
The interaction of different players in the online food ordering industry

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(Adapted from npr.org)

Abstract

Independent food ordering (IFO) and aggregate food ordering (AFO) are two main providers of online food ordering services. The IFO sector came to life first and is dominated by major pizza chains i.e. Papa John's, Domino's and Pizza Hut, who engage in strong competition between them. The sector has also seen steadily increasing online sales mix, as opposed to local sales, at an annual rate of 25% over the past seven years. The AFO sector, on the other hand, is dominated by two major players: Seamless and GrubHub. AFOs have seen increasing revenues over the past few years, in a similar trend to IFOs. In 2013, GrubHub and Seamless announced a merger, and shook the online food ordering market, obtaining market share from IFOs immediately after, which is evident in online traffic data. Thus, the introduction of AFOs in the online food ordering market has caused stronger competition to existing IFOs.

Introduction

In 1994, Pizza Hut had a crazy idea. They offered consumers to buy a pizza online from a test branch in Santa Cruz, CA (1). A year later, Sandra Bullock was seen ordering a pie online from a local pizza store in the movie *The Net*. That scene was not Sandra's finest moment in the movie, but it kept some of the audience dazzled by that idea, and it was more evident that corporations were testing people's reaction to the idea. Over the next few years, the Internet was booming, and the idea of e-commerce has become more apparent. It was only in 2001 that a major player in the fast food industry decided to pioneer online food ordering with a fully features system. Papa John's released its online ordering platform in 2001 (2). "We launched online ordering in 2001, and since then (until 2006) we've had more than 25 million orders transacted on Papajohns.com," said Papa John's spokesman Chris Sternberg. "In 2006 we transacted more than \$200 million worth of business through our online ordering site," he followed. It was clear that there is much business online for food ordering and delivery, and it was not until 2007 that main competitors i.e. Domino's and Pizza Hut followed up with their own fully featured online ordering platforms (1) (3). Current estimates show that the market size for take-out and delivery food services is valued at about \$69 billion in the U.S. (4). The industry is also growing at an annual unprecedented rate of 12% (5).

While major pizza chains were releasing their online ordering platforms, few *aggregate online ordering* platforms (AFOs) surfaced. AFOs differ from independent food ordering platforms (IFOs) such as Papa John's in that they provide a platform for multiple restaurants to use, and thus aggregate numerous restaurants to order from, as opposed to ordering from a single restaurant. Seamless was the pioneer in the aggregate online food ordering segment, founded in 1999 for corporate use, and opening up to general consumers in 2005 (6). Other major players include GrubHub, which was founded in 2004 to serve as a replacement for paper menus, which later merged with seamless in 2013 to form GrubHub seamless.

Even though IFOs and AFOs have different structures, they directly compete, as the main selling point of both is convenience (7), which may be attained more by AFOs, as they encompass multiple restaurants in their catalog, rather than a single restaurant. This paper will present a background discussion on IFOs and AFOs, followed by an analysis of the threat AFOs bring to IFOs, using tools such as website traffic, online sales, as well as qualitative data.

Background and analysis of IFOs

During the early 2000s, large pizza chains were able to introduce online ordering through independent platforms and manage their logistics internally. Smaller restaurants and restaurants offering different kinds of food were not able to incur the costs of developing a platform for online ordering, or did not see a business opportunity to increase delivery volume. Thus, major IFOs operating today are mainly pizza restaurants, as shown in a report by the Center for Hospitality Research at Cornell Hospitality School (7). Therefore, only IFOs of major pizza chains will be considered for this report, namely Papa John's, Pizza Hut and Domino's. Financial data is discussed only for Papa John's and Dominos, as Pizza Hut is a subsidiary of Yum!, which does not report the financial performance of their Pizza Hut business individually.

Over the past ten years, revenues of Papa Jones have been steadily increasing, while Domino's revenues have been quite stagnant.

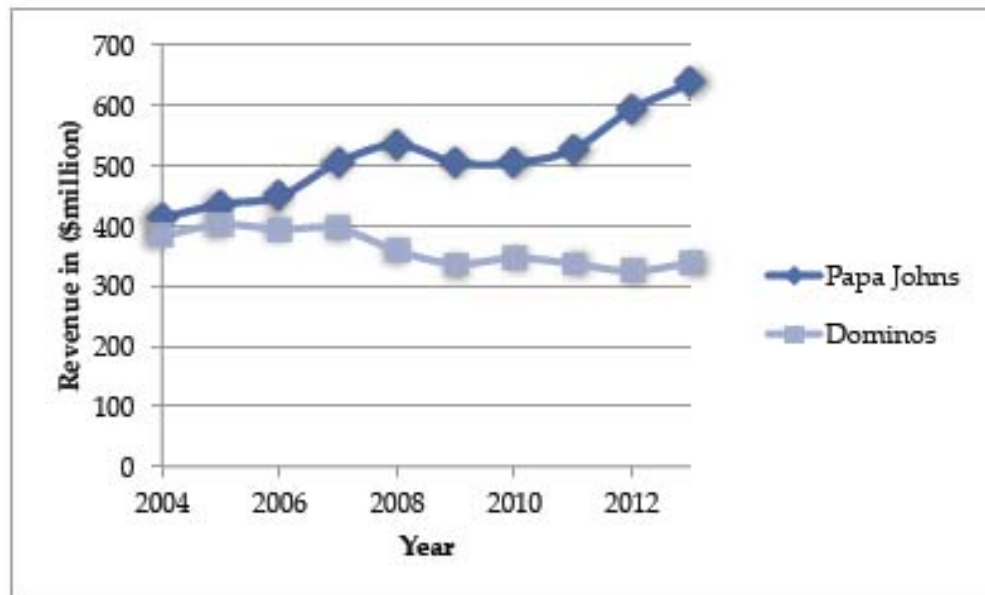


Figure. 1: Total restaurant revenues of Papa John's and Domino's
(Source: annual reports)

Moreover, the online share of sales has been increasing for both chains over the last seven years.

