ERASMUS UNIVERSITY ROTTERDAM

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Bachelor Thesis Economics and Business Economics

The Effect of Concentration on the Adoption of Non-Price Strategies: An Analysis of the UK Apparel Market

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The level of competition has increased in the UK apparel market due to the rise in the popularity of online shopping. This dynamic environment forces retailers to adapt to the constantly changing consumer needs by taking effective strategic decisions. This paper argues that the degree of competition can impact the likelihood of firms adopting differentiation strategies. Using data from 79 retailers, across 12 cities from the UK, this study examines the impact of market concentration on the probability of firms offering a next-day delivery service. The findings show that firm-specific characteristics explain more of the variation in adopting a next-day delivery service than market concentration. No significant difference in probability was found between pure-click and brick-and-click companies. At the same time, firm nationality, size, and age were found to have an insignificant moderating effect on the relationship between market concentration and the probability of adopting a next-day delivery strategy.

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1. Introduction

E-commerce changed the traditional form of retailing, by creating new markets and allowing the adoption of different business models. At the same time, established firms faced competition from internet-based entrants, decreasing their market share and forcing them to adopt new strategies (Childers et al., 2001). The UK represents one of the largest e-commerce markets in the world, with a total value of £80 billion per year (Keshet, 2022). Due to the increase in market size and competition, firms started implementing and experimenting with numerous price and non-price strategies.

One highly competitive retail industry which stands out is the UK apparel market. With a 30% market share in Europe and an annual revenue of £54 billion in 2021, this industry is characterized by high growth and innovation (MarketLine, 2021). Total household expenditure on clothing in the UK reached a peak of £58.73 billion in 2019, representing a 27% increase within a 10-year interval (Smith, 2022). A demand-plunge followed, due to the COVID-19 pandemic, resulting in a 11.5% decrease between 2019 and 2020 (Smith, 2022). Many firms were at risk of bankruptcy, including big retailers such as Debenhams, which was a 242-year-old business, and the Acadia Group, which owned Topshop, Dorothy Perkins, and Miss Selfridge (Davey, 2020; Cotton, 2021). While the Acadia Group was bought by ASOS in 2020, Debenhams put 12,000 jobs at risk by closing all its 124 stores and going into insolvency (Cotton, 2021).

The calamity of the COVID-19 lockdowns forced many retailers to adapt and find ways to survive on the market. Selling online became a lifeline, as Internet purchases were on the rise, reaching almost 35% of total retail sales in 2020 (Office for National Statistics, 2020). This led to the establishment of 8,665 new UK pure-click companies (Basul, 2020). These firms are characterized by solely operating in the online environment. Similarly, Next, Ann Summers and Marks & Spencer, which are brick-and-click companies, focused their functioning on the online market, by offering free deliveries and new products (British Retail Consortium, 2020). These firms have both physical and online stores. By 2021, the clothing industry started recovering, experiencing a 6% increase in revenues, compared to 2020 (Statista, 2021). With more businesses entering the online market, and greater industry sales, it is essential for managers to observe the dynamics and opportunities of the online competitive environment.

In the first stages of e-commerce, the most rivalrous competition was through discounts, while product differentiation was in the first stages of development (Clay et al., 2002). Shortly, firms started incorporating differentiation strategies, focusing on service quality and brand recognition (Ba et al., 2007). The increase in online shopping gave rise to even more opportunities for non-price strategies, as firms started experimenting with the new platform and the shift in consumer preferences. These include provision of detailed product information, tracked home deliveries, long return periods and targeted product suggestions (Doherty & Ellis-Chadwick, 2009). Non-price competition can be more profitable as it does not entail selling at a lower price, while avoiding the risk of a price war. It is argued that firms should decide whether they engage in price or non-price competition, as oscillating between the two leads to inefficiencies and profit loss (Corstjens et al., 1995).

Many papers on non-price strategies in the UK sector conduct qualitative analysis and provide a general idea of the most suitable approaches to increase performance, as well as their potential drivers. In several studies, the strategies are clustered, not being able to distinguish between separate actions. For example, Doherty & Ellis-Chadwick (2009) studied the drivers of e-commerce strategy adoption within the UK retail sector. It was found that strategic decisions depend on the level of access to the internet of target customers, the managers' levels of commitment, the market size and maturity, and the technological, logistical, and human capabilities of each firm (Doherty & Ellis-Chadwick, 2009). That is, firms undertake certain strategies if they are suitable for customers, there is strong managerial motivation, the market structure is appropriate and there are sufficient resource capabilities.

Alonso-Mendo et al. (2009) add to this knowledge by showing that for UK small and medium enterprises (SMEs), the evolving of Internet strategies is the key determinant of web site redesign. Firms update their websites to improve e-tailing functionality, provide better product information and improve advertising. Businesses operating in more dynamic environments are expected to be more responsive and flexible to the changing market demands and consumer preferences (Hines & McGowa, 2005). Retailers should balance their sourcing and distribution systems to meet demand both in terms of cost and speed. To extend upon this idea, that market characteristics can impact the distribution efficiency of a company, this paper will examine the following research question:

Does market concentration affect the adoption of a next-day delivery service in the UK clothing retail industry?

To further elaborate on the research question, it is interesting to examine whether offering a next-day delivery service depends on the business model of a firm, especially due to the increase in use of online platforms by both consumers and producers. In addition, as observed in previous studies, firm capabilities or managerial motivations can influence strategic decisions. Therefore, to control for the possible effects of operating in single or omni channel, as well as the possible firm fixed effects (FE), two sub-questions will be explored:

1. *Do the results differ between pure-click and brick-and-click firms?*
2. *Do the results differ when considering the nationality, size, and age of firms?*[1]

The aim of this study is to provide a quantitative analysis on how the level of competition in a city can impact the adoption of a next-day delivery service. By controlling for the business model and other fixed-firm effects, the many determinants of strategy adoption can be observed, whether it is the market or firm characteristics. These results can allow managers to observe competitive behavior in concentrated markets, and the drivers of strategic decisions. In addition, managers can use this information to decide if a specific competitive environment is in line with their companies' goals and capabilities.

The rest of this paper consists of the theoretical framework and literature review, highlighting the main theory behind this topic, findings from previous papers and the hypotheses. Furthermore, the data-collection process will be explained, including the variables and descriptive statistics, followed by the methodology, where the models and their assumptions are analyzed. The next section consists of the results, examining the findings and whether the hypotheses can be rejected. The discussion of the results follows, consisting of possible explanations for the findings, as well as their managerial implications. The following section includes the limitations of the paper, while the final section consists of the summary of the findings, concluding remarks, and topics for future research which can extend upon the results of this study.

[1] The nationality of the firm refers to whether the company is domestic or foreign. That is, British firms will be compared to all other foreign firms, instead of making comparisons between two separate nationalities.

2. Theoretical Framework

Existing literature suggests that there are three main determinants for retail firms adopting non-pricing strategies in competitive markets. These include the level of market competition, the type of retail platform, and whether they possess the required resources to engage in strategic actions.

2.1 Market competition as a driver of non-price strategy adoption

Businesses undertake numerous strategies to gain competitive advantages, depending on the degree of competition in the market, as well as peer influence. Competition intensity is often calculated using the market concentration ratio, determining the market shares of the top industry retailers (Corstjens et al., 1995; Sundaram et al., 1996; Burt & Sparks, 2003; Dobrev, 2007). Peer effects can be determined by the response time between a firm's action and a competitor's reaction, as well as analyzing the type of competitive response; whether it is similar to or different than the initial action (Aboulnasr et al., 2008; Boyd & Bresser, 2008; Bessen & Maskin, 2009).

Degree of Competition

Ma (2016) shows that delivery time is an important factor in obtaining a competitive advantage. Delivery time was found to be negatively correlated to customers' purchase intentions, as it increases customers' uncertainty as well as their perceived risk (Ma, 2016). Moreover, Esper et al. (2003) study the extent to which strategically choosing the delivery courier affects firm performance. It was found that offering home deliveries with popular couriers such as FedEx or UPS, increases customer demand. Deliveries made by high customer awareness couriers are considered more reliable, decreasing the customer's perceived risk. Therefore, online retailers aim to differentiate themselves by their distribution efficiencies, or courier choices, to increase their customers' purchase intentions, their firm's profitability, and gain credibility.

Moreover, evidence from a study on the UK retail grocery market suggests that firms operating in dominant retail chains are more likely to engage in non-price competition, such as enhancing product ranges (Burt & Sparks, 2003). Having large market shares shows that companies have the required capital to invest in developing attractive customer packages, leading to an increase in sales and profits. This raised capital can be once more invested into product quality

enhancement, leading to a continuous growth cycle and market leadership (Burt & Sparks, 2003). Therefore, firms operating in less concentrated markets can benefit from using their market power to obtain both product differentiation as well as great competitive advantages.

Henri (2006) argues that in a highly competitive environment, where uncertainty is high, it is crucial for retail companies to have well-developed organizational capabilities. That is, to survive, firms should focus on improving their innovation, organizational learning, market orientation, and entrepreneurial abilities. Less concentrated markets experience more competition and therefore firms are expected to adopt differentiation strategies, such as service quality enhancement (Henri, 2006). Vorhies et al. (2010) build on this idea by showing that marketing capabilities have a positive and significant effect on the firm's ability to successfully integrate its differentiation strategy. Marketing capabilities are believed to be hard to imitate, as they are both idiosyncratic and path-dependent, allowing firms to gain a significant competitive advantage (Vorhies et al., 2010).

However, Gumus et al. (2013) argue that it is not the market characteristics, such as a high level of competition, which encourage retailers to engage in non-pricing strategies, but rather the type of product being sold. Retailers are less likely to offer a free home delivery service if they sell large products such as furniture, due to a small substitution effect; customers are more willing to pay for the delivery costs if the product sold has high transportation costs when bought offline (Gumus et al., 2013). Another study suggests that retailers are more likely to offer free and fast delivery if they have a high customer delivery density (Boyer et al., 2009). This shows that customers' preferences are key to their strategic decision-making; if customers prefer online over in-store shopping, the chances of offering effective delivery services increase.

