry and the much-less-favorable conditions – failure to cover ongoing costs – needed to prompt exit. The chains entering in the past when facing good conditions in then-new local markets continue to operate their locations in places where they would not currently choose to enter. This is the hysterisis explored by Dixit (1989).[2] As a result, we would expect to see old firms more prevalent than new ones in older markets. That is, for the oldest chains, we expect a negative relationship between prevalence and the time when their markets are established. The sunk costs of restaurant entry include both costs of physical assets as well as costs of developing brand recognition, as in Klein & Leffler (1981).

According to Puffert (2002), a path dependent economic process is "*one in which specific contingent events have a persistent effect on the subsequent course of allocation*." He addresses the question of whether the path dependence does take place and whether it is source of inefficiencies by investigating the history of railway track

[2] In Dixit's setup the hysterisis-inducing effect of sunk costs is magnified by uncertainty about future demand.

gauges in Britain, Continental Europe, North America, and Australia. He argues that contingent events, reinforced by positive feedbacks, determined both particular standards and the geographic extent of standardization. His cellular automata Monte Carlo simulation shows that the construction and conversion of railway track gauge is a symmetry-breaking process, in the sense that eventually more than 90% of the time the configuration winds up with a single standard, whether it being a narrow gauge or a broad one. In his model, it is also notable that stochastic events, in both the order of construction and in the gauges favored by locals, make the process path-dependent, thereby making it impossible to predict the outcome at the outset.

There are also other documented examples of path dependence in various circumstances, from ready-made wet soups (Sutton, 1991), sports leagues (Mueller, 1997), Swedish manufacturing (Carlson, 1997), and pest control system (Cowan & Gunby, 1996).

This paper also complements the management strategy literature that studies the internal workings of franchise-type enterprises. Winter and Szulanski (2001) propose replication as strategy, especially in service industries, claiming that companies operate a regime of exploration in the beginning in order to establish a business model that suits them the best, and then turn to a phase of exploitation when they have enough confidence in that business model, applying the model to various places through large-scale replication. This study provides the evidence that such replication strategy is taking place en masse. Raff (2000) investigates the recent history of bookselling industry. From the emergence of two bookselling superstores, Borders and Barnes & Noble, he argues that the market only imposes loose constraints on the strategies of firms, and

profitable firms in an industry can differ substantially in ways that affect their performances. He also states that the part of those differences is attributable to the history that formed the core capabilities of the firms.

There is a growing industrial organization literature that studies the franchise enterprises, to which this paper also contributes. Holmes (2005) studies the expansion of the Wal-Mart franchise and conjectures that the Wal-Mart's huge success can be attributed to realizing and exploiting the economies of density. Wal-Mart's inside-out expansion strategy cannot be applied directly to the chain restaurants where the transportation costs are much smaller and logistics is not at the core of its production process, but this Wal-Mart example may be another incidence where history clearly matters. With a different entry sequence, the Wal-Mart may not have been as successful.

Basker (2005) looks into the price effect of a low-cost entrant who is a franchise operator (Wal-Mart). She finds that the prices of drugstore items fall significantly with the entry of Wal-Mart, while the prices of convenience store items may not always decline. The prices of clothing are not affected significantly with Wal-Mart's entry. She also shows that the impact on prices by Wal-Mart's entry is less pronounced in large cities where there are more stores that carry the same products.

In the following sections, we seek to address the following questions. First, does the vintage of available restaurants in a market area vary with market age? Are restaurants of more recent vintage more prevalent in newer markets areas? And related, but different, are older-vintage restaurants more prevalent in older markets (and less

prevalent in new ones)? Our undertaking is a rare attempt to provide evidence of path dependence using a large set of data.

3. Data

3.1. Geographic Market Definition and Market Age

Before we move on to the question of whether history matters in the restaurant industry, two methodological concerns need to be resolved. The first is what the right choice of geographic market is in answering the question, and the second is how to measure the age of a market area.

For the right choice of geographic market, we propose the five-digit zipcode area. Although necessary demographic and economic variables about the geographic market areas are available at various levels from Census blocks to states, the more aggregated levels such as county or MSA are problematic because they are clearly too wide for a geographic market for restaurants. And smaller levels such as Census tract or block groups are too narrow, and the business pattern information is not available at that level of disaggregation. Waldfogel (2004) also suggests that a 5-digit zipcode area is a good proxy for a geographic market for restaurants. He finds that an average 5-digit zipcode area is 2.95 miles wide in radius, which is reasonable distance to travel for a meal, and that the composition of chain restaurants does not seem to change as one aggregates to higher levels of geography. Even though we do not claim that each zipcode provides the

perfect boundary for the restaurants within, the use of a 5-digit zipcode area does not seem to create a systematic bias as a geographic market for restaurants.

The next question is how to measure the age of a market area, and here we use the concept of "zip vintage." A zip vintage corresponds to the variable "median year housing was built within the zipcode area", as defined in the 2000 Census of Population and Housing. The Census has reported this variable since 1990. Even though the zip vintage is a limited measure of the age of the zipcode area, it is the best one available, and it is certain that half of the housing in the zipcode were built after the zip vintage[3].

3.2. Chain Location and Zipcode Demographics

The basic data for this study is a zipcode level cross section containing information on the number of restaurants, overall and in each of 169 restaurant chains operating in each zipcode. The data also include zipcode level demographic information. The data are drawn from three basic sources. Data on individual restaurant's location, sales, and year of entry are collected from the Reference USA Database. The number of NAICS722 (eating and drinking places) establishments are from the Zip Business Pattern Dataset for the year 2002. Zipcode level demographic data is collected from the 2000 Census of Population and Housing. In addition, company history data – including founding dates – were collected through individual chain's website and various other sources, including the books that document the lives of popular chains' founders. Chain founding dates provide our basic measure of chain vintage.

[3] The variable in the Census is left censored at the year 1939.

The 169 restaurant chains in our sample are selected from Scarborough Research survey data and Consumer Reports July 2003 issue. Chains are classified as "fast food" or "sit-down," and further classified by cuisine types. Fast food chains specialize in cheap and fast services, and usually have smaller store size. The data cover 59 fast food chains, including McDonald's, Subway, Burger King, and Starbucks. Sit-down chains provide full service meals, and range from economy to upscale. A detailed list of chains is available in the Appendix. Sample chains include 134,646 outlets, 110,464 of which are operating in one of 331 Metropolitan Statistical Areas (MSA's). Among 31,656 residential zipcodes in the United States, 14,762 of them are located within an MSA.

Demographic variables vary substantially by zipcode area. Between 5^{th} percentile and 75^{th} percentile, population varies from 295 to 24,055, and the fraction of African American population varies from 0% to 9.33%. Median age in the zipcode area varies from 27.5 to 39.3, unemployment rate varies from 1.1% to 6.7%, median household income varies from $22,831 to $55,365, and the median year housing was built changes from 1939 to 1979. The number of restaurants and the number of chain restaurants, ancestry of population, and the percentage of households with children also show large variation. Table 3-1 presents the summary statistics of these demographic variables for the MSA zipcodes.