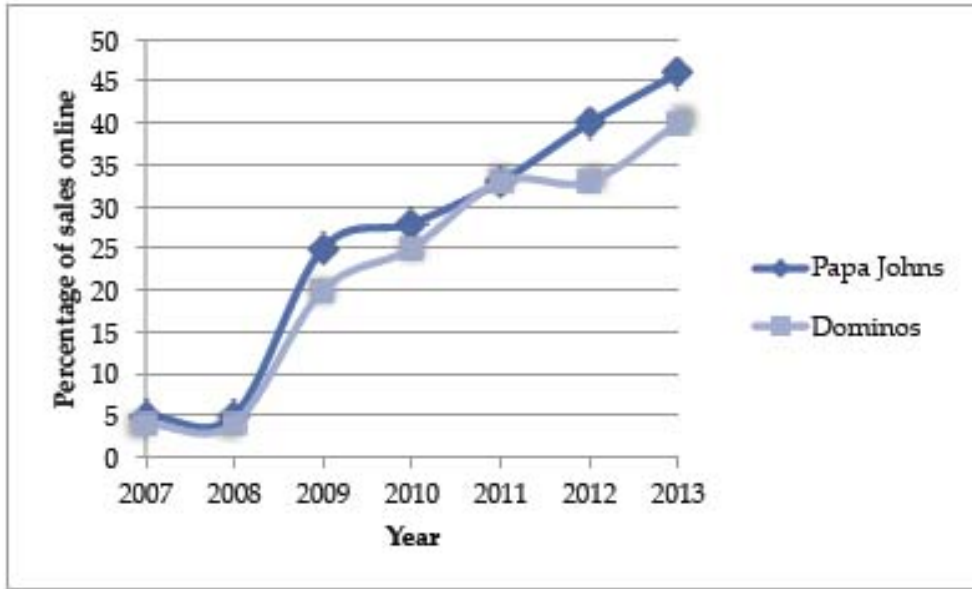


Figure. 2: Percentage of sales that are online for of Papa John's and Domino's (Source: annual reports)

From those two figures, we can estimate the online sales for both restaurants.

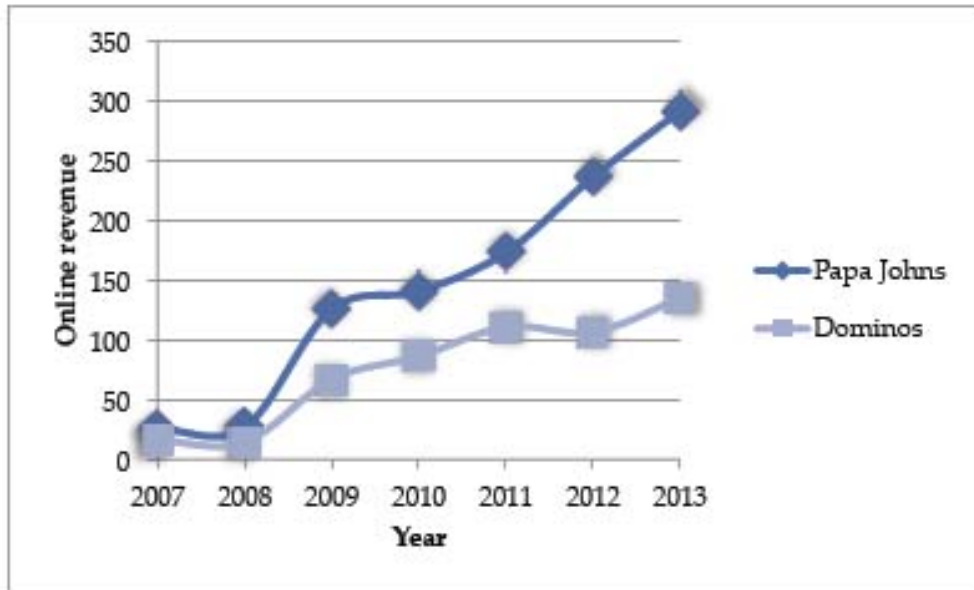


Figure. 3: Online revenues of Papa John's and Domino's (Source: annual reports and analysis)

We can see that online revenues for both restaurants have been increasing, and it seems that Papa John's have been increasing at a faster rate, but in fact the online market share of each has been almost constant relative to each other as shown in Figure 4, which indicates a market expansion, as opposed to better performance of Papa John's relative to Domino's.