Peer Effects

In markets with a high level of competition, observing the peers' behaviors is crucial for firm performance. Boyd & Bresser (2008) show that firms who respond slower to competitors' challenges have on average a lower return on sales than businesses who respond quickly. Moreover, it is found that in 87.5% of the cases, the type of response is the same as the type of action, representing an imitation of the competitor's initial move (Boyd & Bresser, 2008). Hence, firms aim to respond in a fast and similar manner to their competitor's actions.

In addition, product innovations encourage competitive responses. That is, if a firm introduces a new product on the market, its competitors are likely to respond with the same strategy. This effect was found to be significant especially when the business that innovates first is large or more dependent on the market (Aboulnasr et al., 2008). Another study argues that the most common form of imitation is sequential, that is when each new product builds on the developments of the previous (Bessen & Maskin, 2009). These imitations suggest that firms view their competitors' product innovations as business threats, encouraging them to adopt similar strategies. Hence, firms are more likely to innovate if their competitors are large, market-dependent, and have already undertaken product innovation. This reinforces the idea that companies are susceptible to peer influence, which could explain some of their strategic decisions.

Competition intensity was found to be one of the main determinants of non-price strategies, together with peer influence. More intense competition encourages firms to offer shorter delivery times, larger product ranges and greater service quality. At the same time, the competitors' behaviors can influence businesses to focus on having fast competitive responses, as well as imitate their peers' actions.

2.2 Retail platform choice as a driver of non-price strategy adoption

With the introduction of e-commerce, retailers were forced to choose whether they keep on operating in the offline environment, switch to multi-channel retail, or if they adopt a purely online strategy. Toufaily et al. (2013) study the different strategies pure-click and brick-and-click firms should undertake to enhance consumer trust. Social presence was found to be more important towards building e-trust for pure-click companies, as brick-and-click firms can benefit from their offline interaction with customers. Hence, purely online retailers are more likely to focus on humanizing their Web interface (Toufaily et al., 2013).

Furthermore, e-businesses are more likely to focus on increasing transaction efficiencies, by reducing information asymmetries through the supply of up-to-date and comprehensive information (Amit & Zott, 2001). This decreases the search and negotiation costs of customers, allowing them to gain a significant competitive advantage. As virtual companies strongly rely on technology, they are more likely to invest in digital infrastructure compared to brick-and-

click firms (Amit & Zott, 2001). However, Chen et al. (2021) argue that multi-channel firms achieve greater transaction efficiency as they are more accessible for consumers, allowing them to make payments using their preferred channel. Operating on several platforms encourages businesses to provide value-added services and customization, increasing customer trust and loyalty (Chen et al., 2021).

At the same time, multichannel companies can strongly benefit from channel integration techniques. They can use their physical stores as the pick-up and returning locations for online purchases, decreasing their product delivery and handling costs (Chen et al., 2021). In addition, retailers can offer information regarding their physical store locations or inventory through their websites, increasing customer e-trust. Online customer service can complement offline personnel help, while online shopping can decrease the negative impact of unavailable products in physical stores, creating a better service experience (Chen et al., 2021). Therefore, brick-and-click firms focus on coordinating the objectives and designs of their channels to increase their service quality and customer satisfaction.

Bleoju et al. (2016) argue that marketing efforts depend on a firm's business model. Multi-channel companies prefer outbound marketing techniques which include printing adds, together with TV, radio and phone promotion (Bleoju et al., 2016). These strategies achieve short term, rapid results, suggesting that brick-and-click firms are more inclined towards retaining their existing customers. In contrast, online retailers focus on inbound marketing techniques, consisting of search engine optimization, blog and social media promotion (Bleoju et al., 2016). These strategies increase customer engagement and co-creation of value, showing that pure-click businesses aim to capture new e-customers. Hence, it can be argued that the propensity to adopt certain marketing strategies depends on the level of technology integration within a firm's business model, as well as their firm-specific goals.

The existing literature highlights the strategic opportunities given by different retail platforms. Pure-click firms are more likely to exploit their digital infrastructure by optimizing their websites, offering detailed product information, and engaging in inbound marketing. Multi-channel companies prefer making use of their physical platforms to achieve a successful channel integration and adopt outbound marketing techniques.

2.3 Firm capabilities as a driver of non-price strategy adoption

Firm capabilities are defined as the attributes of a business, such as ability, experience, and reputation, required for value-creation processes and strategic decisions (Kale & Singh, 2007). Research shows that internal and network resources are important for adopting a differentiation strategy. Innovation requires highly trained professionals, as well as a collaborative firm with a high absorptive knowledge capacity. At the same time, having a strong relationship with customers helps determine their needs, easing the process of new product integration into the market (Laosirihongthong et al., 2013). Network ties act as pipelines of information, hence firms should have the necessary organizational capabilities to exploit these knowledge transfers (Zaheer & Bell, 2005).

Thomas & Weigelt (2000) show that the product location choice can be influenced by the firm's expertise in capabilities such as manufacturing, logistics, or marketing. To maximize the use of firm resources, managers locate new products near their own, rather than their competitors. That is, new product developments are based on their own previous improvements, rather than including similar characteristics as their peers (Thomas & Weigelt, 2000). The results were most significant for incumbents, large market share firms, and domestic producers, as they have greater resources. Similarly, having the appropriate managerial abilities to identify competitive priorities, that is, the required production system to meet market demands, increases a firm's chances of successful product differentiation (Liu & Liang, 2014). Enhancing product quality requires innovating manufacturing processes, allowing companies to create valuable and rare product characteristics. Therefore, companies with the required knowledge and capital can invest in the development of their production processes, allowing them to gain significant operational competitiveness.

Furthermore, the adaptive capabilities of a firm can help the adoption of effective marketing techniques. Market learning and marketing experimentation are key factors towards decreasing the marketing capabilities gap, characterized by great complexity and dynamic markets (Day, 2011). Businesses that can respond quickly to demand changes and undertake targeted experiments are more likely to benefit from marketing strategies (Day, 2011). Leonidou et al. (2013) extend upon this idea by showing that companies with experiential and financial resources are more likely to engage in advertising. A great knowledge base accumulated from operational experience is helpful in anticipating market demand and increasing the accuracy of advertising. In addition, having liquid assets, working capital, or a strong borrowing power

allows the firm to spend a substantial amount on its strategy, increasing the chances of successful promotion and higher returns (Leonidou et al., 2013).

Previous research underlines the idea that heterogeneity in firm capabilities can explain differences in strategic actions and performance. Innovation results from a company's ability to create large networks, assimilate knowledge and focus on their area of expertise. Managerial capabilities influence the degree of operational competitiveness, while the success of marketing strategies depends on a firm's ability to adapt, learn from past experiences, and invest in promotion techniques.

2.4 Predictions

One of the most common measures of competition in a market is market concentration. Greater concentration can indicate growing market power, a less dynamic environment and declining productivity (OECD, 2021). That is, a more concentrated market can indicate a lower level of competition. [2]

In disruptive environments, it was found that the ability to sustain competitive advantage became more and more difficult, increasing the importance of temporary competitive advantages (D'aveni et al., 2010). E-commerce is believed to be a highly disruptive market, as it has an erratic and unstable structure. Hence, pure-click retail companies must have continuous strategy innovation, to keep up with the increase in competitive intensity. D'aveni et al. (2010) also argue that in such highly competitive environments, aggressive firms are more successful. Pure-click firms compete with both internet and physical stores. They need to match the offers of internet-only competitors as well as counteract the competitive advantage of the face-to-face services offered by brick-and-click companies (Steinfield et al., 2005). This promotes the adoption of aggressive competitive behavior.

Similarly, many brick-and-click firms rely on their e-commerce strategies, as they have a limited customer reach with solely their physical stores. Also, there are lower costs involved in the development of more efficient distribution systems than in the setting up and maintenance of new stores (Steinfield et al., 2005). It was found that markets with greater

[2] However, this is the case unless a high concentration is the result of tough competition. That is, if firm A creates a new technology that leads to taking a large part of the market from firm B, greater market concentration for firm A arises from rigorous competition.

competition, such as the clothing industry, experience greater brick-and-click integration (Steinfield et al., 2005). These retail companies adapt their business models tobecome competitive on multiple channels, suggesting that a higher degree of competition encourages companies to alter their traditional ways of retailing. Therefore, it is expected that brick-and-click firms engage in competitive behavior in both environments, and this behavior depends on the level of competition. Thus, it is expected that greater competition encourages both types of firms to improve their services leading to Hypothesis 1:

Hypothesis 1: There is a higher probability for firms to offer next-day delivery services in cities with lower market concentration.

Evidence shows that brick-and-click companies perform better on average than pure-click firms (Steinfield et al., 2002). They argue that multi-channel companies appear more trustworthy to customers as they are likely to expect the same service quality and reliability from the online environment as experienced in the physical stores (Steinfield et al., 2002). Additionally, brick-and-click firms extend into new geographic markets and already have a well-established customer base and reputation, leading to their rapid revenue growth in the online environment. This expansion is beneficial as it increases their customer base or helps them gain lost customers who have moved away (Chen et al., 2021). Entering the online market thus allows well-established offline firms to gain a significant competitive advantage, without investing in additional strategies. Cuellar-Fernánde et al. (2021) found that brick-and-click companies have greater survival rates because of their diversified strategies. Operating on more retail platforms increases the complexity of the decision-making process, suggesting that one specific market or firm characteristic does not play a large role in the adoption of strategies. The decisions are the result of a combination of factors, and the effects of separate attributes are small. Hence, already having a strong competitive position, fueled by market experience and reputation, suggests that brick-and-click firms are less likely to engage in non-pricing strategies, even less when focusing on one market characteristic. This leads to Hypothesis 2:

Hypothesis 2: Brick-and-click firms are less likely to offer next-day delivery services than pure-click firms.