Statistics	N	Mean	S.D.	5th	25th	50th	75th	99th
Population	14762	15319	15785	295	2716	9890	24055	65868
% Black	14762	9.57	17.62	0.00	0.48	2.07	9.33	87.81
% Hispanic	14762	8.95	15.81	0.30	1.07	2.64	8.52	82.50
Median Household Income ($)	14729	46752.34	19164.29	22831	34667	43364	55365	109771
Median Age	14762	36.6	5.7	27.5	33.7	36.6	39.3	55.6
% Unemployed	14729	5.65	5.41	1.10	2.90	4.40	6.70	25.70
Median Year Housing Built (Zip Vintage)	14696	1968	14	1939	1958	1970	1979	1995
# Restaurants	14762	26.53	33.94	0	3	13	40	139
# Chain Restaurants	14762	7.40	10.21	0	0	3	11	43
# Sitdown Chain Restaurants	14762	1.59	3.08	0	0	0	2	15
% English Ancestry	14741	9.78	15.58	0.84	5.66	9.17	12.90	28.38
% German Ancestry	14741	17.99	21.40	1.59	8.53	15.72	24.23	57.11
% Irish Ancestry	14741	12.41	16.78	1.43	7.90	11.67	15.48	34.04
% Italian Ancestry	14741	6.26	7.87	0.00	1.56	3.65	8.03	33.00
% American Ancestry	14741	8.30	57.24	1.11	3.29	5.66	10.17	30.55
% Miscellaneous Ancestry	14741	22.97	26.41	2.71	7.34	15.59	31.51	83.64
% Household with Children	14687	34.28	10.70	16.95	28.87	34.38	39.65	65.63

Table 3-1] Summary of Selected Demographic Variables

3.3. History of Chain Restaurants

Table 3-2 provides capsule historical information about 138 of our sample chains for which the founding dates are available. Chain restaurants date back almost a century. The oldest chain in the data, White Castle, was established in 1921. However, it was in the 1950s that chain restaurants became commonplace in American daily lives. Twenty-four sample chains, including such major chains as McDonald's, Burger King, KFC, and Pizza Hut, all came into existence during the 1950s. The 1960s continued to see the trend of growing fast food chains. This trend, however, started to change from the early 1980s. Perhaps because the fast food market was saturated, new entrants developed innovative concepts and established themselves at niches. Some chains, like Papa John's, went into downtown areas where no upscale competitors could afford high rents. Some others, such as Starbucks, successfully targeted increasing number of urbanites who did not mind spending money for a quality break. The 1990s saw the upscale differentiation, where chains like Il Fornaio and Morton's of Chicago differentiated themselves from other chains by offering high quality meals and services. The 10 largest sitdown chains in our data, measured by the number of outlets, are Pizza Hut, Denny's, Applebee's, Waffle House, International House of Pancakes, Chili's, Outback, Ruby Tuesday, Red Lobster, and Godfather's Chicken. The 10 largest fast food chains are Subway, McDonald's, Burger King, Wendy's, Taco Bell, KFC, Starbucks, Domino's, Dairy Queen, and Arby's.

Founded	Selected Chains	Number of Chains Started
Before 1940	White Castle, Friendly's, Dairy Queen	6
1940s	Baskin Robbins, Dunkin Donuts	8
1950s	KFC, Denny's, Burger King, Sonic Drive-in, McDonald's, IHOP, Pizza Hut	22
1960s	Hardee's, Donato's, Arby's, Taco Bell, Subway, TGI Friday's, Domino's, Legal Sea Foods, Red Lobster, Cracker Barrel	33
1970s	Bennigan's, Cheesecake Factory, Houlihan's, Popeye's, Ruby Tuesday, Wendy's	27
1980s	Chili's, Quizno's, Hard Rock Café, Applebee's, Papa John's, Boston Market, California Pizza Kitchen, Cici's, Starbucks, Outback Steakhouse, Caribou Coffee, Olive Garden	34
1990s	J. Alexander's, Maggiano's Little Italy, Buca di Beppo, PF Chang's China Bistro, Il Fornaio	9

Table 3-2] List of Chain Restaurants by the Time They Started Operating as Chain

Table 3-3 shows a detailed timeline of two major sitdown chains, Denny's and Applebee's. Commanding similar numbers of outlets by 2004, they started and expanded over very different times. Denny's started in 1953 and expanded aggressively throughout 1970s. Applebee's came into existence after Denny's had already more than a thousand restaurants in operation, but its successful expansion during the 1990s made it one of the largest sitdown chains currently.

Year	Denny's	Applebee's	Event
1953	1		Harold Butler founded Danny's Donuts in Lakewood, CA.
1959	20		The chain was renamed Denny's Restaurants.
1963	78		
1968	192		
1980		1	Bill and T.J. Palmer founded Applebee's in Atlanta, GA.
1981	1000		
1982		2	
1983			Applebee's sold to WR Grace, a chain operator
1988		54	Applebee's purchased by franchisees, becomes Applebee's International
1995	1529		
1996	1596	819	
1997	1652	960	
1998		1000	
2001		1400	
2002	1676		
2003			
2004	1638	1521	

Table 3-3] Timeline of Chain Expansion – an Example of Denny's vs. Applebee's

4. Analysis & Results

In order to answer the question posed in the beginning, we propose the following empirical strategy. From the discussion in the previous section, it is clear that different chains entered different markets in different periods. From today's viewpoint, these are historical facts, not affected by the demand and supply parameters currently at work. If history does matter, you can witness the outcomes that are not explained solely by current economic conditions. Specifically, we focus on the age of the market area. Different market areas were developed in different times. If two markets that are identical in all aspects but when they were developed have two very different set of chain restaurants, it should be viewed as evidence that history has persisting effects on the market outcomes.

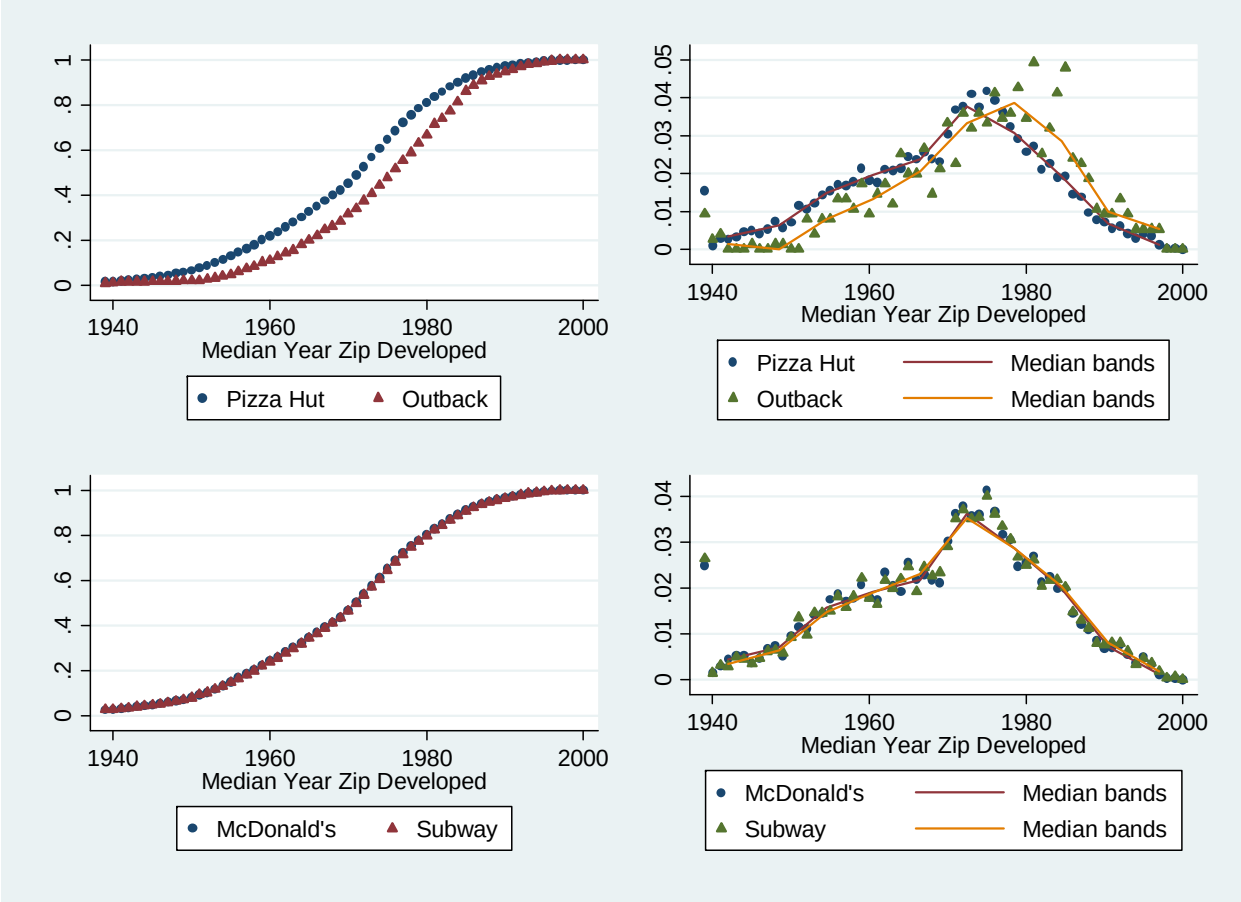
We first offer evidence that older chains are more prevalent in old zipcode areas, and younger chains are more prevalent in younger zipcode areas, preserving the order of existence. Regression analysis controlling for key demographic variables is presented to confirm the hypothesis that history has lasting impacts. Then we look into prominent individual chains to see if their current locations are systematically correlated with when they started operating as chain.