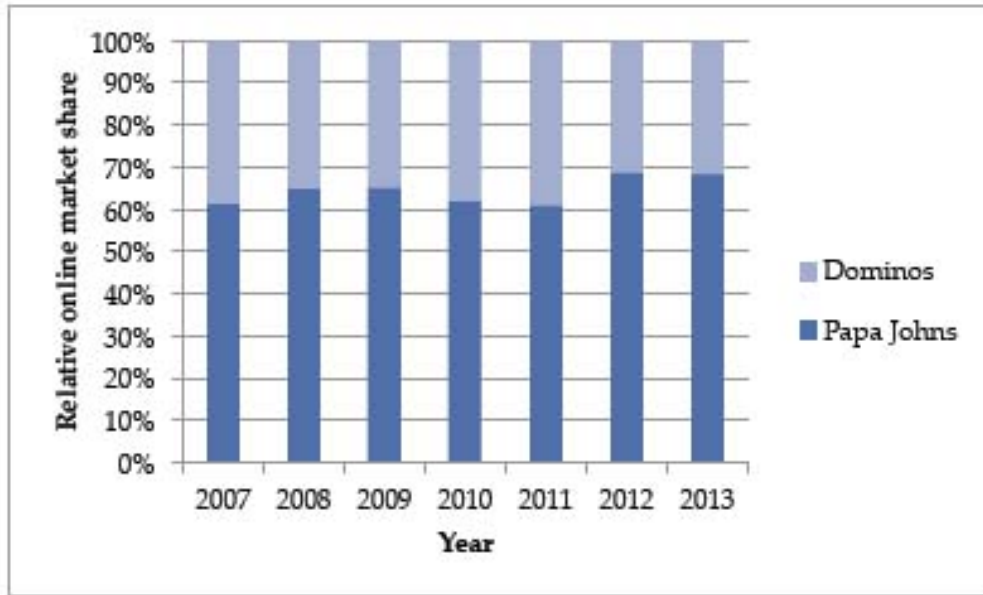


Figure. 4: Relative market share between Dominos and Papa John's based on revenue. 100% constitutes the sum of the revenues of both. (Source: annual reports and analysis)

However, if we were to compare website traffic for all three chains for the past three years, we see a different trend. Domino's and Papa John's seem to have been competing at very close rankings, with Pizza Hut falling behind and catching up later (Figure 5).

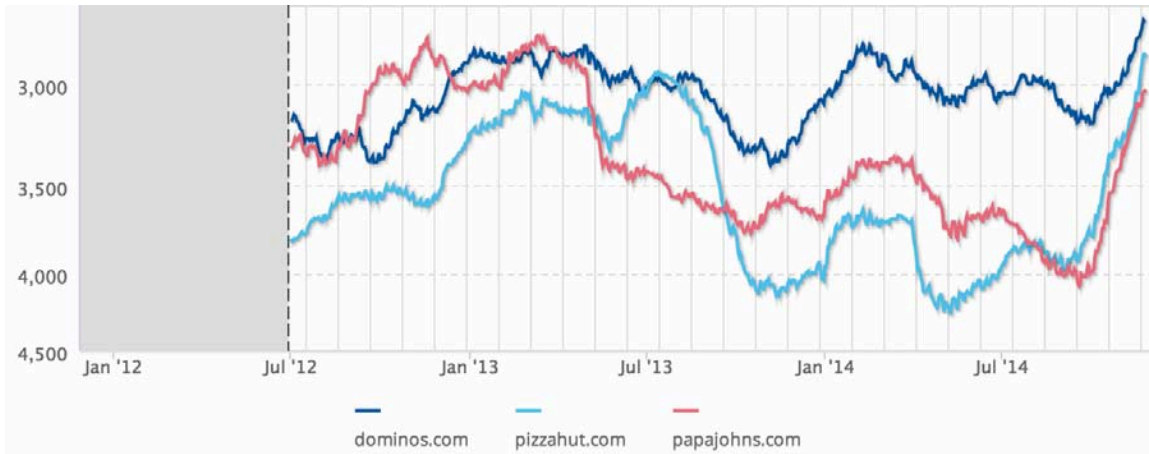


Figure. 5: Alexa rank of Domino's, Pizza Hut and Papa John's (lower rank is better) (Source: Alexa.com¹)

One reason for the discrepancy is the timescale. Only the first half of Figure 5 is comparable, as the financial data for 2014 has not been released yet. However, the fact that Domino's had a comparable rank to Papa John's should imply that they have comparable online sales, which is not the case. To investigate this discrepancy, we look at the demographics of the consumers of each site.

¹ Please note that Alexa ranking is assumed to correlate with revenue for the purposes of this paper, which may not be the case in a more careful analysis.

Domino’s has a higher percentage of consumers ordering from schools, or universities. Students are usually more cost conscious, and are more involved in price search, which could explain the increased traffic for Domino’s that does not generate much revenue (Figure 6).

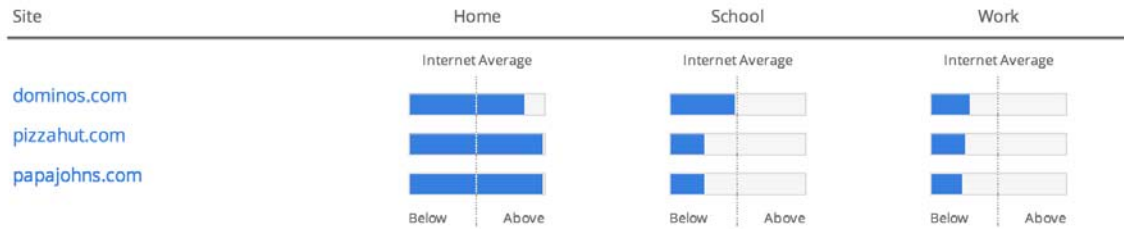


Figure. 6: Location of people accessing each website (Source: Alexa.com)

Background and analysis of AFOs

A wide range of AFOs was considered for analysis, and websites were compared in terms of their online performance.