Furthermore, besides the market characteristics, firm-specific factors can influence a firm's strategic decisions. Chen et al. (2020) found that the CEO's human capital is closely related to the impact of a firm's strategic actions. CEOs who possess a broader set of skills are more likely to engage in external strategies such as increasing service quality, while specialist CEOs are more likely to engage in internal development (Chen et al., 2020). Similarly, Yoshikawa & Phan (2005) show that the board structure of a firm can influence the level of product diversification. That is, an increase in corporate directors leads to lower levels of diversification. As corporate shareholders have less financial exposure than bank shareholders, corporate directors are more likely to make risky decisions and focus on strategies that increase their competitive advantage. Thus, previous research suggests that the level of competition in a market is not always the sole driver of the adoption of differentiation strategies. The CEO's capabilities and the board structure can influence the strategic decisions of businesses, yielding Hypothesis 3:

Hypothesis 3: A firm's specific characteristics can significantly influence the adoption of next-day delivery service.

To extend upon the possible aggregate effect of all firm-level characteristics, three individual attributes are further explored. Li et al. (2008) argue that there are significant differences between the strategic behavior of foreign and domestic firms. Foreign firms are more likely to focus on building strong managerial ties, to help them integrate into the new business environment and increase their chances of survival. Whereas domestic firms focus on increasing their competitive advantage through the adoption of efficient technologies. These technologies can be the result of foreign direct investment spillovers (Zhang, 2010). Foreign businesses need to overcome the cultural, administrative, and institutional obstacles of the host country while domestic firms benefit from technology transfers, yielding Hypothesis 3.1:

Hypothesis 3.1: Foreign firms are less likely to offer next-day delivery services than British firms.

Damanpour (2010) shows that firm size has a positive effect both on product and process innovations. Larger firms are more likely to be innovative by using their economies of scope to decrease their risk and spreading their fixed costs of R&D over greater sales. At the same time, their ability to diminish the problems of adverse selection and moral hazard allows them

to easily raise capital for projects, increasing their resources for innovation (Zhang et al., 2010). Thus, relative to smaller firms, large businesses have greater financial and technical capabilities, shown through their absorptive capacity and efficient knowledge assimilation. This yields Hypothesis 3.2:

Hypothesis 3.2: Smaller firms are less likely to offer next-day delivery services than larger firms.

In addition, younger firms lack efficiency-enhancing experience, making them less likely to develop a fast distribution system, even in highly competitive environments (Kotha et al., 2011). Due to greater learning experience, older firms are more able to utilize mature knowledge and recombine it with nascent information (Petruzzelli et al., 2018). As innovation requires combining existing ideas with new technologies, older firms are seen as more prone to adopting innovative strategies. This results in Hypothesis 3.3:

Hypothesis 3.3: Younger firms are less likely to offer next-day delivery services than older firms.

3. Data Collection

The analysis is conducted on 79 companies, across 12 cities in the UK. A study on the UK retail grocery market examines the top 6 largest retailers in 11 cities, concluding that non-price competition has a significant role in the firms' strategic decisions (Burt & Sparks, 2003). Boyd & Bresser (2008) use panel data on 17 large UK department stores to analyze competitive responses, concluding that retailers use a large range of strategies to succeed in a marketplace. As previous papers on non-pricing strategies found significant results using a sample size of 6-17 companies, a sample size of 79 firms seems reasonable for obtaining meaningful results in a cross-sectional analysis. All data is collected for the year 2021.

3.1 City-level Data

The cities were chosen based on their start-up rates, as well as their dispersion within the UK. Koster et al. (2011) argue that start-up rates are an accurate direct measure of competition. Therefore, choosing cities with a different number of business start-ups allows for a better

analysis of how firms can behave differently due to the level of competition. The information on business start-ups was retrieved from the Center for Cities database, a website focused on the economic analysis of UK cities, in partnership with research institutes such as The University of Manchester (Lalic, 2022). The Center for Cities database is additionally used for collecting data on the population and patent applications in each city.

Table 1. Business Start-ups and Country for Each City

City	Business start-ups per 10,000 population	Country
Dundee	32.9	Scotland
Belfast	35.6	Northern Ireland
Aberdeen	38.8	Scotland
Glasgow	38.9	Scotland
Sunderland	39.2	England
Cardiff	46	Wales
Liverpool	50.8	England
Birmingham	52.2	England
Manchester	61.7	England
Peterborough	67.6	England
Brighton	91.7	England
London	95.6	England

Notes: The data is retrieved from the City Monitor of the Center for Cities database.

Table 1 shows the final choice of cities. The number of cities from each country is chosen based on the relative country size. England is the largest country in the UK, occupying 53.5% of the total area, and amounting to 7 out of 12 cities from the sample. Scotland occupies 32% of the total area, representing 3 cities in the study. Wales and Northern Ireland are the smallest countries, capturing 8.5% and 6% of the total area respectively. Therefore, only 1 city is chosen from these countries. When observing the business start-ups, 5 cities have low rates (under 40), 3 have medium rates (between 40 and 60) and 4 have high rates (more than 60).

Moreover, the revenues of all clothing retail companies are retrieved from the Dun & Bradstreet (D&B) database. The D&B business directory consists of financial information of UK registered businesses per city. This company helps firms increase revenues, reduce risk, and

become more efficient, besides providing financial data and analytics for more than 400 million businesses worldwide (Dun & Bradstreet, 2022). The collected revenues are used to calculate the concentration ratio in each city, based on the top 4 clothing retailers. The formula used is found in section 4. Burt & Sparks (2003) use market concentration ratios to analyze competition in the UK retail grocery market, arguing that market share is an accurate proxy of market power and competition intensity.

3.2 Firm-level Data

The companies were chosen based on their Standard Industrial Classification (SIC) codes, taken from the official UK company registry. Working closely with every government department, Companies House ensures that all data is up-to-date and accurate (Companies House, 2022). Each firm's nature of business is in line with one or more of the following activities:

- SIC Code 47910: retail sale via mail order houses or via the internet, representing retail sale activities where the buyer makes his choice based on information provided on a website and places his order over the internet.
- SIC Code 47710: retail sale of clothing in specialized stores, including the retail sale of articles of clothing in physical stores.
- SIC Code 47190: other retail sale in non-specialized stores, referring to the activities of department stores selling a wide variety of goods, including clothing items.

The final list of companies includes firms belonging to at least one of the aforementioned SIC codes, as well as firms that have an online shop and offer next-day delivery to at least one destination. The full list of companies and their SIC codes is found in Appendix A.

Data on where the companies offer next-day delivery is taken from the postcode restrictions page of each firm's website. This section includes all postcodes which are excluded from certain services such as next-day home delivery. Information regarding the number of physical stores of each company is available on their own websites, helping establish whether they have a pure-click or a brick-and-click business model. Data on firm nationality is retrieved from each company's website, from the "About Us" section, or from their Terms and Conditions. The firm age is calculated by observing the registration date of each business in the Companies House UK registry. The firm size is determined by the number of employees, available on the

Global Database, which is the market leader in business intelligence, consisting of over 18 million company profiles, from 195 countries (Global Database, 2022). For calculating the distance from a company's warehouse to a city, the return label destination is used as the distribution center of each firm. Using a consumer application offered by Google, the distance of the delivery route is estimated by calculating the kilometers between the warehouse address and the center of each city.

3.3 Descriptive Statistics

Table 2. Descriptive Statistics for Each City

City	Population	Patent Applications	CR4 (%)	Average Distance to Warehouse (miles)
Dundee	149,000	6.8	54.8	393
Belfast	489,000	11.8	57.7	395
Aberdeen	229,000	48.1	33.9	457
Glasgow	1,020,000	7.8	81.4	325
Sunderland	278,000	7.6	94.4	218
Cardiff	369,000	29.2	89.5	176
Liverpool	653,000	3.3	94.0	158
Birmingham	2,560,000	8.7	71.3	110
Manchester	2,520,000	4.4	66.9	142
Peterborough	203,000	22.6	84.8	114
Brighton	356,000	8.2	73.4	164
London	10,300,000	12.3	54.6	113

Notes. Population represents the number of registered inhabitants in each city, while patent applications refer to the number of patents filed per 100,000 population. Data collected from the City Monitor of the Center for Cities database. CR4(%) represents the concentration ratio of the top 4 retailers, shown in percentages. Data retrieved from the Dun & Bradstreet database. The average distance to the warehouse is calculated in miles and shows the distance from a firm's distribution center to each city. Data collected from each company's website.

As observed in Table 2, London has the highest population, with 10.3 million individuals, while Dundee is the least populated city, with only 149 thousand inhabitants. Birmingham, Manchester, and Glasgow can be considered middle-sized areas, with over 1 million residents. Aberdeen has the highest number of yearly patent applications, with around 48 patents filed per 100,000 population. This can partly explain Aberdeen's low market

concentration of 33.9%, as more patent applications can be associated with greater innovation. The cities with the least filings are Liverpool and Manchester, having high concentration rates of 94% and 66.9% respectively.

Regarding the average distance to the warehouse, London has the highest proximity to most warehouses, as the delivery distance is 113 miles on average. Whereas, Aberdeen, Belfast and Dundee are furthest away from the warehouses, at around 457, 395 and 393 miles respectively, on average. This shows that retailers prefer locating their distribution centers in the southern parts of the UK, more specifically in England and Wales.