4.1. Descriptive Analysis

Different chains enter different zipcode areas seeking the type of patrons that are the most attractive to them. Figure 3-1 depicts the fraction of the number of outlets by the

zip vintage, both cumulatively and non-cumulatively. The upper graphs show that Pizza Hut and Outback Steakhouse are located in the areas with distinctive zip vintages. Pizza Hut, being the older chain, generally has stores in much older zipcode areas. To borrow the language of finance, the upper left diagram in figure 3-1 shows the relationship analogous to the first order stochastic dominance. What it means is that for any zip vintage, the fraction of Pizza Hut outlets located in the market area of the particular zip vintage or earlier zip vintages is always higher that that of Outback's. For a market with 1960 zip vintage, about 20% of Pizza Hut outlets are located in older market areas, whereas only about 10% of Outback outlets are located in older market areas. The median zip vintage for Pizza Hut is 1972, whereas the median zip vintage for Outback is 1976.

The lower graphs compare McDonald's and Subway, two chains with the largest number of outlets in the U.S. The Subway is chain that has the most outlets, with more than 15,000, and the McDonald's is a close second with more than 13,000 outlets. The picture shows that they operate in very similar zipcode areas in terms of zip vintage, in spite of the fact that Subway came into existence a decade later than McDonald's. Burger King, not shown in the diagrams, is the third largest restaurant chain with about 7,000 outlets. It also has a very similar profile to those of McDonald's and Subway. This implies that those largest fast food chains have basically saturated the entire U.S. market, in which case their differences in the number of restaurants come mainly from their differences in minimum efficient scale, of which Subway possesses the smallest. It is no surprise that these chains' main expansion came from international locations during the 1990s.



The upper graphs show that the older chain, Pizza Hut, is generally operating in older zipcodes than a younger chain, Outback Steakhouse. The lower graphs show that two most popular chains, McDonald's and Subway, share very similar pattern in zip vintages that they operate in.

Figure 3-1] Distribution of Outlet Locations by Zip Vintage for Selected Chains

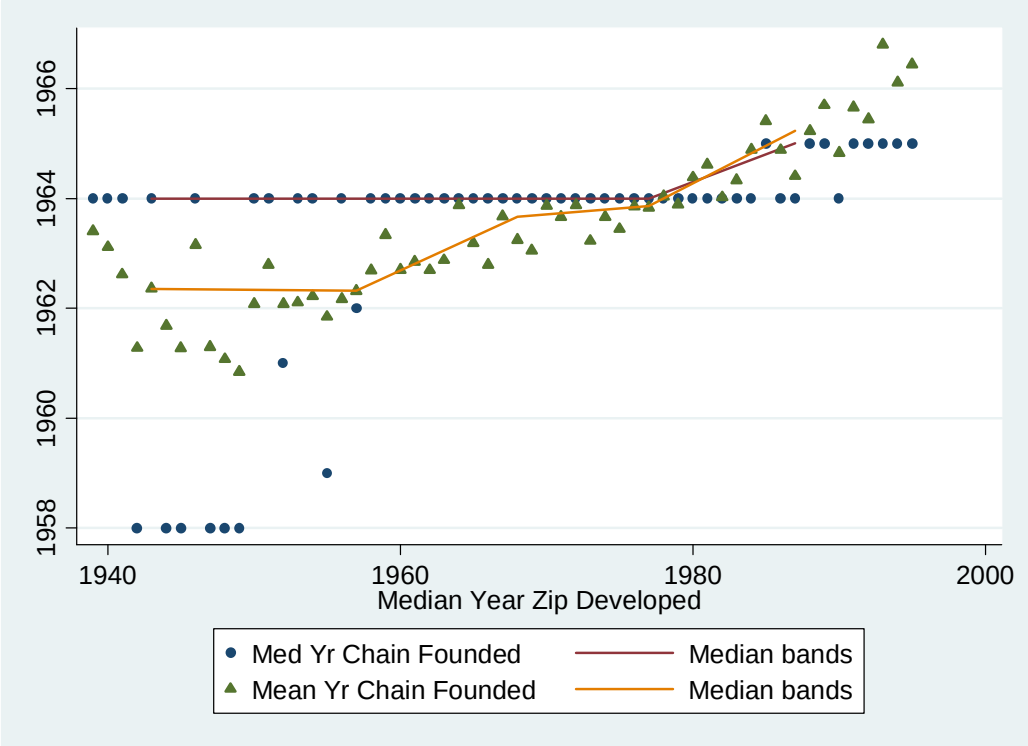


Figure 3-2] Mean and Median Year of Founding by Zip Vintage of Market Areas, All Chains

Before turning to more formal analysis, some simple tabulation is instructive. The basic question is whether older markets have older restaurants. Figures 3-2 and 3-3 show the mean and median vintage of sample chain restaurant outlets, by the median year that housing was built, overall and for sit-down restaurants. A clear pattern from both figures is that newer market areas – zipcodes developed more recently – have sample chain restaurants of more recent vintage operating.

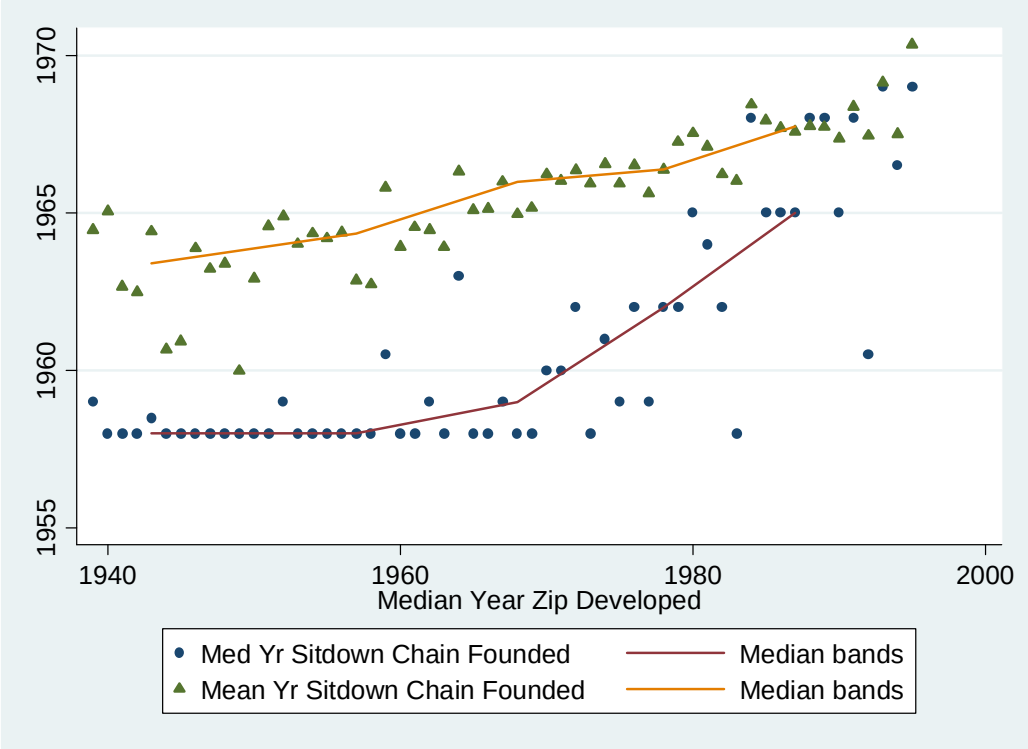


Figure 3-3] Mean and Median Year of Founding by Zip Vintage of Market Areas, Sitdown Chains

A second simple way to ask the question is to divide the chain restaurants into four groups, according to founding dates: before 1950, during 1950s, during 1960s, and 1980 and later. For each of these categories, we can ask how the share of a zipcode's chain restaurants in this vintage category varies across zipcodes with their housing vintage. Figures 3-4 and 3-5 show these results for all, and for sit-down chains, respectively.