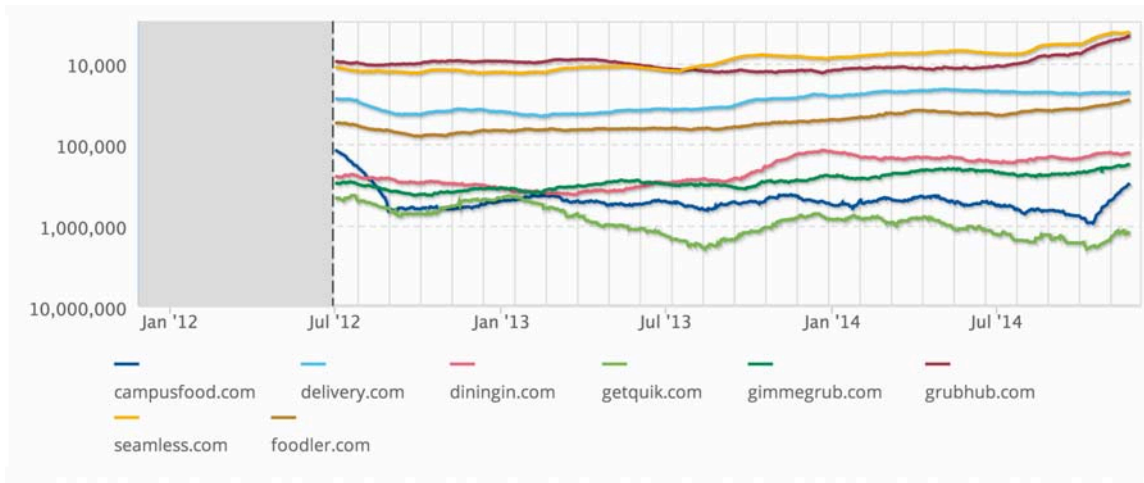


Figure. 7: Alexa ranking of top 8 AFOs (Source: Alexa.com)

We can see from Figure 7 that Seamless.com and Grubhub.com are leading the market (notice the log scale). Thus, the rest will be discarded for this analysis.

SeamlessWeb was a company started in 1999, offering a web-based food ordering service for corporate workers who worked long hours (8). Six years later in 2005, SeamlessWeb introduced a free ordering service to consumer diners to complement existing corporate-ordering service (9). Then SeamlessWeb was acquired by Aramark, a food services company, in 2006 (10). The company got a new CEO by 2009, and was re-privatized in 2011 after Spectrum Equity bought a \$50 million stake of SeamlessWeb from Aramark and changed its name to just

“Seamless” (11) (12). Seamless then acquired Menupages, a website that lists menus online, and introduced their first iPad App in 2012 (13) (14).

GrubHub was founded in Chicago in 2004 by web developers Matt Maloney and Mike Evans (15). After claiming some fame in Chicago they received plethora of funding, allowing for expansion to San Francisco and New York (16). In 2011, GrubHub acquired DotMenu, their main competitor in New York, which owns Allmenus and Campusfood (17). It later introduced innovate technologies in 2011 and 2012 such as OrderHub, an in-restaurant technology for order confirmation, and real time order tracking (18) (19).

In May 2013, GrubHub and Seamless announced a merger, which concluded in August, 2013, boosting popularity for the newly formed GrubHub Seamless.

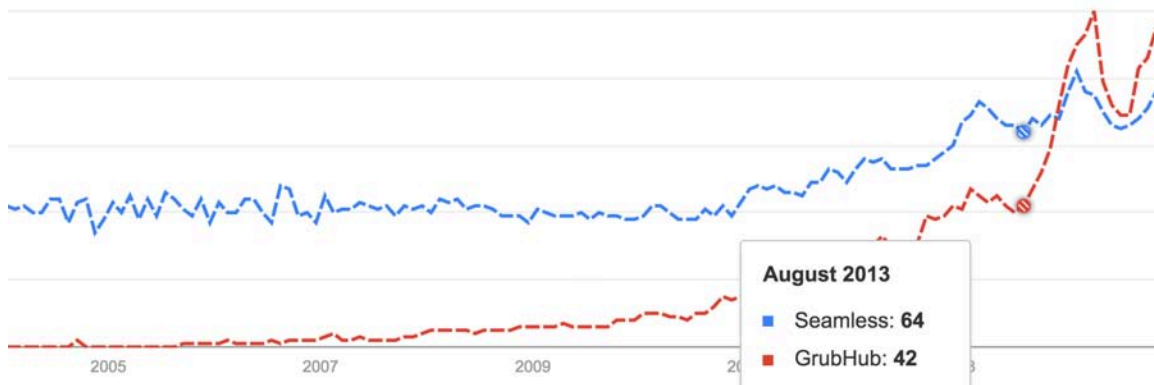


Figure. 8: Google Trending for GrubHub and Seamless. We can see a point of inflection for both when the merger happened. (Source: Google Trends)

The demographics for both GrubHub and Seamless fit within their intended audience: Busy young professionals. Alexa data show that a big portion of GrubHub and Seamless users has gotten college education already, orders from work, is within the age bracket (25-40), and has a relatively high income, as shown by Figure 9.