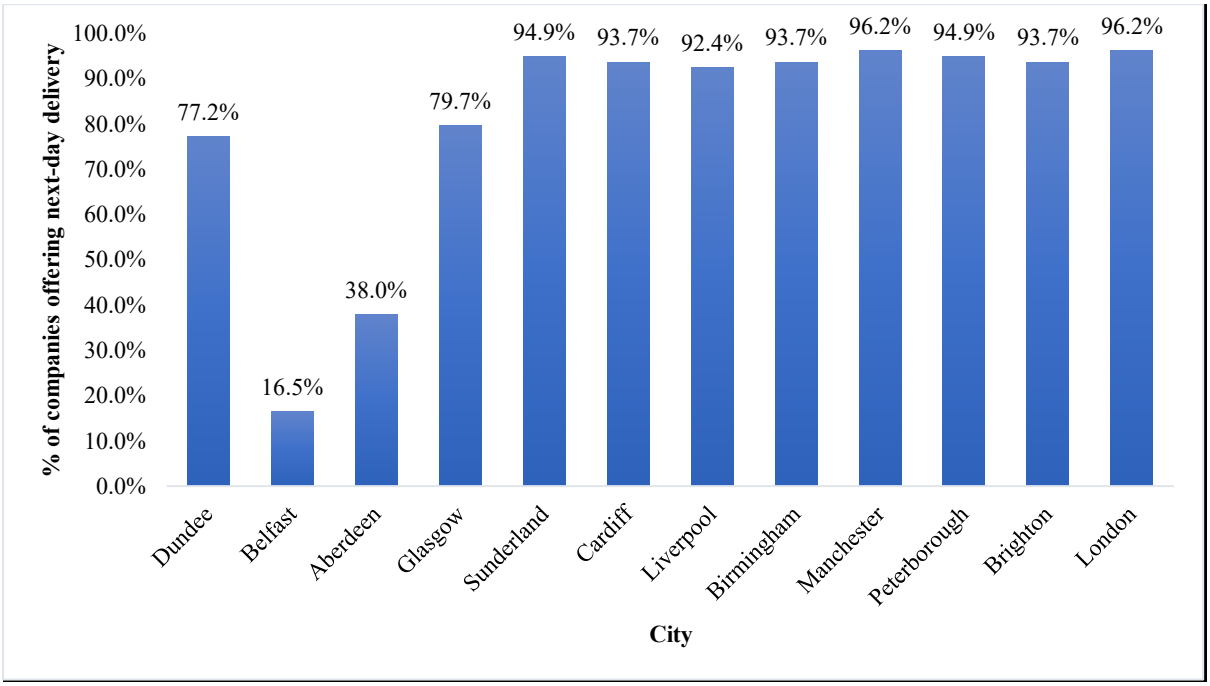

Figure 1. The Percentage of Companies That Offer Next-day Delivery Service in Each City

As shown in Figure 1, more than 90% of the firms provide next-day delivery in the English and Welsh cities, except for Dundee, where the rate is 77.2%. Manchester and London have the highest percentage of next-day deliveries, as well as one of the highest levels of business start-ups. Scottish and Irish cities experience the lowest percentage of next-day deliveries, with only 16.5% of companies offering this option in Belfast. These cities also have the lowest levels of business start-ups, which can be an indicator of limited competition. Therefore, it may be possible that more dynamic business environments encourage firms to enhance their service quality and vice versa.

4. Methodology

For the data analysis, each observation represents one delivery route. That is, for every firm, there are 12 observations. The final dataset includes 948 observations. Out of the 79 firms, 31 are pure-click and 48 are brick-and-click, corresponding to 372 and 576 observations respectively. At the same time, 63 firms are British, 51 are categorized as small and 18 are defined as young, representing around 80%, 65%, and 23% of the total sample, respectively. The thresholds of the firm nationality, size, and age grouping are explained in sub-section 4.1.

4.1 Variables

CR4 is a continuous, independent variable representing the four-firm concentration ratio, that is, the market share of the four largest clothing retailers in each city. The formula used to calculate this ratio is:

$$CR(4)_i = \frac{\text{sum of revenues of the top 4 clothing retailers}}{\text{total revenues of the clothes retail industry}}, \; i=1, 2, 3 \ldots 12$$

The four-firm concentration ratio was chosen as the measurement of market concentration, based on its ability to indicate the level of competition in a market. Table 3 shows the percentage changes between CR4 and both the three-firm and five-firm concentration ratios (CR3 and CR5 respectively). As observed, for all cities except Manchester, the differences between CR3 and CR4 are greater than the percentage change between CR4 and CR5. The value of adding a 4^{th} top retailer to the ratio is greater than adding a 5^{th}, for indicating the competition intensity. Whereas, using CR3 would lead to inaccurate estimations as the 4^{th} top retailers have a significant impact on the concentration ratios, shown by changes such as 10.3%, 8.1%, and 5.1%. Hence, considering only the top 4 retailers seems as the most accurate measure of market concentration ratio.

Table 3. Percentage Differences Between the Four-firm Concentration Ratio and Both Three and Five-firm Concentration Ratios

City	CR4 (%)	Change CR3 (%)	Change CR5 (%)
Dundee	54.8	-3.6	+3.4
Belfast	57.7	-2.8	+1.9
Aberdeen	33.9	-0.7	+0.3
Glasgow	81.4	-1.6	+1.5
Sunderland	94.4	-1.2	+0.4
Cardiff	89.5	-2.9	+0.7
Liverpool	94.0	-1.8	+1.1
Birmingham	71.3	-10.3	+7.6
Manchester	66.9	-5.1	+6.8
Peterborough	84.8	-2.3	+1.9
Brighton	73.4	-0.9	+0.7
London	54.6	-8.1	+4.8

Notes: Column (1) shows the four-firm concentration ratio. Columns (2) and (3) show how the concentration ratios change if only the top 3 or top 5 retailers are considered. The change from CR3 is calculated by subtracting CR4 from CR3, while the change from CR5 is calculated by subtracting CR4 from CR5. The revenue data for calculating the concentration ratios is retrieved from the D & B database.

Fast_delivery is a dummy, dependent variable taking the value of 1 if the firm offers next working day delivery to a specific city, and 0 otherwise. *Population* is a discrete variable representing the number of people living in each city. *Patent_applications* is a discrete variable consisting of the number of patents filed per 100,000 people in each city. *Distance_warehouse* is a discrete variable representing the delivery route distance, that is, the distance between a company's warehouse and the destination city. It is measured in miles. *British* is a dummy variable taking the value of 1 if the firm has its headquarters in the UK, and 0 otherwise. *Small* is a dummy variable taking the value of 1 if the firm has less than 1,500 employees, and 0 otherwise. *Young* is a dummy variable taking the value of 1 if the firm was incorporated less than 10 years ago, as shown in the UK registry, and 0 otherwise. Moreover, to control for firm fixed effects, 79 dummy variables are created, one for each firm. The final dataset includes 948 observations.

4.2 Statistical Analysis

For the data analysis, seven probit models are used. The models are suitable if the dataset contains a binary dependent variable (eg. *fast_delivery*). The linear probability model (LPM) gives rise to several problems such as heteroskedasticity and probability values higher than 1 or lower than 0 (Williams, 2015). Such values cannot be interpreted as they are outside the feasible probability range. Thus, probit regressions are most suitable for calculating probabilities, as they eliminate both fundamental problems of LPM. As the coefficients of the probit models cannot be directly interpreted, the average marginal effects (AME) are calculated separately. All data is analyzed using the STATA statistical software. For all probit models, the subscript i represents the firm-level data while the subscript j shows the city-level data.

4.3 Hypothesis 1

To test if the concentration ratio influences the adoption of a next-day delivery service, two probit models are compared. The first model only controls for three possible omitted variables such as the population, patent applications, and the delivery distance to each location. To increase the accuracy of the analysis, the second model also controls for all observable and unobservable firm characteristics, by including the firm dummy variables.

Probit (1)

The first model includes the dependent variable (*fast_delivery*), the explanatory variable of interest (*CR4*), as well as the three control variables. Therefore, Probit (1) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1 (CR4_j) + \beta_2 \left(population_j\right) + \beta_3 (patent\_applications_j) + \beta_4 \left(distance\_warehouse_{ij}\right) + \varepsilon_{ij}$$

The results of Probit (1) are represented by AME (1) from Table 7.

Probit (2)

The second model includes the dependent variable (*fast_delivery*), the explanatory variable of interest (*CR4*), the three control variables, and the firm fixed effects (μ_i). Adding the vector of firm fixed effects (FE) to the model controls for any city-invariant firm characteristics which could affect both *fast_delivery* and alter the effect of *CR4*. These include observable characteristics (eg.firm size or firm age) as well as unobservable characteristics (eg.CEO capabilities or firm productivity). The model incorporates all these variables into one firm-specific dummy variable. Separate firm observable characteristics are not included in the model as they are collinear with the firm FE. These fixed-firm characteristics are heterogenous across businesses and if not controlled for, lead to biased estimates.

Probit (2) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1(CR4_j) + \beta_2\left(population_j\right) +$$
$$\beta_3(patent\_applications_j) + \beta_4\left(distance\_warehouse_{ij}\right) + \mu_i + \varepsilon_{ij}$$

The results of Probit (2) are represented by AME (2) from Table 7.

4.4 Hypothesis 2

To test if the results differ between firms operating on different retail platforms, the sample is split into two groups: pure-click and brick-and-click companies. It is necessary to make this division as adding a dummy variable for the chosen retail platform would be collinear with the firm FE. The analysis of Probit (2) is repeated for each separate sub-sample.

Probit (3)

This model is used to analyze the pure-click sub-sample. It includes the dependent variable (*fast_delivery*), the explanatory variable (*CR4*), three control variables, and the firm FE (μ_i). Therefore, Probit (3) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1(CR4_j) + \beta_2\left(population_j\right) +$$
$$\beta_3(patent\_applications_j) + \beta_4\left(distance\_warehouse_{ij}\right) + \mu_i + \varepsilon_{ij}$$

The results of Probit (3) are represented by AME (3) from Table 8.

Probit (4)

This model is used to analyze the brick-and-click sub-sample. It includes the dependent variable (*fast_delivery*), the explanatory variable (*CR4*), three control variables, and the firm FE (μ_i). Therefore, Probit (4) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1(CR4_j) + \beta_2\left(population_j\right) +$$
$$\beta_3(patent\_applications_j) + \beta_4\left(distance\_warehouse_{ij}\right) + \mu_i + \varepsilon_{ij}$$

The results of Probit (4) are represented by AME (4) from Table 8.

4.5 Hypothesis 3

To test whether the nationality, firm size, or firm age can influence a company's decision to adopt a next-day delivery service, the interaction effect between the market concentration ratio and these firm characteristics is analyzed. The interaction terms show whether *CR4* and the firm nationality, size, and age have a combined effect on *fast_delivery*. This analysis is useful to understand the degree to which one predictor influences the effect of the other. The results of Probit (2) are used for comparison, to observe if looking at individual firm-specific characteristics increases the statistical significance of the analysis.

