



## Why are Walmart and Target Next-Door neighbors?

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### ABSTRACT

One of the most notable changes in the U.S. retail market over the past twenty years has been the rise of Big Box stores, retail chains characterized by physically large stores selling a wide range of consumer goods at discount prices. A growing literature has examined the impacts of Big Box stores on other retailers and consumers, but relatively little is known about how Big Box stores choose locations. Because Big Box stores offer highly standardized products and compete primarily on price, it is likely that they will seek to establish spatial monopolies, far from competitor stores. In this paper, I examine where new Big Box stores locate with respect to three types of existing establishments: own-firm stores, other retailers in the same product space (competitors), and retailers in other product spaces (complements). Results indicate that new Big Box stores tend to avoid existing own-firm stores and locate near complementary Big Box stores. However, there is little evidence that new Big Boxes seek to avoid competitors. Firms in the same product space may not be perfect substitutes, or firms may prefer to share consumers in a desirable location rather than cede the entire market to competitor firms.

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### 1. Introduction

Over the last twenty-five years, the rapid growth of Big Box stores has reshaped the business model and physical landscape of retail in the U.S. Although there is no standard definition of “Big Box”, also known as superstores, these retailers are usually characterized by large-footprint buildings selling a range of consumer goods at discount prices. The business model combines a no-frills shopping environment with firm-wide efficiencies – information technology, networks built around distribution centers, negotiating power with suppliers – that enable them to sell goods at lower prices than many other retailers (Basker, 2007; Basker et al, 2012; Holmes, 2011). Big Box stores can be broadly grouped into two types. General merchandise stores such as Walmart, Target, and Costco sell a wide variety of products, from groceries to clothing to household furnishings to electronic appliances. Specialized Big Box stores, sometimes called “category killers”, offer extensive variety and large volume within a single product category, such as building materials (Lowe's, Home Depot) or office supplies (Staples, Office Max) (Ashenfelter et al, 2006).

The growth of Big Box as a retail format, and the expansion of individual firms (particularly Walmart), have drawn considerable attention from other retailers, local policymakers, the media, and academics. Previous research has considered the impacts of Big Box entry on numerous economic outcomes, such as retail employment growth, retail prices,

obesity, consumer welfare, and housing prices.<sup>1</sup> Much less research has examined what factors affect Big Box stores' location choices. Like other retailers, Big Box firms seek out new markets in which there are enough households nearby who match their target consumer profiles, based on economic and demographic characteristics. To the extent that consumer profiles vary across retail sectors and across firms within a sector, this will lead to different location preferences for Big Box firms (for instance, home improvement stores may select largely residential areas with high rates of homeownership, while office supply stores may prefer to locate near central business districts or suburban office parks). Researchers have documented several idiosyncratic patterns about Walmart's expansion path in particular. Neumark et al (2008) and Carden and Courtemanche (2011) point out that the firm's network expanded slowly from its headquarters in Bentonville AR, and Holmes (2011) documents the importance of proximity to regional distribution centers. By contrast, the grocery chain Trader Joe's leapfrogged from its original base in California to suburban Boston, because of its very specific consumer profile – highly educated households with gourmet food preferences but relatively frugal budgets (Kowitz, 2010). These examples focus on firms' location choices across the U.S., but do not explain how firms select sites within single states or metropolitan areas. In this paper, I examine where new Big Box stores locate within

<sup>1</sup> See, for instance, Basker (2005), Basker (2007), Basker and Noel (2009), Basker et al (2012), Carden and Courtemanche (2011), Ellickson and Grieco (2013), Haltiwanger et al (2010), Hausman and Leibtag (2005), Matsa (2011), Neumark et al (2008), Pennington-Cross and Garate (2014); Pope and Pope (2013).

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California counties, focusing on the interactions with three types of existing establishments: own-firm stores, other retailers in the same product space (competitors), and retailers in other product spaces (complements). The analysis serves as an empirical test of two competing hypotheses of firm location: do new Big Box stores seek to establish spatial monopolies, outside the market area of rival firms, or do they cluster near competitors to capture some share of their business?

The theoretical debate over firm clustering versus dispersion extends back to models by Hotelling (1929) and Lösch (1954), as well as more recent versions by Capozza and Van Order (1978), Eaton and Lipsey (1975), Elizalde (2013), Irmen and Thisse (1998), Salop (1979) and Stern (1972). In these models, firms can distinguish themselves from competitors along three dimensions: price, geographic space, and product space (range of goods, quality or other non-price characteristics). In general, if firms have limited ability to differentiate from their competitors in product space, and if consumers are readily able to compare prices, then firms will have greater incentive to choose physical locations farther from their competitors. As Netz and Taylor (2002) observe, formal models can lead to predictions of either clustering or dispersion, depending on the specific assumptions used.

