Discussion of Lafontaine and Sivadasan, "The Recent Evolution of Physical Retail Markets: Online Retailing, Big Box Stores, and the Rise of Restaurants"

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I. Definitions

To understand the recent evolution of physical retail markets, it is useful to start by defining physical retail markets.

The retail sector, narrowly defined, consists of business establishments – stores – that primarily sell merchandise to consumers, generally without transformation. It is distinct from the wholesale sector, which sells merchandise to retailers (and sometimes transforms or packages the products).

In addition, the retail sector has long been considered distinct from other types of business that serve end customers, and are often located in the same malls and streets as retailers, but are primarily engaged in providing *services* rather than merchandise. For example, gyms are part of the arts, entertainment, and recreation sector; ceramics studios are classified under educational services; and hair salons, automotive repair shops, and dry cleaners are all classified under other services. Bank branches are classified in the finance and insurance sector, and rental locations (whether renting videos, formalwear, or furniture) are classified under real estate & rental & leasing.[2]

A major part of Lafontaine and Sivadasan's paper concerns restaurants, which provide both a good and a service. As noted by Lafontaine and Sivadasan, these were considered by the Census to be part of the retail sector under the Standard Industrial Classification (SIC) system used until 1997, but are part of the accommodation and food services sector in the North American Industrial Classification System (NAICS), which has been used by the Census Bureau since 1997.

Within the retail sector (SIC 52-59, NAICS 44-45), stores' industrial classification codes have historically depended on their primary product. Thus, stores that primarily sell shoes are classified as shoe stores, and stores that primarily sell food for consumption off the premises are classified as grocery stores. There are only two exceptions to this rule. First, "general-merchandise" stores (SIC 53, NAICS 452) sell a variety of products – for example, a combination of shoes, groceries, home furnishings, and apparel. Second, "non-store retailers" (SIC 596, NAICS 454) are classified not by what they sell, but by how they sell it. These establishments have historically included catalog show rooms, vending-machine operators, mail-

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[1] Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau. No confidential data are used in this discussion. I thank Randy Becker, Cathy Buffington, and Shawn Klimek for helpful comments & conversations.

[2] Alternative classifications of businesses, based on type of customer or location, are feasible to create using the micro data collected by the Census Bureau.

order retailers, and direct-selling retailers (such as door-to-door encyclopedia sales). Today, it also includes retailers primarily engaged in e-commerce.

The assignment of industry codes in Census Bureau business statistics is done at the *establishment* level, rather than at the *firm* level or at the *worker* level. An establishment is a location of business and employment; a firm is the owning entity. Some stores are so-called "mom-and-pop" businesses, which operate a single location. In those cases there is no need to distinguish between the establishment's line of business and the firm's. Other stores belong to chains, and some chains own other types of establishments, such as warehouses, marketing arms, or manufacturing facilities. A retail chain may have one manufacturing facility, for example; workers in that facility are considered to be in manufacturing. Conversely, even if the primary business of the *firm* is manufacturing, the employees in its outlet store are considered retail workers in Census Bureau business statistics.

An establishment's industrial classification is determined by the line of business for which it either has the highest revenue or the largest employment or payroll. This means that even if a hair salon sells some hair products, as long as it earns most of its revenue from the service of haircuts, styling, dying, and so on, it is classified as a hair salon. As a result, a worker whose job is to sell hair products could be classified as an employee of a hair salon (if the establishment in which she works is a hair salon) or as an employee of a retail establishment (if the establishment in which she works earns most of its revenue from the sale of merchandise to consumers). Likewise, a worker delivering restaurant food to consumers' homes could be classified as a worker of a restaurant (if he is employed by the restaurant) or as a worker in the delivery business (if he works for a delivery service).

Alternative classifications, based on the occupation of the workers, require information on workers rather than businesses. The Current Population Survey and the American Community Survey collect such information on samples of workers; survey weights allow researchers to generate economy-wide statistics from these samples.

This background helps understand the big-picture trends presented by Lafontaine and Sivadasan. The rise in employment by restaurants, for example, excludes workers who support the restaurant business but work in warehouses, or deliver food for delivery services. The increase in nonstore-retail employment excludes employees working at physical stores that have online channels (even if those workers are primarily engaged with website design and maintenance), as well as workers in the "customs computer programming services" industry (NAICS 541511) that may be contracted to design or maintain websites or apps.

II. Major historical developments in the retail sector

Next, it is useful to put the current surge in innovative activity in the retail sector into historical context.

The modern retail sector arguably dates to the late 1800s, when many retail chains started their operations. In the grocery-retailing industry, chains were almost nonexistent in 1890. Of the

1718 retail chains the Federal Trade Commission (FTC) identified in 1928, only 42 were created before 1900 (FTC 1932, table 29, p. 54). Interestingly, the growth of chains coincided with a technological innovation – the mechanical cash register – which was invented in 1878 and became standard equipment in all stores by the 1920s, and which helped ameliorate retailers' principal-agent problem (Basker, 2016, pp. 38-39).

If the first half of the 20th Century brought us chains, the second half brought us large general-merchandise stores such as Walmart, Kmart, and Target, and large warehouse-style clubs such as BJ's, Sam's, and Costco. Facilitating this development was the barcode scanner, which was first installed only in large grocery stores, became standard equipment across the retail sector by the 1990s (Basker and Simcoe, 2018).