Probit (5)

This model is used to test if the effect of the concentration ratio on a firm's adoption of next-day delivery depends on whether this company is British or foreign. It includes the dependent variable (*fast_delivery*), the explanatory variable (*CR4*), the interaction between *CR4* and *British (CR4*British)*, three control variables, and the firm FE (μ_i). Therefore, Probit (5) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1(CR4_j) + \beta_2(CR4_j \times British_i) + \beta_3\left(population_j\right) +$$
$$\beta_4(patent\_applications_j) + \beta_5\left(distance\_warehouse_{ij}\right) + \mu_i + \varepsilon_{ij}$$

A significant β_2 would suggest that the difference in the probabilities of British and foreign firms to adopt a next-day delivery service is $\beta_2(\mathrm{CR4_j})$ percent. An insignificant β_2 would suggest that there is no difference in these probabilities between British and foreign companies. The results of Probit (5) are represented by AME (5) from Table 9.

Probit (6)

This model is used to test if the effect of the concentration ratio on a firm's adoption of next-day delivery depends on the company's size. It includes the dependent variable (*fast_delivery*), the explanatory variable (*CR4*), the interaction between *CR4* and *small (CR4*small)*, three control variables, and the firm FE (μ_i). Therefore, Probit (6) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1(CR4_j) + \beta_2(CR4_j \times small_i) + \beta_3\left(population_j\right) +$$
$$\beta_4(patent\_applications_j) + \beta_5\left(distance\_warehouse_{ij}\right) + \mu_i + \varepsilon_{ij}$$

A significant β_2 would suggest that the difference in the probabilities of small and large firms to adopt a next-day delivery service is $\beta_2(\mathrm{CR4_j})$ percent. An insignificant β_2 would suggest that there is no difference in these probabilities between small and large companies. The results of Probit (6) are represented by AME (6) from Table 9.

Probit (7)

This model is used to test if the effect of the concentration ratio on a firm's adoption of next-day delivery depends on the company's age. It includes the dependent variable (*fast_delivery*), the explanatory variable (*CR4*), the interaction between *CR4* and *young (CR4*young)*, three control variables, and the firm FE (μ_i). Therefore, Probit (7) takes the following format:

$$Fast\_delivery_{ij} = \beta_0 + \beta_1(CR4_j) + \beta_2(CR4_j \times young_i) + \beta_3\left(population_j\right) +$$
$$\beta_4(patent\_applications_j) + \beta_5\left(distance\_warehouse_{ij}\right) + \mu_i + \varepsilon_{ij}$$

A significant β_2 would suggest that the difference in the probabilities of young and old firms to adopt a next-day delivery service is $\beta_2(CR4_j)$ percent. An insignificant β_2 would suggest that there is no difference in these probabilities between young and old companies. The results of Probit (7) are represented by AME (7) from Table 9.

4.3 Control Variables

In order to control for possible omitted variables, *population*, *patent_applications* and *distance_warehouse* are added to all models as control variables. By leaving out one or more relevant variables, the results are subject to the omitted variable bias (OVB). This decreases the accuracy of the estimated coefficients, as they also incorporate the effect of the missing variables. To reduce these endogeneity issues, *population*, *patent_applications* and *distance_warehouse* should be correlated to *CR4* and directly influence *fast_delivery*.

Population is a demand driver, as more consumers in a market represent a higher aggregated demand for products. In hope of capturing this demand, more and more firms enter the market, increasing competition. Thus, population can be negatively associated with the market concentration (Frohlich & Westbrook, 2002). To capture the demand, firms start adopting more competitive strategies, suggesting that firms operating in more densely populated markets are more likely to offer a next-day delivery service.

Patenting activity is an accurate measure of innovation intensity (Aghion et al.,2005). Gorodnichenko et al. (2010) find that greater product market competition stimulates innovation by increasing R&D expenditures and labor productivity. That is, a lower market concentration ratio can be associated with higher patent applications. At the same time, distribution channel innovations lead to service enhancement by developing more efficient distribution networks and allowing firms to offer faster delivery services (Vries, 2006). However, with great patenting activity, the problem of litigation arises. With the number of patents filed, the risk of litigation costs increases, reducing expected profits. The threat of litigation was found to decrease innovation incentives (Lampe & Moser, 2010). Therefore, greater patent applications can lead to a higher probability of offering next-day delivery, by increasing the distribution efficiency, as well as a lower probability of offering next-day delivery, by increasing expected costs.

The location for a firm's warehouse is an important strategic decision. Garcia et al. (2014) argue that a shorter distance from the warehouse to the customers and competitors should encourage the selection of the site, suggesting that there is a positive relationship between market concentration and the distance from the warehouse. Less concentrated markets are more competitive, as they include a higher number of consumers and competitors, encouraging firms to build warehouses in their proximity (Garcia et al., 2014). Moreover, a longer distance between the distribution center and the delivery destination imposes higher transportation costs. These costs can discourage firms to offer next-day delivery to remote locations, as expected profits decrease (Garcia et al., 2014). Therefore, the distance from warehouse can have a negative impact on adopting faster delivery services.

4.4 Assumptions

For all probit models, it is assumed that there is no multicollinearity. Multicollinearity arises when two or more explanatory variables are highly correlated. It is important to verify this assumption as otherwise, it can lead to a lower statistical significance of the explanatory variables. Table 2 shows the correlations between the Probit (1), (2), (5), (6), and (7) independent variables.

Table 4. Correlation Table for the Probit (1), (2), (5), (6), and (7) Variables

	CR4	**CR4*B**	**CR4*S**	**CR4*Y**	**Pop**	**Patent**	**Dista-nce**
CR4	1.000						
CR4*B	0.542***	1.000					
CR4*S	0.402***	0.285***	1.000				
CR4*Y	0.174***	0.072**	0.433***	1.000			
Pop	-0.123***	-0.067**	-0.048	-0.020	1.000		
Patent	-0.232***	-0.129***	-0.093***	-0.040	-0.154***	1.000	
Distance	-0.271***	-0.165***	-0.009	-0.026	-0.325***	0.300***	1.000

Notes: This table shows the correlations between all explanatory variables of the Probit (1), (2), (5), (6), and (7) models, except the firm FE. The variables are abbreviated: CR4*B represents the *CR4*British* interaction term, CR4*S represents the *CR4*Small* variable, CR4*Y represents the *CR4*Young* interaction term, pop represents the *population* variable, patent represents the *patent_applications* variable and distance represents the *distance_warehouse* variable. * p<0.1 **p<0.05 ***p<0.01

A strong correlation takes a value of greater than 0.6 or lower than -0.6 (Lamorte, 2021). As shown in Table 2, there is no high correlation, with 0.542 being the strongest. Therefore, the multicollinearity assumption is likely to hold, meaning that the results of Probit (1), (2), (5), (6), and (7) are unlikely to be biased due to the association of two or more explanatory variables.

Furthermore, all correlations between the firm dummy variables were found to be -0.013, representing weak relationships. There are also no significant correlations between these variables and the other independent variables. This could be explained by the low number of observations for each company (12). Hence, as the correlations are low, as well as statistically insignificant, it is likely that the multicollinearity assumption holds even after including the firm FE.

Table 5. Correlation Table for the Probit (3) Variables

	CR4	**Pop**	**Patent**	**Distance**
CR4	1.000			
Pop	-0.122**	1.000		
Patent	-0.232***	-0.154***	1.000	
Distance	-0.332***	-0.300***	0.338***	1.000

Notes: This table shows the correlations between all explanatory variables of the Probit (3) model, except the firm FE. The variables are abbreviated: pop represents the *population* variable, patent represents the *patent_applications* variable and distance represents the *distance_warehouse* variable. * p<0.1 **p<0.05 ***p<0.01

When observing the correlations between the explanatory variables of the pure-click sub-sample, no strong relationships are found. The highest correlation is 0.338. At the same time,

all correlations between the firm dummy variables were found to be -0.033 and not significant. The correlations between the individual firm FE and the other independent variables are all 0. Hence, it is likely that the multicollinearity assumption holds for Probit (3).

Table 6. Correlation Table for the Probit (4) Variables

	CR4	**Pop**	**Patent**	**Distance**
CR4	1.000			
Pop	-0.123**	1.000		
Patent	-0.232***	-0.154***	1.000	
Distance	-0.237***	-0.342***	0.280***	1.000

Notes: This table shows the correlations between all explanatory variables of the Probit (4) model, except the firm FE. The variables are abbreviated: pop represents the *population* variable, patent represents the *patent_applications* variable and distance represents the *distance_warehouse* variable.
* p<0.1 **p<0.05 ***p<0.01

When analyzing the relationships between the explanatory variables of the brick-and-click sub-sample, no strong correlations are found. The strongest correlation is -0.342. Moreover, all correlations between the firm dummy variables were found to be -0.021 and insignificant, while the relationships between the firm FE and the other explanatory variables are all 0. Therefore, it is likely that the multicollinearity assumption holds for Probit (4).

Furthermore, it is necessary to assume that the zero conditional mean assumption holds for all models. This means that *CR4* is uncorrelated with the error term, as well as uncorrelated with other factors that influence *fast_delivery*. By assuming a zero conditional mean, it is considered that there is no omitted variable bias (OVB), and that the effects of all predictors are accurately portrayed in each of these models. That is, there is no other variable which could influence whether companies offer next-day deliveries and is correlated to the market-concentration in each city. This assumption is difficult to test, as it is unlikely that all possible variables can be identified and added to the model. Therefore, it is unlikely to hold.

4 Results

Hypothesis 1 predicts that there is a higher probability for firms to offer a next-day delivery service in less concentrated areas. Column (1) from Table 3 shows the opposite, as the *CR4* coefficient is positive and statistically significant at a 1% significance level. The result shows that, on average, a 1% increase in the concentration ratio of a city increases the probability of a firm having a next-day delivery service in the same city by 15.9%.