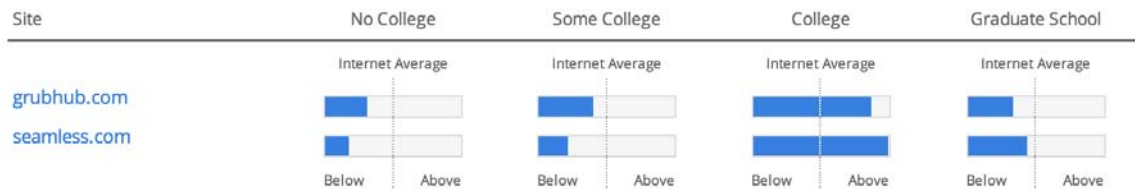


Figure. 9a: Education demographics of for GrubHub and Seamless consumers

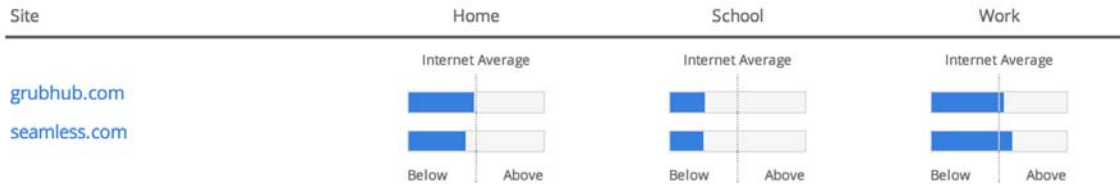


Figure. 9b: Location demographics of for GrubHub and Seamless consumers



Figure. 9c: Age demographics of for GrubHub and Seamless consumers

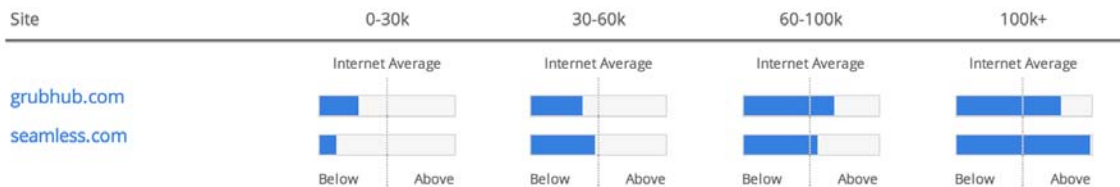


Figure. 9d: Salary demographics of for GrubHub and Seamless consumers

The business model of both Seamless and GrubHub is to offer the service for free to consumers, and charge restaurants a percentage ranging from 10% to 20% for every check. Through this business model, GrubHub generated revenues exceeding \$100 million in 2013 (Figure 10) (please note that the figure in 2013 includes also Seamless’s revenues for the last quarter (20)).

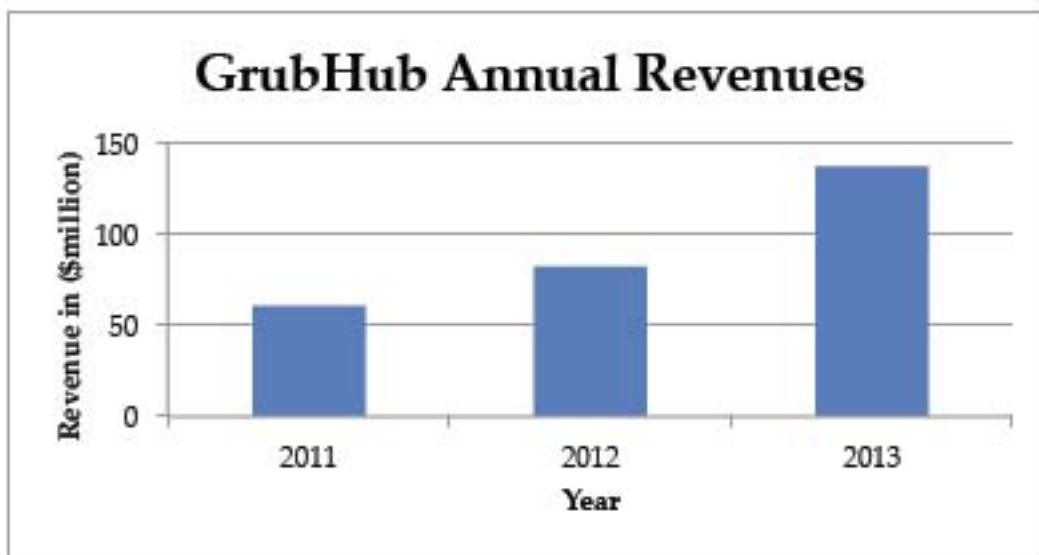


Figure. 10: GrubHub annual revenues. (Source: Market Watch (21))

How do IFOs and AFOs interact?

AFOs came into the market to serve smaller restaurants that do not have the capacity to develop their own online ordering platforms. However, once they rose to fame restaurants such as Domino's actually chose to be listed in GrubHub. To quantify the effect of AFOs on IFOs, we look at the page ranks of both for the past three years. For AFOs, we average out the ranking of GrubHub and Seamless, while for IFOs, we average out the ranking of Domino's, Pizza Hut, and Papa John's. We measure the correlation of the two variables over five time periods:

- ❖ The first period is from June 2012 to March 2013.