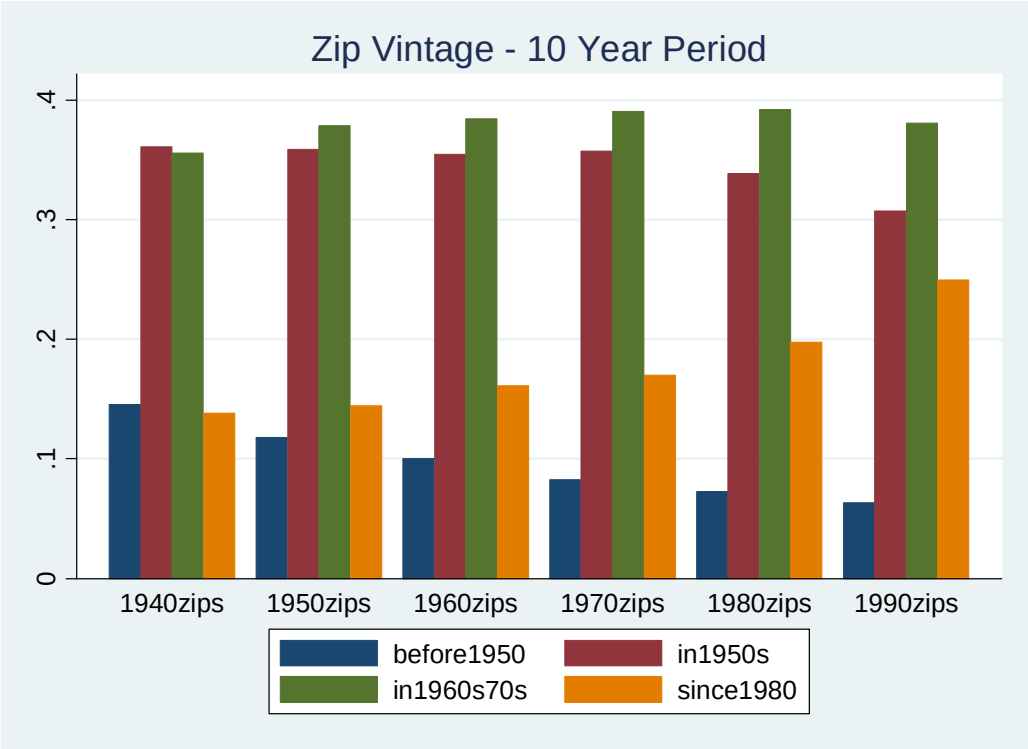


Figure 3-4] Fraction of Chains Originated in Different Periods Over All Chain Restaurants in the Areas with Different Zip Vintages

Figure 3-4 shows that, among all the chain restaurants located in the zipcode areas with zip vintages in the 1940s, the outlets from the chains originated before 1950 account for about 15%, those from the sitdown chains originated in the 1950s account for about 36%, those from the sitdown chains originated during the 1960s and 1970s account for about 35%, and those from the sitdown chains originated since 1980 account for about 14%. The most striking feature of the graph is where the peaks lie. Chains originated before 1950 reach the highest fraction in the 1950s zipcodes, while the fraction of chains originated in the 1950s remains flat between zipcodes with 1940s vintages and zipcodes

with 1970s vintages and then declines. The pattern continues to hold for the chains originated afterwards: chains originated during the 1960s and 1970s have managed the highest fraction in zipcodes with 1980s vintages; finally, those sitdown chains originated since 1980 have the highest fraction in zipcodes with1990s vintages. Taking the time of expansion into consideration, this picture suggests that the peak presence of sitdown chains tend to coincide with their period of expansion. Figure 3-5 presents the fraction of sitdown restaurants that originated in different periods in time over all chain restaurants, with a very similar pattern as in figure 3-4.

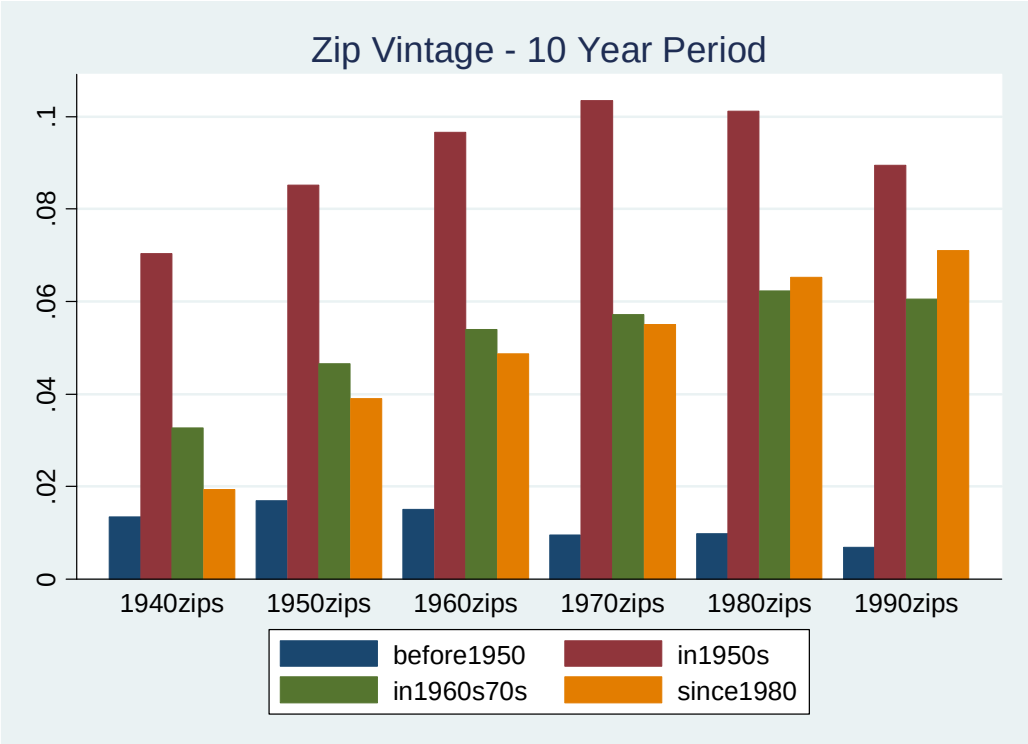


Figure 3-5] Fraction of Sitdown Chains Originated in Different Periods Over All Chain Restaurants in the Areas with Different Zip Vintages

Similar results can also be seen in table 3-4. The results are striking; the older restaurants that were founded before 1950 are more prevalent in older zipcodes and less prevalent in newer ones. Outlets of the newest restaurant chains, by contrast, have the opposite pattern: they are more prevalent in newer zipcodes and less prevalent in older zipcodes. These figures and tables provide suggestive evidence that history matters, in both of the senses we outline. However, they leave open many alternative explanations. For example, new and old zipcodes may differ systematically in their consumer characteristics, in ways that are correlated with preferences for older or newer restaurants. For example, areas with older housing may be occupied by older consumers who have been long time residents of the area and prefer older-vintage restaurants. To see whether history matters, we must determine whether the relationships that appear to hold in figures 3-2 through 3-5 survive the inclusion of controls for consumer preferences. We now turn to this in the next subsection.