In the 2000s, the sector has seen another remarkable transformation with the growth of e-commerce. Now, instead of walking to the corner store (as in 1930) or driving to the strip mall on the edge of town (as in 1990), consumers purchase goods from the comfort of their homes and have the goods delivered to them. Like the previous transformations of retailing, this change has been attributed to a technological innovation – the rise of the Internet. This innovation has been transformative, and stands apart from the prior changes. Whereas the cash register and the barcode scanner changed the way stores operated, and affected the scale and scope of retailers, they remained recognizably *stores*; consumers continued to interact with them in much the same way. In contrast, as noted by Lafontaine and Sivadasan, the Internet has changed the very nature of retailing.

III. Measuring retailing in the Internet age

This major change has consequences for measuring economic activity, both in the retail sector and in other, related, sectors, particularly warehousing and transportation, services, and wholesale.

First, the classification system that distinguished "shoe stores" from "non-store retailers" becomes meaningless when shoes are sold online. The Census Bureau has attempted to address this problem by including an e-commerce question to its Annual Retail Trade Survey (ARTS) and Monthly Retail Trade Survey (MRTS) since at least 1999.[3] However, the classification problem is likely to get more severe as more specialized businesses move entirely online.

[3] The ARTS and MRTS are administered to taxpaying units (EINS) and firms rather than establishments. For e-commerce questions, this is a better sampling unit than an establishment (store) because large retailers are likely to allocate e-commerce receipts to separate administrative units and not to individual stores. In 2019, the ARTS asked, "Did this [entity] have any e-commerce sales in 2019?" and, for those responding in the affirmative, follows up with "What were the total e-commerce sales in 2019?" For the purposes of this survey, the Census defines e-commerce as "the sale of goods and services where the buyer places an order, or the price and terms of the sale are negotiated, over an Internet, mobile device (M-Commerce), extranet, EDI network, electronic mail, or other comparable online system. Payment may or may not be made online." (Source: 2019 ARTS form SA-44; https://www2.census.gov/programs-surveys/arts/technical-documentation/questionnaires/2019/sa-44-19.pdf. Accessed January 25, 2020.) Some, but not all, MRTS forms include similar questions.

Second, e-commerce has further blurred the lines between retail and service industries. For example, delivery services are an increasingly important line of business. While the Census Bureau's business statistics capture formal employment in delivery services (which has increased since 2012), measuring "gig" workers, who do not have formal employment contracts, has been a much more complex task (Abraham et al. forthcoming). At the same time, retailers are increasingly offering services such as delivery, shopping services, and curbside pickup, particularly in the grocery industry. The 2017 Census of Retail Trade asked supermarkets for the first time whether they offer "preordering or delivery services by website, app, fax, phone, or other means." Responses to this question have not yet been tabulated, but I am hoping this question helps us to start to quantify this type of industry blurring.[4]

In addition, as more businesses sell online, they often outsource website hosting, design, and maintenance, so the workers performing these functions are classified outside the retail sector. This type of measurement problem is not new – it has long been true that many firms outsource tasks such as marketing, accounting, and landscaping – but e-commerce represents a qualitative shift in this type of misclassification. For an online seller, the website *is* the business, so omitting the workers maintaining the web operations from the employment count is qualitatively different from omitting workers performing other support operations that are ancillary to the firm's primary business.[5]

IV. Uneven effects of e-commerce on retail and consumer-facing service industries

Finally, it is worth noting that the "retail apocalypse" discussed by Lafontaine and Sivadasan has not been uniform across retail industries. Lafontaine and Sivadasan focus on the growth of restaurant employment, but other, traditional, retail industries have also flourished. Published data from County Business Patterns show that employment in bookstores (NAICS 451211) has fallen from near 1% of all retail employment in the late 1990s to half as much by the late 2010s.[6] Employment in furniture stores (NAICS 442110) has also dropped dramatically, from about 1.9% of retail employment to only 1.4%. In contrast, employment in clothing stores (NAICS 448) increased over this period from 9% to over 11% of retail employment.

In addition, the patterns that Lafontaine and Sivadasan document in the restaurant industry have parallels in other "Main Street"-type businesses that fall outside the traditional retail sector. For example, there have been large increases in employment at fitness and recreational sports centers (NAICS 713940) and in nail salons (NAICS 812113).

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[4] See Basker et al. (2019) for details and background on this question. Another, tangentially related, industry is the rising importance of retailers' non-merchandise receipts, such as insurance and service contracts, particularly for consumer electronics' stores. Census microdata on revenue breakdowns capture these revenues, albeit imperfectly, and could help determine when a retail establishment starts to become more of service provider.

[5] This issue is akin to the measurement issues raised by "factoryless" manufacturing firms; see Bernard and Fort (2015).

[6] County Business Patterns data since 1986 can be downloaded from https://www2.census.gov/programs-surveys/cbp/datasets/. (Accessed January 25, 2020.) Wu (2017) uses Census micro data to study the impact of e-commerce on traditional booksellers.

These trends are consistent with Lafontaine and Sivadasan's conclusion that restaurants' gains are due to increased demand. Like restaurants, gyms and nail salons offer consumers something that cannot be easily replicated online: an experience beyond the purchase of a widget, and a chance for an in-person interaction. As even physical retail increasingly offers "self service" options that remove personal interaction, consumers seem to find these alternative spending categories more fulfilling. The 2017 Census of Retail Trade asked stores for the first time whether they offer "self-service" checkout. This question was asked of home centers, supermarkets, convenience stores, health- and personal-care stores (including pharmacies and drug stores), department stores, and general-merchandise stores.[7] A question for further research is whether increased reliance on self service in some retail outlets is correlated with an increase in demand for personal interaction in other outlets and industries.

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[7] See Basker et al. (2019).