All control variables from AME (1) have significant effects on *fast_delivery*, hence they bring additional explanatory power when added to the model. The population of a city has a positive but small effect, suggesting that a larger customer base might not be the prime driver of a firm's strategic decision. The effect being positive, it confirms the abovementioned expectation that firms can be more likely to deliver their products the next day to more populated areas. The number of patent applications have a negative impact on *fast_delivery*, reinforcing the idea that patenting activity can decrease the competitive intensity in an area, discouraging innovative behavior such as enhancing the distribution systems. The average marginal effects show that on average, each increase in the number of patent applications leads to a decrease in the probability of offering fast delivery by 0.2%. Similarly, the distance from the warehouse has a negative impact on *fast_delivery*. On average, increasing the delivery distance by 1 mile, decreases the probability of offering next-day delivery by 0.1%. This is in line with the idea that a greater distance for delivery imposes higher costs, discouraging a firm to offer next-day delivery in remote locations.

When controlling for the fixed firm effects, the coefficient of *CR4* becomes insignificant, as shown in AME (2). That is, part of the effect of market concentration displayed by Probit (1) included the firm FE, leading to an inaccurate interpretation of market concentration. Market concentration cannot explain the variation in the adoption of next-day delivery service. At the same time, the coefficients of *population* and *patent_applications* become less significant. The population coefficient remains close to zero, reinforcing the idea that the population size of the delivery destination does not play a large role towards the decision to offer a next-day delivery service. Similarly, *distance_warehouse* has the same average marginal effects as Probit (1), meaning that increasing the delivery distance by 1 mile, decreases the probability of offering next-day delivery by 0.1%.

The complete results of the Probit (2) model are found in Appendix B. The significant fixed-firm effects and the insignificant market characteristics variables suggest that the firm specific factors explain more of the variation in the adoption of a next-day delivery service, than the attributes of the delivery destinations. As the firm FE provide additional explanatory power to the model, Probit (1) represents biased results, making Probit (2) the desired full model of the analysis. Hence, Hypothesis 1 is rejected as the probability of adopting a next-day delivery service does not depend on the market concentration of the delivery destination, but rather on the firm specific attributes.

Table 7. Average Marginal Effects for the Probit (1) and Probit (2) Models

	AME (1)	**AME (2)**
CR4	0.159***	0.041
	(0.050)	(0.034)
Population	1.24e-08**	7.78e-09*
	(0.000)	(0.000)
Patent_applications	-0.002**	-0.000
	(0.000)	(0.000)
Distance_warehouse	-0.001***	-0.001***
	(0.000)	(0.000)
Firm FE	NO	YES
Number of observations	948	948

Notes: This table shows the Average Marginal Effects (AME) of the Probit (1) and Probit (2) models. The dependent variable for all models is *fast_delivery*. The independent variables are stated in the rows. Standard errors are reported in parentheses. * p<0.1 **p<0.05 ***p<0.01

Hypothesis 2 predicts that brick-and-click firms are less likely to offer next-day delivery services than pure-click firms. When observing the pure-click sub-sample, the *CR4*, *population* and *patent_applications* coefficients are insignificant, reinforcing the idea that market characteristics do not influence the outcome of *fast_delivery*. The coefficient of *distance_warehouse* is statistically significant at a 1% significance level, showing that increasing the delivery distance by 1 mile, on average, decreases the probability of offering next-day delivery by 0.1%. The results are similar when analyzing the brick-and-click sub-sample, as shown by AME (4). The *CR4* and *patent_applications* coefficients are insignificant, while the *distance_warehouse* variable is significant at a 1% significance level. That is, on average, increasing the delivery distance by 1 mile decreases the probability of offering next-day delivery by 0.1%.

The difference between AME (3) and AME (4) is the *population* coefficient which is significant at a 5% significance level for brick-and-click firms, but insignificant for pure-click companies. One explanation could be the difference in the number of observations, with the brick-and-click sub-sample having 204 more observations than the pure-click sub-sample. However, the significant coefficient is close to 0, reinforcing the results of Probit (1) and (2), that population does not play a large role in determining the adoption of a next-day delivery service.

As shown in Table 4, both average marginal effects of the market concentration variable are insignificant. The null hypothesis that the coefficient of *CR4* is zero cannot be rejected, in neither of the cases. That is, market concentration cannot accurately explain the variation in the probabilities of offering next-day delivery, regardless of the retail platform choice. Hence, Hypothesis 2 is rejected as there is no significant difference between the sub-samples.

Table 8. Average Marginal Effects for the Probit (3) and Probit (4) Models

	AME (3)	**AME (4)**
CR4	-0.010	0.077
	(0.037)	(0.049)
Population	2.15e-09	1.37e-08**
	(0.000)	(0.000)
Patent_applications	-0.001	-0.000
	(0.000)	(0.001)
Distance_warehouse	-0.001***	-0.001***
	(0.000)	(0.000)
Firm FE	YES	YES
Number of observations	372	576

Notes: This table shows the Average Marginal Effects (AME) of the Probit (3) and Probit (4) models. The dependent variable for all models is *fast_delivery*. The independent variables are stated in the rows. Standard errors are reported in parentheses. * p<0.1 **p<0.05 ***p<0.0

Hypothesis 3 states that the firm-specific characteristics have a significant impact on a company's strategic decisions. Table 7 shows that adding the firm FE to Probit (1) changes the significance of the market characteristics variables, meaning that the firm attributes have significant explanatory power. This idea is highlighted in Appendix B, as many of the individual FE are statistically significant. Hence, Hypothesis 3 cannot be rejected.

To expand upon Hypothesis 3, further analysis is conducted on 3 individual firm characteristics: nationality, size, and age. Hypotheses 3.1, 3.2, and 3.3 predict that foreign, smaller, or younger firms are less likely to adopt a next-day delivery strategy when compared to British, larger, or older firms respectively. Column (2) of Table 9 includes the interaction term between market concentration and whether a firm is British or foreign. The coefficient of

this term is not significant, meaning that *British* does not have a moderating effect on the relationship between *CR4* and *fast_delivery*. That is, whether the firm is domestic or foreign does not contribute to the effect of *CR4* on *fast_delivery*, not bringing additional explanatory power to the model. Column (3) consists of the interaction term between market concentration and whether the firm is small or large. The coefficient of the interaction term is not significant, hence the effect of market concentration on the adoption of next-day delivery does not depend on the size of the firm. Column (4) includes the interaction term between market concentration and whether a firm is young or old. Once again, this interaction term is not significant, meaning that firm age does not alter the relationship between market concentration and the adoption of a next-day delivery service. The insignificance of the interaction terms shows that the firm nationality, size, or age do not change the effect of *CR4* on *fast_delivery*, hence Hypotheses 3.1, 3.2, and 3.3 are rejected. The effect of market concentration on offering next-day delivery does not differ between British or foreign, small or large, and young or old firms.

When comparing these results to AME (2), there is no change in the significance of any of the coefficients. The *CR4* and the *patent_applications* coeffcients remain insignificant, while the *distance_warehouse* and *population* coefficients maintain a stable significance level. Minor fluctuations in the *population* coefficient values are observed, but as all are close to 0, these changes are very small.

Table 9. Average Marginal Effects for the Probit (2), Probit (5), Probit (6) and Probit (7) Models

	AME (2)	**AME (5)**	**AME (6)**	**AME (7)**
CR4	0.041	0.026	0.057	0.057
	(0.034)	(0.055)	(0.053)	(0.038)
CR4*British		0.018		
		(0.060)		
CR4*Small			-0.030	
			(0.056)	
CR4*Young				-0.081
				(0.056)
Population	7.78e-09*	5.95e-08*	7.87e-09*	7.65e-09*
	(0.000)	(0.000)	(0.000)	(0.000)
Patent_applications	-0.000	-0.006	-0.000	-0.000
	(0.000)	(0.004)	(0.000)	(0.000)
Distance_warehouse	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm FE	YES	YES	YES	YES
Number of observations	948	948	948	948

Notes: This table shows the Average Marginal Effects (AME) of the Probit (2), Probit (5), Probit (6) and Probit (7) models. The dependent variable for all models is *fast_delivery*. The independent variables are stated in the rows. Standard errors are reported in parentheses. * p<0.1 **p<0.05 ***p<0.01

5 Discussion & Implications

As competition increases in the retail industry, firms must adapt to the emerging markets and adopt new strategies. Long-run profits and competitive advantages rest on a firm's ability to differentiate and improve their services. This decision-making process is based on numerous factors, including the market and the firm-specific characteristics. To address the research issue regarding the key drivers of non-price strategy adoption, seven probit models are used to estimate the probability of clothing retailers offering next-day delivery services in 12 UK cities. Therefore, this paper presents three major findings.

Firstly, Probit (1) does not control for the firm FE, leading to biased and inaccurate estimates. Whereas, Probit (2) provides evidence for rejecting Hypothesis 1, and not rejecting Hypothesis 3, showing that the firm-specific attributes outweigh the market characteristics regarding a firm's decision to offer next-day delivery. After controlling for the firm FE, market concentration becomes an insignificant variable in explaining the variation in this strategy adoption. This finding extends upon the idea that firm capabilities can determine the business strategy type. Dynamic capabilities constitute of the physical, human and organizational assets used to generate new value creating strategies, are characterized as unique and idiosyncratic (Eisenhardt & Martin, 2000). These capability differences across firms arise because there are more and less effective strategies of combining these resources towards addressing a competitive challenge. In addition, companies with high inside-out capabilities, which focus on differentiating through technology development and logistics, are more likely to compete by exploiting new market opportunities (Benedetto & Song, 2003). This reinforces the idea that the strategic decisions taken by managers depend on their internal resources and values.

Secondly, Probit (3) and (4) show that there is no significant difference between the probabilities of brick-and-click and pure-click firms of adopting a next-day delivery strategy, rejecting Hypothesis 2. E-commerce enables retailers to decrease transaction costs by streamlining their distribution systems and delivering the products directly from their warehouses, as well as their search costs by providing digital catalogues (Reynolds, 2000). Zott & Amit (2007) do not find any complementarities between the business model of a company, whether being efficiency or novelty driven, and differentiation strategies.