	Zip Built <'50	'50-'60	'60-'70	'70-'80	'80-'90	'90+
All						
Founded <50	10.9	9.2	7.4	4.4	3.9	3.4
Founded 80+	18.4	20.1	22.0	24.1	27.3	30.3
Sitdown						
Founded <50	11.3	9.2	7.5	4.5	3.9	3.3
Founded 80+	18.9	20.1	22.2	24.3	27.4	31.3

Table 3-4] Percent of Chain Restaurants in a Founding Cohort in Markets of Different Vintages

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent Variable:	Share Pre-'50	Founded '50's	Founded '60,'70's	Founded >'80	Sitdown Share Pre-'50	Sitdown Share '50s	Sitdown Share '60-80	Sitdown Share since '80
No controls	-0.0002	0.0007	0.0006	0.0009	-0.0018	-0.0011	0.0006	0.0023
	(0.0000)**	(0.0000)**	(0.0000)**	(0.0000)**	(0.0000)**	(0.0001)**	(0.0001)**	(0.0001)**
Controls	-0.0002	0.0007	0.0006	0.0009	-0.0017	-0.0011	0.0005	0.0023
	(0.0000)**	(0.0000)**	(0.0000)**	(0.0000)**	(0.0000)**	(0.0001)**	(0.0001)**	(0.0001)**
+ MSA FE	-0.0002	0.0008	0.0006	0.0009	-0.0018	-0.0009	0.0005	0.0022
	(0.0000)**	(0.0000)**	(0.0000)**	(0.0000)**	(0.0001)**	(0.0001)**	(0.0001)**	(0.0001)**

Note: Each cell is a coefficient on the median year housing is built. The dependent variable is the zipcode's share of chain restaurants founded, say, prior to 1950. The first four columns use all sample chain restaurants. Columns (5)-(8) use only sample chain sitdown restaurants.

Table 3-5] Regression Results of the Fraction of Restaurants by Vintage on Market Age

4.2. How Do Chain Founding Dates Correlate with Zip Vintage?

We begin, in row 1 of table 3-5, with regressions of the share of a zipcode's restaurants in each of the four age groups on market age, with no controls. The purpose of these regressions is simply to reproduce the substantive results of figures 3-4 and 3-5 in a regression context before adding controls. The results reflect the figures. The coefficient of the median year housing is built is negative when the dependent variable is the share of chain outlets founded before 1950. The coefficients turn positive and increasing when the dependent variable is the share of chain outlets founded in 1950s, in 1960s and 70s, and after 1980. This relationship is even stronger when we restrict our attention to the sitdown restaurants in columns (5) through (8). Older restaurants decline as a share of chain restaurants as zipcodes are newer. The opposite is true for newer restaurants.

The second row adds a long list of controls, including median age, median household income, population, the fraction of African American and Hispanic population, as well as the shares in each of ancestry groups in the Census.[4] The coefficients of interest are unchanged by the inclusion of the battery of controls.

The third row includes MSA fixed effects, and the coefficients of interest still do not change. This implies that the positive correlation between founding dates and the zip vintage of where the outlets are located is not due to some regional variation. Within a

[4] The Census of Population and Housing has data on 109 ancestry categories. In terms of fraction of population, major ancestry groups in the Census are English, Irish, German, Italian, and American.

given MSA, older chain restaurants decline as a share of all chain restaurants as zipcodes are newer, and newer chain restaurants increase as a share of all chain restaurants as zipcodes are newer.[5]

These results establish that older markets have older restaurant chains, while newer markets have newer chains. These relationships survive an extensive battery of statistical controls for heterogeneous preferences and MSA fixed effects.

4.3. Individual Chain's Prevalence in Different Zip Vintages

Now we delve into a more detailed picture to investigate how the fraction of each chain restaurant is correlated with the zip vintage after controlling for heterogeneous tastes. We break down the zip vintage into thirteen 5-year periods and create the semi-decade dummies, in order to incorporate the nonlinear relationship between the prevalence of a chain and the age of the market area. And we include the demographic variables such as population, median household income, fraction of households with children, fraction of African American and Hispanic population, and ancestry.

Our empirical specification is the following. Let C be the set of all chains. Dependent variable y_{im}^{c} is the fraction of chain $c \in C$ over all restaurants in a zipcode i within an MSA m. X_{im} is the vector of demographic and economic variables for a zipcode i within an MSA m, D_{im} is the vector of dummy variables for five-year period

[5] We have repeated this exercise using a Tobit regression with unconditional MSA fixed effects, and the coefficients stay basically unchanged.

zip vintages for a zipcode *i* within an MSA *m*, and the error term ε_{im}^{c} consists of two parts, one part that captures the unobserved characteristic specific to an MSA, μ_m, and the other part that captures the idiosyncratic unobserved characteristics, υ_{im}^{c}, which is assumed to be distributed normally with homoskedasticity. Apparently, there is a problem estimating this equation using OLS, because in a large number of zipcode areas a particular chain restaurant is not present at all. For example, even the chain with the most number of outlets, Subway, is present in 6,916 of 14,653 zipcode areas located within an MSA. In other words, there are many observations in our data with a corner solution outcome (Wooldridge, 2002). Therefore, we use the following Tobit model with unconditional MSA fixed effect to address this issue.[6]

Then for each chain $c \in C$,

$$y_{im}^{c} = X_{im}\beta^{c} + D_{im}\gamma^{c} + \varepsilon_{im}^{c}$$
$$\varepsilon_{im}^{c} = \mu_m + \upsilon_{im}^{c}$$
$$\upsilon_{im}^{c} \mid X_{im}, D_{im} \sim N(0, \sigma_{\upsilon c}^{2})$$
$$y_{im}^{c\,*} = \max(0, y_{im}^{c})$$

Table 3-6 displays the Tobit regression results with unconditional MSA fixed effect for ten most popular chains. For the zip vintage period dummies, the omitted category is the 5-year period that each chain started operating as chain. You can see that there is a clear pattern: the fraction of each chain is lower in the zip vintage periods that precede the chain's entry; it is higher in the zip vintage periods that come after the chain's entry.

[6] We acknowledge that the unconditional fixed effect model in Tobit produces biased estimates. However, we believe that our sample size is sufficiently large to obtain consistent estimates.