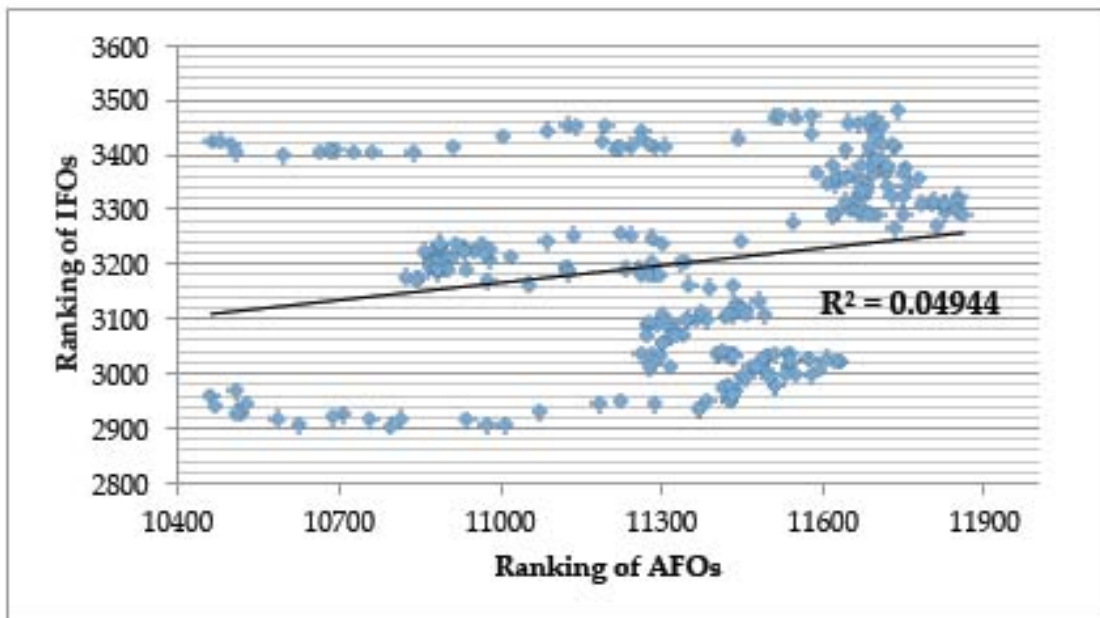


Figure. 11: Correlation between IFOs and AFOs in the period 6/2012 - 3/2013
(Source: Analysis of Alexa data)

We can see that there is almost no correlation (low R^2) between AFOs and IFOs in the times leading to the merger of GrubHub and Seamless (which began in May 2013 and concluded in August 2013). This could be due to the lack of strong competition in between IFOs and AFOs, and there could have been rather more within-sector competition within IFOs and within AFOs.

- ❖ The second period is April 2013 to June 2013, which are the months when planning the merger mostly happened. The merger was announced on May 20th, at about the end of this period.

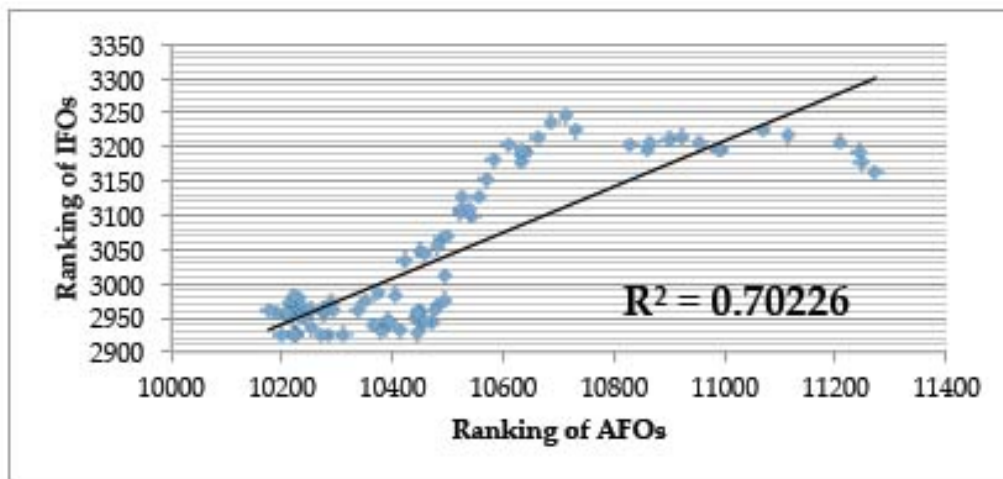


Figure. 12: Correlation between IFOs and AFOs in the period 4/2013 -6/2013
(Source: Analysis of Alexa data)

This period witnesses apparent positive correlation (high R^2) between AFOs and IFOs (both were decreasing in ranking). This trend could be explained by decreased business activity in AFOs, caused by talks between GrubHub and Seamless, as well as approaching the end of the academic year, when the online food ordering industry goes into a moderate hiatus, causing both IFOs and AFOs rankings to go down.

- ❖ The third period is from July 2013 to January 2014

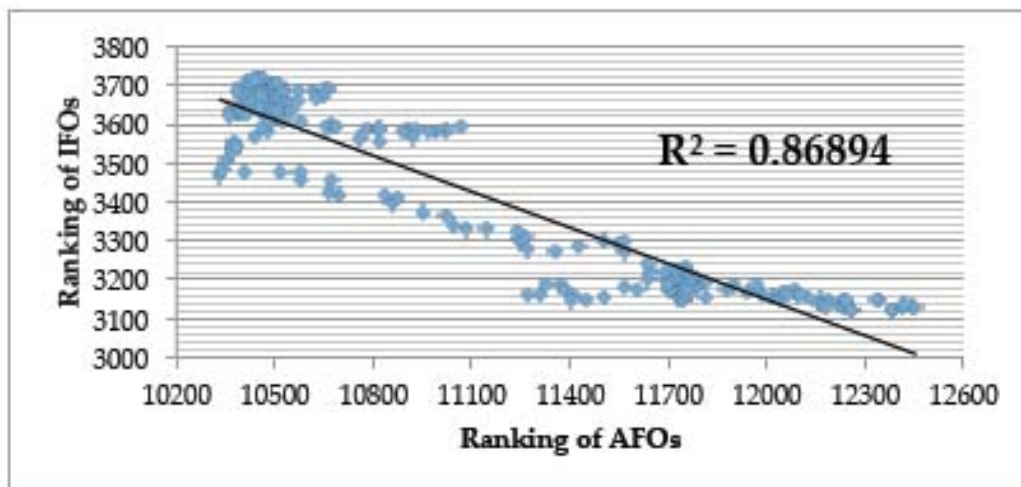


Figure. 13: Correlation between IFOs and AFOs in the period 7/2013 -1/2014
(Source: Analysis of Alexa data)