Casadesus-Masanell & Zhu (2013) build on this idea by arguing that innovation includes multiple sub-groups such as process development and new ways to organize business, providing a strict distinction between the two. The study highlights that there are weak links between these types of innovation, reinforcing the idea that there are more important firm-specific factors that affects a firm's strategic decision than their business model. At the same time, it was found that online retailers focus on building consumer trust, while brick-and-click firms try to effectively use both platforms, both aiming to create a seamless shopping experience for e-customers (Toufaily et al., 2013). This entails offering competitive services, such as next-day deliveries. This can partly explain the findings of Probit (3) and (4), as the decision of adopting a pure-click or brick-and-click business model, should not affect a firm's choice to differentiate by enhancing the service quality.

Lastly, Probit (5), (6), and (7) provide evidence for rejecting Hypotheses 3.1, 3.2, and 3.3 respectively, by showing that the nationality, size, and age of a firm do not alter the effect of the market concentration on adopting a next-day delivery service. In industries with the same growth and concentration, foreign and domestic firms engage in similar survival strategies, often imitating their competitors, even though they have a different set of characteristics (Mata & Portugal, 2002). This highlights the idea that in competitive environments, regardless of their nationality, firms engage in similar actions as those of their competitors, rather than in accordance with the level of market concentration. Moroever, Shefer & Frenkel (2005) argue that innovation and product differentiation mostly depend on whether a firm belongs to a high-tech industry or consists of more traditional processes, and not on firm size. That is, industry-specific characteristics were found to impact the level of R&D expenditures, rather than firm or market attributes.

At the same time, an efficient product-market strategy can be attributed to a young firm's managerial knowledge or an old firm's ability to adapt to environmental changes (Thornhill & Amit, 2003). This can suggest that firms, regardless of age, focus their strategic decisions on their internal resources and capabilities, rather than on market characteristics. Therefore, the abovementioned findings can partly explain the insignificant interaction terms. Firms are more likely to adopt non-price strategies based on their competitors' actions, industry attributes, or internal firm capabilities. Hence, no variations in the effect of market concentration on the adoption of a next-day delivery service were found when considering firm nationality, age, or size.

The results of this paper provide significant insights for both the internal and external analysis conducted by UK clothing retailers when either entering a new market or deciding to adopt a service enhancement strategy. Retailers operating in the online environment need to decide which strategies to incorporate for their business, depending on their resources, knowledge, and goals. By showing that firm-specific characteristics can determine the adoption of a next-day delivery system, it signals to managers that an efficient and optimal use of their internal resources can lead to service differentiation. Therefore, managers can either focus on determining the best mix of capabilities which allows them to integrate a next-day delivery service or invest in a different strategy, hoping to gain competitive advantage.

When doing an external analysis of strategic positioning, companies need to consider the potential markets and their competitors. By showing that the UK clothing retailers do not base their strategic decisions on market concentration, it signals to managers that a market analysis including other factors is essential. For example, examining consumer preferences, their income, or the barriers to entry might be more suitable for observing strategic behavior in a competitive environment.

Moreover, by showing that having a physical store or solely operating online does not have an impact on the adoption of next-day deliveries, the study emphasizes the importance of conducting detailed analysis on each of their competitors to reach an accurate prediction of their strategic behaviors. They should not rely on the chosen retail platforms of competitors when carrying this analysis. At the same time, the interactions between a market characteristic and three firm attributes were insignificant, thus managers should focus their analysis on independent company characteristics, rather than examining combined effects. However, managers need to be cautious when conducting a competitor analysis due to the high uncertainty and complexity of the market. Numerous firm-specific characteristics remain unobservable or not publicly accessible. Hence, managers might consider alternative investigations prior to entry, such as identifying a market gap.

6 Limitations

Most data was collected from secondary sources, or from publicly available websites, and thus this paper is limited to the variables which were available. The Herfindahl–Hirschman index (HHI) is a more precise estimation of the market concentration, as it takes into account all companies, compared to the four-firm concentration ratio (CR4). However, the Duns & Bradstreet database does not publicly report the revenues of all small companies, stating a value of $0.00 for these on the website. Therefore, it was not possible to calculate the HHI, while the CR4 estimation may suffer from small precision issues, as the total revenues of each market were not accurately calculated.

Moreover, working with both primary and secondary collected data can make the analysis prone to measurement errors. Numerous secondary databases were used, increasing the chances of errors made by other individuals, whether being the misrepresentation of a firm's revenue or miscalculating the patent applications in a city. At the same time, hand collecting the data from each firm's own website can lead to gross errors, such as misreading the postcode restrictions. Using several datasets can also affect the consistency of the data quality, as there is no guarantee that all information publicly reported is accurate.

In addition, the Average Marginal Effects used to interpret the probit models' coefficients solely allows for an approximation of the explanatory variables' impacts on *fast_delivery*. As the probit model is non-linear, the effect differs for each observation, and the magnitude of the effects represent an estimate. Therefore, the sign of the statistically significant coefficients can be accurately interpreted, rather than their magnitudes. In addition, the interaction effects from Probit (5), (6) and (7) represent the simultaneous effects of the market concentration and the corresponding firm attributes. This limits the analysis to the combined effect between two variables, without allowing for the comparison between the individual effects of firm nationality, size, or age. At the same time, creating dummy variables for the nationality, size, and age of companies solely allows for observing the aggregated effects of firms from different groups eg. small and large, without observing the effect of one extra employee on the outcome.

Furthermore, it is unlikely that all probit models estimate a causal relationship between the market concentration of the delivery destination and the probability of offering a next-day

delivery service, due to several endogeneity issues. Reverse causality is a potential problem, as adopting a differentiation strategy can also impact the degree of competition in a market. Lee & Grewal (2004) found that more aggressive competitive responses in the e-tail industry yield the greatest returns, encouraging competitors to continuously improve their services. That is, if a company adopts a differentiation strategy, its competitors are likely to respond with an improved strategy, leading to a higher level of competition. Therefore, it is possible that having a higher probability of offering a next-day delivery service, increases the competition of the market a firm operates in. This could result in biased estimates.

Another endogeneity issue arises from the zero conditional mean assumption, which cannot be tested. Table 1 shows that Irish and Scottish cities have the lowest level of business activity, while Figure 1 shows that these cities also have the lowest probabilities of offering next-day delivery. Therefore, it is possible that besides the market concentration of each city, the delivery country can influence *fast_delivery*. Appendix A shows that all warehouses are located in England, Scotland or Wales, suggesting that all deliveries to Northern Ireland need to cross the Irish Sea. This increases the transportation cost and time, which can discourage companies to offer next-day deliveries in Irish cities.

Similarly, the English Community Infrastructure Levy Regulation of 2010, which is not implemented in Scotland, sets high standards and restrictions for infrastructure developers, resulting in higher quality road and rail networks (Winter, 2016). This allows the fast and efficient distribution of products. Hence, the country location of a city can impact whether firms are able to deliver their products the next day, due to the country-specific regulations of methods of transportation. Omitting country-specific dummy variables from the model can lead to biased coefficients, as the impact of the market concentration is not accurately estimated. Hence, these endogeneity issues threaten the internal validity of the analysis.

Regarding external validity, the results can be generalized to only specific markets of the online clothing retail industry, in the UK. Extrapolating to different countries requires similarities in terms of economy, regulations, and demographics with the UK. However, it is difficult to find a comparable country. The UK is composed of four separate countries, consisting of differences in laws, as well as impediments to deliver from one country to the other, due to the landscape and long distances. Therefore, the study can mostly be generalized to other UK cities.

7 Conclusion

The central research question explores whether market concentration can influence the probability of UK clothing retailers introducing next-day delivery. The results show that market concentration does not influence the likelihood of offering this service. Hypothesis 1 is rejected as no difference in the probability of adopting a next-day delivery strategy between cities with greater or lower market concentration was found. An interesting result is that the variation in this probability can be partly explained by the firm heterogeneities, suggesting that the next-day delivery strategy is more of a firm-specific discretional strategy rather than a decision riven by market concentration. Hence, Hypothesis 3 cannot be rejected.

Moreover, after observing the strategic behavior of firms operating on different retail platforms, no differences were found between pure-click and brick-and-click firms, rejecting Hypothesis 2. Hence, the type of retail platform used by UK clothing firms does not influence their probability of having a next-day delivery option. When extending the analysis to other observable firm characteristics, no difference was found between domestic or foreign, smaller or larger, and younger or older firms, rejecting Hypotheses 3.1, 3.2, and 3.3 respectively. The nationality, size, and age of businesses did not alter the main effect of market concentration on the outcome. This highlights the idea that other firm heterogeneities or industry-specific characteristics may play a larger role in explaining the variation in the likelihood of having a next-day delivery service, in environments with different concentration ratios.

Future research can focus on the peer effects of adopting a next-day delivery service. This entails collecting panel data on when each firm in the sample adopted this strategy, to observe the timing delays between a firm's strategic action and its competitors' responses. These peer effects could influence firm performance, and further analysis on whether longer timing delays negatively affect revenues can be conducted. In addition, to try and identify the firm heterogeneities which influence the outcome, other variables can be interacted with the market concentration, with the focus on unobservable characteristics. These include firm productivity, managerial motivations, or corporate governance. At the same time, analysis with different thresholds for firm size and age grouping can be conducted and compared. This allows for observing whether the results change if different categorization methods are considered, eg *small* takes the value of 1 if a firm has less than 500 employees (not 1,500), and 0 otherwise.