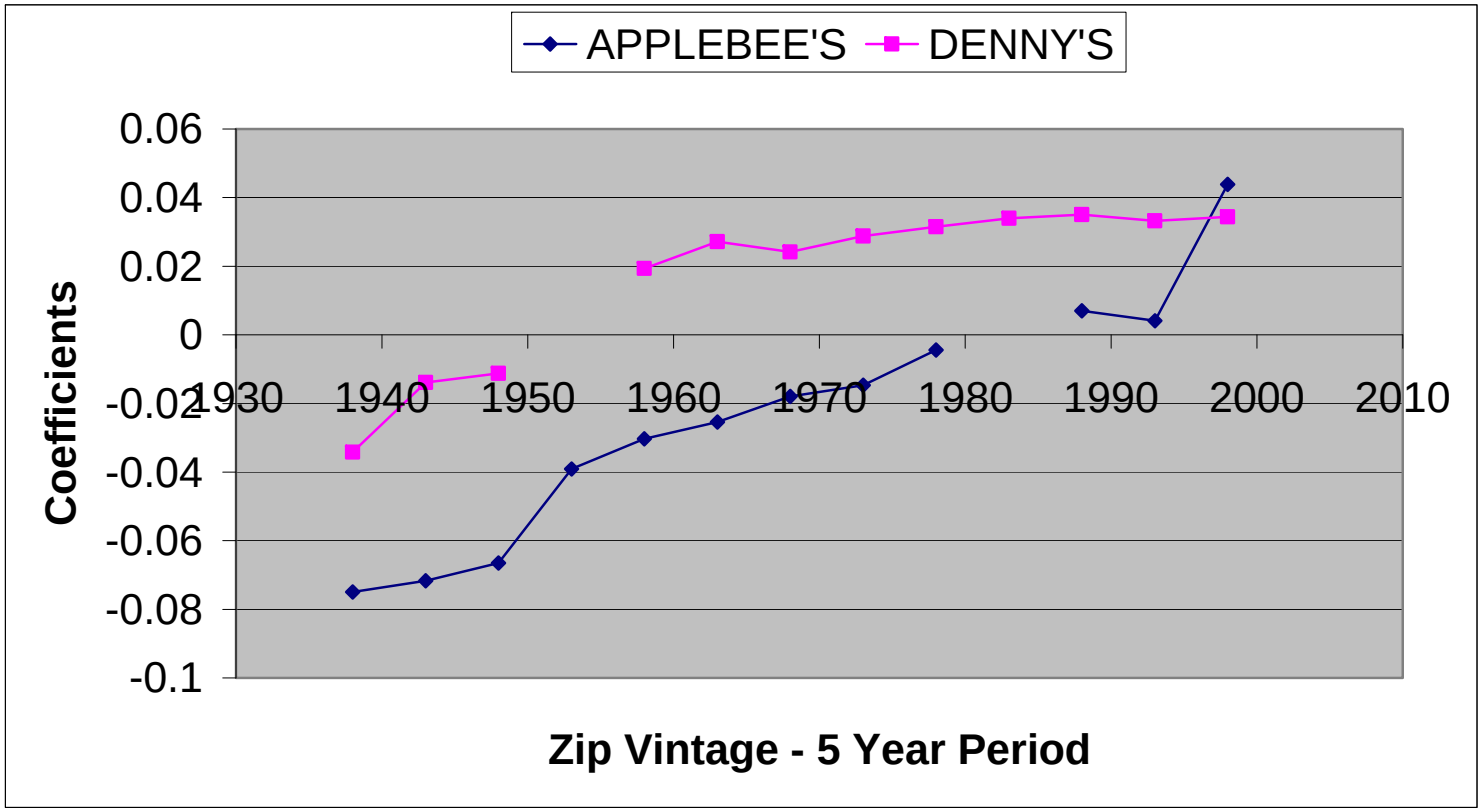
Table 3-6] Tobit Regression Results of Individual Chain's Fraction in Zipcode Area on Zip Vintage Period Dummies

Dependent Variable:	APPLE-BEE'S	CHILI'S	PIZZA HUT	DENNY'S	BURGER KING	McDonald's	STAR-BUCKS	KFC	TACO BELL	SUBWAY
Older than 1939	-0.074915	-0.077966	-0.036234	-0.034182	-0.016378	-0.050196	-0.031839	-0.022804	-0.038575	-0.052755
	(0.010056)**	(0.014263)**	(0.006257)**	(0.010104)**	(0.006918)*	(0.006066)**	(0.007796)**	(0.006042)**	(0.005816)**	(0.007274)**
1940's, First Half	-0.071689	-0.070101	-0.018112	-0.013916	-0.025476	-0.035866	-0.032792	-0.008368	-0.025495	-0.047682
	(0.012128)**	(0.016598)**	(0.007063)*	(0.010396)	(0.008908)**	(0.007280)**	(0.010272)**	(0.006762)	(0.006515)**	(0.008827)**
1940's, Second Half	-0.066515	-0.072734	-0.015726	-0.011204	-0.026906	-0.030520	-0.041349	-0.013787	-0.025087	-0.030749
	(0.010614)**	(0.014933)**	(0.006154)*	(0.009440)	(0.008022)**	(0.006400)**	(0.009528)**	(0.006152)*	(0.005749)**	(0.007703)**
1950's, First Half	-0.039118	-0.052805	-0.007321			-0.013130	-0.029807		-0.011422	-0.011268
	(0.007340)**	(0.009717)**	(0.004971)			(0.005102)*	(0.007768)**		(0.004447)*	(0.006142)
1950's, Second Half	-0.030287	-0.033645		0.019322	0.007393		-0.028542	0.001301	-0.003324	-0.006498
	(0.006285)**	(0.007229)**		(0.006409)**	(0.005805)		(0.007029)**	(0.004715)	(0.003868)	(0.005513)
1960's, First Half	-0.025436	-0.035616	0.003220	0.027188	0.005852	-0.002353	-0.024506	0.001483		-0.001597
	(0.006026)**	(0.007065)**	(0.004355)	(0.006349)**	(0.005991)	(0.004547)	(0.006846)**	(0.004736)		(0.005368)
1960's, Second Half	-0.017913	-0.026259	0.009809	0.024111	0.012258	0.000840	-0.029011	0.003648	0.002570	
	(0.005521)**	(0.006318)**	(0.004247)*	(0.006345)**	(0.005895)*	(0.004487)	(0.006577)**	(0.004720)	(0.003706)	
1970's, First Half	-0.014725	-0.008965	0.011070	0.028769	0.008053	0.004804	-0.025786	0.004445	0.004963	0.009572
	(0.004906)**	(0.005333)	(0.004088)**	(0.006207)**	(0.005732)	(0.004256)	(0.006134)**	(0.004620)	(0.003517)	(0.004840)*
1970's, Second Half	-0.004425	-0.009650	0.010985	0.031500	0.010162	0.015084	-0.025280	0.006606	0.006716	0.017075
	(0.004564)	(0.005035)	(0.004184)**	(0.006366)**	(0.005968)	(0.004280)**	(0.005887)**	(0.004719)	(0.003598)	(0.004945)**
1980's, First Half			0.006080	0.033933	0.011607	0.016941	-0.015239	0.000907	0.007583	0.026538
			(0.004524)	(0.006660)**	(0.006292)	(0.004582)**	(0.005817)**	(0.005131)	(0.003847)*	(0.005323)**
1980's, Second Half	0.007029	0.005061	0.009742	0.035026	0.010793	0.033818		0.008325	0.011924	0.047778
	(0.005427)	(0.005685)	(0.005106)	(0.007398)**	(0.007296)	(0.005523)**		(0.005631)	(0.004501)**	(0.006305)**
1990's, First Half	0.004070	0.012501	0.016558	0.033259	0.036971	0.051748	0.024998	0.019215	0.023590	0.069967
	(0.007194)	(0.006953)	(0.006288)**	(0.008640)**	(0.007836)**	(0.006857)**	(0.007377)**	(0.006966)**	(0.005473)**	(0.007751)**
1990's, Second Half	0.043889	0.028427	0.055928	0.034429	0.031922	0.073030	0.096445	0.050947	0.042898	0.119855
	(0.009368)**	(0.009998)**	(0.007940)**	(0.012100)**	(0.012366)**	(0.009927)**	(0.008126)**	(0.008876)**	(0.007493)**	(0.011341)**