This period sees a negative correlation between IFOs and AFOs, as it is the period in which the merger was announced and was in effect in its first 5 months. This result indicates a loss of market share for IFOs, either through existing consumers AFOs acquired or new consumers that entered the market. This period shows the greatest growth for AFOs, as shown in Figure 8 from

Google Trends, and is the trend predicted by the hypothesis mentioned at the beginning of the paper.

- ❖ The fourth period is from February 2014 to September 2014.

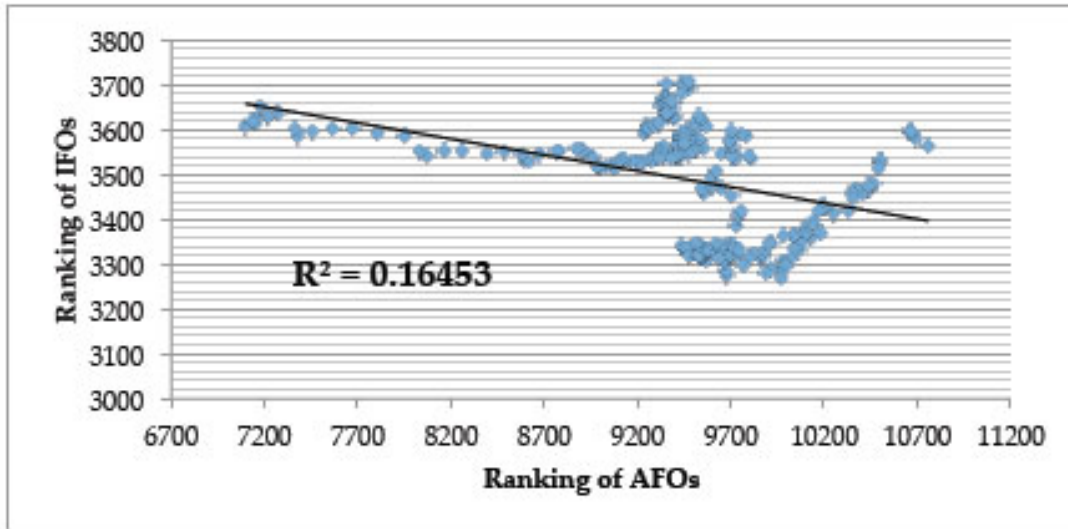


Figure. 14: Correlation between IFOs and AFOs in the period 2/2014 -9/2014
(Source: Analysis of Alexa data)

This period also sees a negative correlation between IFOs and AFOs, but one that is less apparent. This result could be explained by AFOs continuing to gain more market share, but at a slower rate, as IFOs are adapting to the new market dynamic after the merger, and opportunities to be exploited by the merger are being exhausted.

- ❖ The fifth and last period is from October 2014 to December 2014.

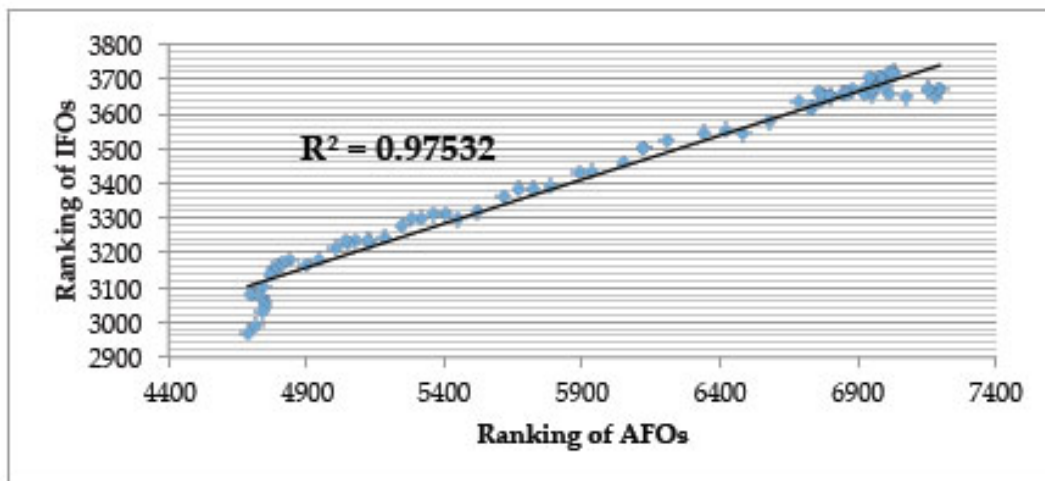


Figure. 15: Correlation between IFOs and AFOs in the period 10/2014 -12/2014
(Source: Analysis of Alexa data)

In this period, we see a very strong positive correlation between IFOs and AFOs (both rankings are getting much higher, as shown by Figures 5 and 7). This is regarded to a boom in the online food ordering market as the school year starts during the fall. The GrubHub press release shows increased activity and articles regarding consumers that are college students (22). The market expansion is so large, that competition effects are not noticed. This expansion signals an exciting near future for the online food ordering industry.