Empirical studies find mixed evidence of both clustering and dispersion, depending on the industry, empirical setting, and methodology. Netz and Taylor (2002) examine gasoline stations, which sell a relatively homogeneous product and have highly transparent pricing, and find evidence that retailers choose dispersed locations over clusters. Klier and McMillen (2008a,b) find strong clustering patterns among auto parts suppliers, which are primarily wholesalers rather than retailers. Andersson et al (2013) show that artists cluster near other artists, and near potential consumers of their work. Cohen and Mazzeo (2010) examine the strategic interactions across retail banks by firm type (large multi-market firms and smaller single-market firms) and demonstrate that, without correcting for the endogeneity of market structure, the presence of same-type banks deters entry for new competitors. However, once endogenous market structure is accounted for, same-type competitors have a positive and significant impact on entry probability. They interpret these results to mean that unobservable market conditions that attract large banking firms also induce entry by competitor firms. Most relevant to the current analysis, Clapp et al (2014) find that the presence of anchor department stores deters entry by similar anchor stores, leading to dispersion. Similarly, Big Box retailers appear to be good candidates for dispersion, based on their business model. Both types of Big Box stores — general merchandise and category killers — offer highly standardized product types and brands that are typically available at many other stores. Many Big Box firms advertise low prices as a marketing draw (Walmart's slogan: "Always Low Prices"), and the prices of specific goods are readily available to consumers.<sup>2</sup> Moreover, because of the store size and range of products offered, Big Box stores typically draw from large market areas, from five to fifteen miles, depending on the surrounding population density. Based on these characteristics, it would seem that spatial differentiation is more feasible for these firms than product or price differentiation.

The retail location literature also highlights some potential benefits of firm clustering, based on two different forms of agglomeration economies. The first type occurs among stores that sell high specialized, quality differentiated goods, such as furniture, jewelry or original art (Berry, 1967; Fischer and Harrington, 1996; Picone et al, 2009; Schuetz and Green, 2014). By clustering near similar retailers, these stores can reduce consumer search costs and attract greater volume of potential consumers. Because consumers choose these products based

on idiosyncratic matching of preferences rather than price, co-location does not undermine pricing power of individual retailers. On the face of it, Big Box stores seem unlikely candidates to benefit from this type of clustering. The second form of agglomeration benefits results from an optimal mixture of stores within a shared retail space such as a mall. Proximity to complementary store types can increase revenue for individual stores, such that a single landowner (mall owner or developer) can maximize profits from the entire space by controlling the store mix (Benjamin et al, 1992; Brueckner, 1993). This form of agglomeration is more plausibly a factor in Big Box location choice. Big Box stores, particularly general merchandise firms, often serve as anchor tenants in regional power-centers, generating additional customer traffic for adjacent stores, including more specialized Big Box stores. Similarly, locating near an existing retail cluster may be a reaction to information failure: uncertainty about demand in untapped markets could cause retailers to delay entry until a first mover has proven that a given site can be profitable (Caplin and Leahy, 1998).

In this paper, I test how the location of new Big Box stores reflects proximity to three types of existing retailers: own-firm stores, competitors, and complementary retailers. Using the National Establishment Time Series (NETS) data for California, I identify newly opened Big Box stores over three time periods between 1992 and 2009. New employment per Big Box firm at the PUMA level is estimated as a function of baseline employment in own-firm stores, competitor and complementary firms. The regressions control for a variety of factors affecting underlying site productivity, such as population density and income, as well as proxies for political opposition and zoning rules that could constrain sites available for Big Box stores.

Results indicate that new Big Box stores tend to avoid market areas with existing own-firm stores, and are more likely to open in areas with higher density of complementary stores. However, there is little evidence that prior existence of competitors deters new Big Box entry. In regressions pooling all retail sectors, new Big Box employment is positively associated with employment density among same-product Big Box stores, even controlling for other location-specific factors. When stratifying the regressions by retail sector, results are more mixed, and generally suggest that new Big Box stores neither avoid nor cluster near in-sector competitors. One interpretation is that even among firms selling standardized products, Big Box stores in the same retail sector are not perfect substitutes. Alternatively, firms may prefer to share consumers in a desirable location rather than cede the entire market to competitors, and the current analysis may be limited in its ability to fully measure underlying site desirability.

The remainder of this paper is organized as follows. Section 2 provides some context for Big Box retail. Section 3 outlines the empirical strategy and additional data sources. Section 4 presents regression results, while Section 5 concludes.

## 2. Context of Big Box retail

Although a widely recognized colloquial term, there is no formal definition of "Big Box" stores, and the criteria specified by other researchers have varied based on the available data and research question. For instance, a studio at the Columbia University, Graduate School Architecture, Preservation and Planning (2001) defines Big Box retailers primarily by store physical characteristics, such as building footprint and lot size. Haltiwanger et al (2010) borrow from this study to develop a working definition of Big Box firms based on firm and establishment size and industry classification. For the current analysis, I assembled a master list of Big Box firms containing all firm names mentioned in each of the four original sources used by Haltiwanger et al (2010) — Columbia University, the University of California's Hastings College of Law, Wikipedia and the National Retail Federation Top 100 Retailers list — as well as a consulting report on the Big Box sector (L2, Inc., 2014). Firms that were listed by three or more of the five sources are designated as Big Box firms for this analysis, and all establishments

<sup>2</sup> Even before recent technology, such as mobile phone apps and in-store computer kiosks that allow consumers to compare prices to other stores, Big Box stores published prices on selected goods on print advertisements, such as newspaper inserts and direct-mail fliers.

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