Dependent Variable:	APPLE-BEE'S	CHILI'S	PIZZA HUT	DENNY'S	BURGER KING	McDonald's	STAR-BUCKS	KFC	TACO BELL	SUBWAY
Total Population	0.000002	0.000002	0.000003	0.000002	0.000003	0.000003	0.000002	0.000002	0.000002	0.000003
	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**	(0.000000)**
% Black	-0.000535	-0.000545	-0.000245	-0.000236	-0.000075	0.000476	-0.001099	0.000517	-0.000144	0.000062
	(0.000189)**	(0.000213)*	(0.000102)*	(0.000126)	(0.000149)	(0.000109)**	(0.000146)**	(0.000095)**	(0.000094)	(0.000156)
% Hispanic	-0.000797	-0.000358	-0.000179	0.000182	-0.000165	0.000386	-0.001101	-0.000039	-0.000255	-0.000125
	(0.000249)**	(0.000242)	(0.000126)	(0.000138)	(0.000187)	(0.000145)**	(0.000175)**	(0.000122)	(0.000118)*	(0.000197)
Median Household Income ('000)	0.000233	0.000323	-0.000051	-0.000208	-0.000665	-0.000079	0.001698	-0.000359	-0.000312	-0.000100
	(0.000126)	(0.000131)*	(0.000097)	(0.000117)	(0.000121)**	(0.000095)	(0.000084)**	(0.000100)**	(0.000088)**	(0.000113)
Median Age	-0.001077	-0.001329	-0.000651	-0.001236	-0.002061	-0.001672	-0.003015	-0.000778	-0.001417	-0.001714
	(0.000360)**	(0.000391)**	(0.000266)*	(0.000292)**	(0.000337)**	(0.000283)**	(0.000335)**	(0.000272)**	(0.000238)**	(0.000335)**
% Unemployed	-0.003064	-0.001928	-0.001029	-0.001018	-0.000709	-0.000229	-0.000069	-0.000711	-0.000354	-0.000284
	(0.000647)**	(0.000680)**	(0.000317)**	(0.000377)**	(0.000348)*	(0.000285)	(0.000334)	(0.000307)*	(0.000250)	(0.000333)
% Households	-0.168288	-0.151922	-0.059647	-0.132216	0.010673	-0.073571	-0.288024	-0.039154	-0.060300	-0.107869
With Children	(0.019957)**	(0.021433)**	(0.013005)**	(0.016740)**	(0.015088)	(0.013653)**	(0.017433)**	(0.012346)**	(0.011641)**	(0.016266)**
Constant	-0.016568	0.067275	-0.029750	-0.011615	-0.000381	-0.032963	0.113091	-0.100744	0.030251	0.064462
	(0.057004)	(0.046617)	(0.032158)	(0.038654)	(0.044343)	(0.039929)	(0.056005)*	(0.046020)*	(0.027584)	(0.043093)
Ancestry Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	13987	12491	14633	12083	14645	14653	12825	14625	14553	14653
# Uncensored	1189	731	3841	1234	4312	6421	2623	3506	3517	6916

Standard errors in parentheses; * significant at 5%, ** significant at 1%

Table 3-6 (continued)] Tobit Regression Results of Individual Chain's Fraction in Zipcode Area on Zip Vintage Period Dummies



For each graph, the break corresponds to the omitted category, which is the 5-year period that the chain started operating.

Figure 3-6] The Coefficients of Zip Vintage Period Dummies from Regressions in Table 3-6 (Denny's vs. Applebee's)

To highlight the findings in table 3-6, figure 3-6 compares the regression coefficients of Denny's and Applebee's, two prominent sitdown chains with very different dates of origin. Denny's started operating as chain in 1953. The three preceding zip vintage periods have negative coefficients, the first of which is significantly different from zero, whereas all of the following zip vintage periods have significantly positive coefficients, implying that the fraction of Denny's restaurant is higher in those zipcode areas. Similarly, the graph shows that any zip vintage periods before the first half of 1980s when Applebee's started to expand as chain have significantly negative coefficients, implying lower fraction of Applebee's compared to the first half of 1980s, whereas the zipcodes with 1990s vintages have higher fraction of Applebee's restaurants. Especially in the brand new zipcodes with the latter half of 1990s vintages, the coefficient of Applebee's is significantly different from zero. These results illustrate the mechanism with which older chains are more prevalent in older market areas and younger chains are more prevalent in younger market areas. In its early stage of expansion, every chain tends to enter market areas that are relatively new. Coupled with the fact that different chains came to existence in different times, we observe the pattern that older chains are more prevalent in older market areas and younger chains are more prevalent in younger market areas. Behind all this, there is path-dependence, without which the later entrants can easily drive the incumbents out. Therefore, these are evidence that prominent chain restaurants exhibit path dependence in terms of the vintage of locations where they are operating, complementing the aggregate results discussed in the earlier subsection.

5. Conclusion

In this paper, we investigate whether history has persistent effect in shaping the market in the restaurant industry. The question of whether history matters has been around for long, and there have been both theoretical debates and anecdotal evidences on why history should or should not matter, but this is a rare attempt to empirically test the proposition using a large set of data.

This paper addresses the question of whether history matters or not by utilizing the fact that different chain restaurants came to existence at different points in time, penetrating into the new market areas of the time where they faced less competition and expected to reap higher profit. It turns out that those chains that settled down to then-new market areas are quite resilient to the arrivals of later competitors, and we observe that different restaurants are available in areas where current market conditions are very similar, depending on who was available to enter at the early stage of the geographic market's development. In particular, older chain restaurants are located in older market areas and younger chain restaurants are located in younger market areas, after taking the heterogeneity in current market conditions into account.

The evidences discussed in the paper suggest that history matters in determining the identity of the chain restaurants currently available. One may argue that, as long as those different chains available in similar areas are close substitutes to one another, the welfare implication of history may not be too large. We do not have evidences to

disprove the claim yet. But at least, the size of the profit associated with the control of a certain market is certainly not negligible.

The potential welfare effect of path-dependence in restaurant markets is clearly an important issue. If the path-dependence that we document in this paper is systematically correlated with the type of cuisines available, there can be welfare effect. Besides the welfare implication of path-dependence, we are interested in the following two questions that we hope to address in the near future. The first one is how long does history matter if it matters. It is possible to imagine that the effect of history also fades away as time passes by. Does the persistence of history have the same effect for chains founded half a century ago as it does for chains founded a decade ago? If not, what determines how long history might matter? We plan to provide an answer to this question using our data in the near future.

The second question is about the possibility of "defying history." Although the discussion in this paper establishes that initial conditions have rather persistent effects on products available decades after, but it is not true that all new restaurants have trouble penetrating into old market areas. Starbucks, for example, is as likely to be found in older zipcode areas as in new zipcode areas. Because a Starbucks store needs smaller space for its operation that can be characterized as having a small footprint (Baldwin & Clark, 2006), and because its main clientele is the pedestrians in downtown districts, Starbucks has penetrated into the old market areas successfully, despite being one of the youngest of chains, thereby defying history. It would be interesting if we can identify what the characteristics of businesses that enable them to defy history are.

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APPENDIX: Alphabetical List of Chains

Name	Founded/ First Franchised	Number of Stores	Cuisine Type	Initial Location-City	Initial Location-State
			Fastfood		
Arby's	1964	3218	Burgers	Boardman	OH
Backyard Burgers	1987	123	Burgers	Cleveland	MS
Baskin Robbins	1946	1785	Ice Cream	Glendale	CA
Burger King	1954	7004	Burgers	Miami	FL
Blimpie	1964	1464	Sub	Hoboken	NJ
Bojangle's	1977	316	Burgers	Charlotte	NC
Boston Market	1985	640	Fastfood	Newton	MA
Braum's	1968	278	Ice Cream		OK
Bruegger's	1983	253	Bagel		VT
Captain D's	1969	563	Seafood	Donelson	TN
Caribou	1990	117	Coffee	Minneapolis	MN
Carl's Jr	1956	884	Fastfood	Anaheim	CA
Checker's		385	Fastfood		
Chick-fil-a	1967	895	Chicken	Atlanta	GA
Church's	1952	1060	Chicken	San Antonio	TX
Cici's	1985	436	Pizza	Plano	TX
D'angelo's	1967	11	Fastfood	Dedham	MA
Del Taco	1964	392	Mexican	Barstow	CA
Domino's	1967	4890	Pizza	Ypsilanti	MI
Donato's	1963	191	Pizza	Columbus	OH
Dairy Queen	1940	4503	Frozen Yogurt	Joliet	IL
Dunkin Donuts	1950	3131	Donut	Quincy	MA
Einstein Bros Bagel	1993	362	Bagel	New York	NY
El Pollo Loco	1980	308	Chicken	LA	CA
Fazolis	1988	365	Italian	Lexington	KY
Hardee's	1961	1938	Burgers	Rocky Mount	NC
Hungry Howie	1983	446	Pizza	Taylor	MI
In N Out	1948	162	Burgers	Baldwin Park	CA
Jack in the Box	1951	1901	Fastfood	San Diego	CA
Jersey Mike's	1956	267	Sub	Point Pleasant	NJ
KFC	1952	5309	Chicken	Corbin	KY