Conclusion

IFOs and AFOs are two main categories of online food ordering platforms. The IFO sector is dominated by major pizza chains i.e. Papa John's, Domino's and Pizza Hut, and has strong internal competition. The sector has also seen a shift from local sales to online sales, with a steadily increasing online sales mix over the past seven years. The AFO sector, on the other hand, is dominated by two major players: Seamless and GrubHub. AFOs have seen increasing revenues over the past few years, in a similar trend to IFOs. In 2013, GrubHub and Seamless announced a merger, and shook the online food ordering market, obtaining market share from IFOs immediately after, as evident from regression data. Currently, the online food ordering is booming like never before, and the near future looks very positive, and will potentially hold many surprises.

Works Cited

1. L., R. The History of Online Shopping. The Origins Of Online Shopping Websites. <http://www.brighthub.com/money/personal-finance/articles/40015.aspx>.
2. Online ordering: A flourishing trend. <http://www.pizzamarketplace.com/articles/online-ordering-a-flourishing-trend/>.
3. Online Delivery from Domino's Pizza. <http://www.dominos.com/about-pizza/online-delivery/>.
4. Shore, R. Online food delivery feeds a growing market in Vancouver. <http://blogs.vancouver.sun.com/2013/09/19/online-food-delivery-feeds-a-growing-market-in-vancouver/>.
5. Stewart, E. The Online Food Delivery Market Grows at a Rate of 12% Annually. <http://pulsosocial.com/en/2012/07/30/the-online-food-delivery-market-grows-at-a-rate-of-12-annually/>.
6. FIEGERMAN, S. Seamless: How a Dot-Com Startup Adapted to Changing Tastes. <http://mashable.com/2013/07/25/seamless-growth/>.
7. Kimes, S. E. The Current State of Online Food Ordering in the U.S. Restaurant Industry, 2011. The Center for Hospitality Research - Cornell University. https://www.hotelschool.cornell.edu/chr/pdf/showpdf/1406/chr/research/kimesonlinepdf.pdf?t=CHR&id=1406&my_path_info=chr/research/kimesonlinepdf.pdf.
8. Morell, K. Jason Finger of Seamless: The Random Idea That Sparked a \$100M Business, 2013. OPENforum. <https://www.openforum.com/articles/building-an-empire-jason-finger-of-seamless-com/>.
9. Tedeschi, B. Ordering Takeout Online: A Dot-Com Idea Returns for a Second Try. <http://www.nytimes.com/2005/06/13/technology/13ecom.html>.
10. Aramark Corp. has acquired SeamlessWeb Professional Solutions, Inc. <http://food-management.com/archive/aramark-corp-has-acquired-seamlessweb-professional-solutions-inc>.
11. Crunchbase Profile: Jonathan Zabusky. <http://www.crunchbase.com/person/jonathan-zabusky>.
12. Wauters, R. ARAMARK Sells Stake In Online Food Ordering Service SeamlessWeb For \$50M. <http://techcrunch.com/2011/06/08/aramark-sells-stake-in-online-food-ordering-service-seamlessweb-for-50m/>.
13. Brustein, J. Seamless Acquires Menupages in Race for Restaurants. <http://bits.blogs.nytimes.com/2011/09/26/seamless-acquires-menupages-in>

[race-for-restaurants/](#).

14. Ludwig, S. Seamless brings super simple food ordering to the iPad. <http://venturebeat.com/2012/02/28/seamless-ipad-app/>.
15. Bhasin, K. GrubHub's CEO On The Shock Of Outgrowing Three Offices In A Few Short Years. <http://www.businessinsider.com/grubhubs-ceo-on-the-shock-of-outgrowing-three-offices-in-a-few-short-years-2012-2>.
16. Sarracino, C. GrubHub Secures \$1.1 Million in Series A Funding From Top Venture Firms. <http://www.prnewswire.com/news-releases/grubhub-secures-11-million-in-series-a-funding-from-top-venture-firms-59844392.html>.
17. Brustein, J. GrubHub Raises Another \$50 Million, Acquires Dotmenu. <http://bits.blogs.nytimes.com/2011/09/20/grubhub-raises-another-50-million-acquires-dotmenu/>.
18. Rao, L. Main Event Page news Comment 14 inShare76 GrubHub Debuts OrderHub; A Food Delivery And Order Management Android Tablet App For Restaurants. <http://techcrunch.com/2012/05/01/grubhub-debuts-orderhub-a-food-delivery-and-order-management-android-tablet-app-for-restaurants/>.
19. Moscaritolo, A. GrubHub 'Track Your Grub' Lets You Keep Tabs on Your Order. <http://www.pcmag.com/article2/0,2817,2412066,00.asp>.
20. Solomon, B. Buyer Beware: GrubHub Touts Misleading 67% Growth Rate In IPO Filing Make individual group author appear , 2014. Forbes. <http://www.forbes.com/sites/briansolomon/2014/02/28/grubhub-files-for-up-to-100-million-ipo/>.
21. GRUB Annual Income Statement - GrubHub Inc. Annual Financials. <http://www.marketwatch.com/investing/stock/grub/financials>.
22. GrubHub In the News. GrubHub. <http://media.grubhub.com/media/grubhub-in-the-news/2014/default.aspx>.

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