Name	Founded/ First Franchised	Number of Stores	Cuisine Type	Initial Location-City	Initial Location-State
Krystal's	1932	302	Fastfood	Chattanooga	TN
Lees Famous Recipe Chicken		151	Chicken		
Little Caesar's	1959	1821	Fastfood	Garden City	MI
Long John Silver	1969	1174	Seafood	Louisville	KY
McDonald's	1955	13276	Burgers	Des Plaines	IL
Miami Sub	1983	81	Sub	Key West	FL
Mr. Gatti's		150	Fastfood		
Mrs. Winner	1977	118	Fastfood	Nashville	TN
Noah Bagel		46	Bagel		
Papa John's	1984	2529	Pizza	Jeffersonville	IN
Papa Murphy's	1988	805	Fastfood	Petaluma	CA
Peter Piper	1975	114	Pizza	Glendale	AZ
Popeye's	1972	1368	Chicken	New Orleans	LA
Quizno's	1981	2436	Sub	Denver	CO
Rally's		377	Fastfood		
Seattle's Best Coffee	1971	77	Coffee	Seattle	WA
Schlotzsky's	1971	521	Fastfood	Austin	TX
Sonic	1954	2690	Burgers	Shawnee	OK
Starbucks	1985	5023	Coffee	Seattle	WA
Subway	1965	15148	Sub	Bridgeport	CT
Taco Bell	1964	5460	Mexican	Downey	CA
Taco Bueno	1967	128	Mexican	Abilene	TX
Taco Cabana	1978	135	Mexican	San Antonio	TX
Taco Time	1962	217	Mexican	Tacoma	WA
TCBY	1981	693	Frozen Yogurt	Little Rock	AR
Wendy's	1972	5587	Burgers	Columbus	OH
What a Burger	1950	625	Burgers	Corpus Christi	TX
White Castle	1921	249	Fastfood	Wichita	KS

Name	Founded/ First Franchised	Number of Stores	Cuisine Type	Initial Location-City	Initial Location-State
		Sitdown			
Applebee's	1983	1521	Pub/ Grill	Atlanta	GA
Azteca Mexican	1974	40	Mexican	Seattle	WA
Bakers Square	1983	142	Family	Des Moines	IA
Bennigan's	1976	285	Pub/ Grill		
Bickford's Family Restaurants	1959	54	Family	Peabody	MA
Bob Evans	1962	517	Family	Rio Grande	OH
Bonanza	1969	70	Family		
Buca di Beppo	1993	90	Italian	Minneapolis	MN
California Pizza Kitchen	1985	146	Various	LA	CA
Carraba's	1986	154	Italian	Houston	TX
Carrows	1970	111	Family	Santa Clara	CA
Chart House	1961	27	American	Aspen	CO
Cheesecake Factory	1972	75	American	Los Angeles	CA
Chi Chi's	1977	78	Mexican		
Chili's	1983	823	Pub/ Grill		
Claim Jumper	1977	32	American	Los Alamitos	CA
Coco's	1948	137	Family	Orange County	CA
Copeland's of New Orleans	1983	33	Various	New Orleans	LA
Country Kitchen	1958	257	Family	Cincinnati	OH
Cracker Barrel	1969	504	Family	Lebanon	TN
Damon's	1979	89	Pub/ Grill	Columbus	OH
Denny's	1953	1538	Family	Lakewood	CA
Don Pablo's	1985	66	Mexican	Lubbock	TX
Eat'n Park	1949	66	Family	Pittsburgh	PA
Famous Dave's	1994	102	Various	Hayward	WI
First Watch	1983	48	Family		
Friendly's	1935	519	Family	Springfield	MA
Frisch's	1939	102	Family	Cincinnati	OH
Fuddrucker's	1980	186	Pub/ Grill	San Antonio	TX
Furr's	1947	59	Family		
Godfather's Chicken	1973	582	Chicken	Omaha	NE
Golden Corral	1973	458	Family		
Ground Round	1969	89	Pub/ Grill		
Hard Rock Café	1982	17	Pub/ Grill	London	U.K.

Name	Founded/ First Franchised	Number of Stores	Cuisine Type	Initial Location-City	Initial Location-State
Hops	1988	50	Pub/ Grill	Clearwater	FL
Houlihan's	1972	82	Pub/ Grill	Kansas City	MO
IHOP	1958	1152	Family	Los Angeles	CA
Il Fornaio	1997	25	Italian	Burlingame	CA
J. Alexander's	1991	25	American	Nashville	TN
Legal Sea Foods	1968	27	Seafood	Cambridge	MA
Logan's Roadhouse	1991	120	Pub/ Grill		
Lone Star	1989	255	Steak	Winston-Salem	NC
Luby's	1965	162	Family	San Antonio	TX
Maggiano's Little Italy	1991	28	Italian		
Marie Callendar's	1964	142	Family	LA area	CA
Max and Erma's	1975	90	American	Dayton	OH
Mimi's Café	1978	91	American	Anaheim	CA
Ninety Nine Restaurant & Pub	1952	84	American	Woburn	MA
O'Charley's	1985	210	American		
Old County Buffet	1983	179	Buffet		
Old Spaghetti Factory	1969	38	Italian	Portland	OR
Olive Garden	1982	543	Italian		
Original Pancake House	1953	87	Family	Portland	OR
Outback Steakhouse	1988	762	Steak	Tampa	FL
Perkin's	1958	480	Family	Cincinnati	OH
PF Chang's China Bistro	1993	106	Various		
Pizza Hut	1958	6731	pizza		
Pizzaria Uno	1943	141	Italian	Chicago	IL
Ponderosa	1969	342	Family		
Red Lobster	1968	662	Seafood	Lakeland	FL
Red Robin	1969	211	Pub/ Grill	Seattle	WA
Roadhouse Grill	1993	77	Pub/ Grill	Pembroke Pines	FL
Romano's Macaroni Grill	1989	196	Italian		
Round Table Pizza	1959	483	Family	Menlo Park	CA
Rubio's Fresh Mexican Grill	1983	143	Mexican	San Diego	CA
Ruby Tuesday	1972	696	Pub/ Grill	Knoxville	TN
Ruby's Diner	1982	19	Family	Newport	CA
Ruth's Chris Steak	1965	79	Steak	New Orleans	LA
Shari's	1978	101	Family	Hermiston	OR
Shell	1986	28	Family	Tampa	FL

Name	Founded/ First Franchised	Number of Stores	Cuisine Type	Initial Location-City	Initial Location-State
Shoney's	1953	358	Family	Charleston	WV
Sizzler's	1958	225	Family	Culver City	CA
Sonny's Real Pit BBQ	1968	67	Various	Gainesville	FL
Spaghetti Warehouse	1972	17	Family	Dallas	TX
Steak and Ale	1967	63	Steak		
Steak n Shake	1934	395	Family	Normal	IL
Stuart Anderson's	1964	30	Steak	Seattle	WA
Sweet Tomato	1978	64	Family	San Diego	CA
TGIF	1965	505	Pub/ Grill	New York	NY
Tony Roma's	1972	132	Pub/ Grill	Miami	FL
Tumbleweed's	1975	54	Family	New Albany	IN
Village Inn	1958	313	Family	Denver	CO
Waffle House	1955	1392	Family	Atlanta	GA