8 References

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Appendix A

Table A. SIC Codes and Warehouse Locations of All Companies

Business Name	SIC Code 1	SIC Code 2	Warehouse Location
Asos.com Ltd	47910		Lichfield, England
Next Retail Ltd	47910	47710	Rotherham, England
JP Boden (Holdings) Ltd	47910		Leicester, England
The White Company (U.K.) Ltd	47710	47910	Northampton, England
All Saints Retail Ltd	47710		Aylesford, England
Regatta Ltd	47710	47910	Urmston, England
Karen Millen Fashions Ltd	47710		Manchester, England
Missguided Ltd	47710	47910	Manchester, England
Oasis Fashions Ltd	47710		Burnley, England
French Connection Group Ltd	47710		Purfleet, England
Gant UK Ltd	47710		Hemel Hempstead, England
TK Maxx Ltd	47710		Rugby, England
Seasalt Ltd	47710		Falmouth, England
Matalan Retail Ltd	47710		Halifax, England
Prettylittlething.com Ltd	47910		Sheffield, England
Superdry PLC	47710	47910	Cheltenham, England
Marks and Spencer PLC	47190		Newark, England
Farfetch UK Ltd	47910		Manchester, England
C. & J. Clark International Ltd	47910		Somerset, England
Gymshark Ltd	47190		Lutterworth, England
Office Holdings Ltd	47910		Kilmarnock, Scotland
Liberty Ltd	47710	47910	Swadlincote, England
Woolovers Ltd	47910		Burgess Hill, England
Diesel (London) Ltd	47710		Tilbury, England
Beatrice and George Ltd	47710		Tunbridge Wells, England
Route One Newco Ltd	47710	47910	South Gloucestershire, England

Hip Store Ltd	47710		Rochdale, England
Fenn, Wright and Manson Ltd	47710		Corby, England
H&M Hennes & Mauritz UK Ltd	47710		Milton Keynes, England
Pepe Jeans London Ltd	47710		London, England
Tessuti Ltd	47710		Rochdale, England
Brandalley UK Ltd	47910		Rushden, England
Burberry Ltd	47710		London, England
The Edinburgh Wollen Mill (Group) Ltd	47910		Langholm, Scotland
Footasylum Ltd	47710	47910	Manchester, England
Fat Face Ltd	47710		Havant, England
Pheasant Clothing Ltd	47710		Mansfield, England
BM Retail Ltd	47710		Cardiff, Wales
Monsoon Brands Ltd	47710		Wellingborough, England
Fred Perry Ltd	47710	47910	Kent, England
Yours Clothing Ltd	47710		Peterborough, England
White Stuff Ltd	47710		Leicester, England
Lands' End Europe Ltd	47910		Rutland, England
Cavendish Holdco Ltd	47910		London, England
Jojo Maman Bebe Ltd	47910		Newport, Wales
I Saw It First Ltd	47710		Wakefield, England
Robinson Webster (Holdings) Ltd	47710	47910	Swindon, England
J. Barbour & Sons Ltd	47710	47910	South Shields, England
Ghost Ltd	47710		Enfield, England
Hobbs Ltd	47710		London, England
Joules Ltd	47710		Leichestershire, England
Kitri Ltd	47710		London, England
Me and Em Ltd	47710		Leeds, England
Selective Marketplace Ltd	47710	47910	Leicester, England

Reiss Ltd	47710	47910	Leicester, England
Rixo Ltd	47710		London, England
Toast (Mail Order) Ltd	47710	47910	Swansea, Wales
Whistles Ltd	47710		Hemel Hempstead, England
Crew Clothing Co. Ltd	47710		London , England
Rohan Dixon Clothing Ltd	47710	47910	Milton Keynes, England
Tootal Fabrics (UK) Ltd	47710		Alfreton , England
Bershka UK Ltd	47710		London, England
Fabric For Freedom Ltd	47710		London, England
In the Style Fashion Ltd	47910		Oldham, England
Monki Ltd	47710		Milton Keynes, England
City Chic Collective UK Limited	47910		London, England
Pull & Bear UK Ltd	47710		London, England
Nasty Gal Ltd	47910		Manchester, England
Warehouse Fashions Ltd	47710		Manchester, England
URBN UK Ltd	47710		Alwalton , England
The Pure Collection Ltd	47910		Burgess Hill, England
Beyond Retro Ltd	47710		London, England
Get the Label Ltd	47910		Warrington, England
Sister Jane UK Ltd	47710		London, England
Selfridges & Co. Ltd	47190		London, England
Ann Summers Ltd	47710		Whyteleafe, England
Cos Ltd	47710	47910	Edinburgh, Scotland
Maison Threads Ltd	47710		Bradford, England
Newbie Ltd	47910		East Grinstead, England

Notes: Table A shows the SIC codes and warehouse locations of all firms in the sample. The business name represents the legal name of each firm, as found one the official UK company registry. The abbreviations *Ltd* and *PLC* stand for *Limited* and *Public Limited Company* respectively. The SIC codes represent the nature of business, as found one the official UK company registry. The warehouse locations represent the cities in which each firm's warehouse is located.

Appendix B

Table B. Probit Regression Results and the Average Marginal Effects (AME) for the Probit (2) Model.

	Probit (2)	**AME (2)**
CR4	0.432	0.041
	(0.331)	(0.034)
Population	8.15e-08*	7.78e-09*
	(4.64e-08)	(0.000)
Patent_applications	-.004	-0.000
	(0.005)	(0.000)
Distance_warehouse	-0.008***	-0.001***
	(0.001)	(0.000)
Asos	-1.439	-0.350
	(0.945)	(0.357)
Next	-3.030***	-0.861***
	(0.932)	(0.157)
Boden	-1.127	-0.238
	(1.070)	(0.356)
WhiteCompany	-0.802	-0.140
	(0.945)	(0.250)
AllSaints	-1.411	-0.339
	(0.936)	(0.352)
Regatta	-2.686***	-0.789***
	(0.909)	(0.223)
KarenMillen	-1.688*	-0.447
	(1.022)	(0.399)
Missguided	-2.632***	-0.776***
	(0.877)	(0.226)
Oasis	-1.677*	-0.442
	(1.013)	(0.395)
Fconnection	-0.207	-0.023

	(0.947)	(0.124)
Gant	-1.225	-0.271
	(0.922)	(0.323)
TKmaxx	-1.718*	-0.459
	(0.914)	(0.357)
Seasalt	0.165	0.014
	(0.914)	(0.065)
Matalan	-1.737*	-0.466
	(1.015)	(0.396)
PrettyLittleThing	-2.362**	-0.697**
	(0.992)	(0.319)
Superdry	-1.126	-0.237
	(0.948)	(0.314)
MnS	-2.506***	-0.741***
	(0.859)	(0.246)
Farfetch	-5.039***	-0.960***
	(0.959)	(0.010)
Clarks	-0.266	-0.031
	(1.067)	(0.152)
GymShark	-1.712*	-0.456
	(0.915)	(0.358)
Office	-1.985**	-0.563
	(1.000)	(0.382)
Liberty	-2.369***	-0.699**
	(0.856)	(0.270)
Woolovers	-0.615	-0.095
	(0.923)	(0.203)
Diesel	-4.641***	-0.958***
	(1.005)	(0.013)
BeatriceGeorge	-0.715	-0.118
	(0.919)	(0.223)
RouteOne	-1.905**	-0.532
	(0.927)	(0.356)

HipStore	-1.694*	-0.449
	(1.017)	(0.397)
FWM	-0.926	-0.174
	(0.944)	(0.274)
HnM	0.688	-0.111
	(1.077)	(0.255)
PepeJeans	-0.256	-0.030
	(1.074)	(0.152)
Tessuti	-1.611*	-0.416
	(0.927)	(0.359)
Brandalley	-2.615***	-0.771***
	(0.832)	(0.218)
Burberry	-2.171***	-0.632**
	(0.830)	(0.292)
WollenMill	-2.630***	-0.775***
	(0.947)	(0.245)
Footasylum	-4.209***	-0.953***
	(0.960)	(0.023)
FatFace	-1.960**	-0.552*
	(0.830)	(0.315)
Pheasant	-1.399	-0.334
	(1.045)	(0.391)
Bmretail	-2.728***	-0.800***
	(0.879)	(0.208)
Monsoon	-1.436	-0.349
	(0.922)	(0.348)
FredPerry	-0.075	0.008
	(1.074)	(0.116)
YoursClothing	-1.016	-0.202
	(1.064)	(0.331)
WhiteStuff	-2.339***	-0.689**
	(0.854)	(0.274)
LandsEnd	-1.755*	-0.473

	(0.911)	(0.355)
Cavendish	-0.199	-0.022
	(0.949)	(0.123)
JojoMaman	-1.364	-0.321
	(0.954)	(0.354)
ISawItFirst	-3.357***	-0.906***
	(0.937)	(0.098)
RobinsonWebster	-1.341	-0.313
	(0.921)	(0.338)
Barbour	-1.738*	-0.466
	(1.019)	(0.399)
Ghost	-0.349	-0.044
	(1.074)	(0.172)
Hobbs	-1.674*	-0.044
	(0.858)	(0.172)
Joules	-2.183**	-0.636
	(0.850)	(0.297)
Kitri	-0.256	-0.030
	(1.074)	(0.152)
MEandEM	-1.604	-0.414
	(1.019)	(0.396)
Poetry	-1.812**	-0.496**
	(0.912)	(0.354)
Reiss	-1.021	-0.203
	(0.947)	(0.294)
Rixo	-0.256	-0.030
	(1.074)	(0.152)
Toast	-1.041	-0.210
	(0.962)	(0.304)
Whistles	-0.447	-0.061
	(0.948)	(0.172)
CrewClothing	-0.256	-0.030
	(1.074)	(0.152)

RohanDixon	-0.741	-0.124
	(1.075)	(0.268)
TootalFabrics	-1.374	-0.325
	(1.052)	(0.390)
Bershka	-0.271	-0.032
	(1.079)	(0.155)
Fanfare	-0.256	-0.030
	(1.074)	(0.152)
InTheStyle	-2.649***	-0.780***
	(0.909)	(0.231)
Monki	-0.688	-0.111
	(1.077)	(0.255)
Evans	-0.959	-0.184
	(0.920)	(0.275)
PullAndBear	-5.727***	-0.961***
	(0.937)	(0.010)
NastyGal	-1.688*	-0.447
	(1.022)	(0.399)
Warehouse	-2.213**	-0.646**
	(0.903)	(0.310)
Anthropologie	-1.010	-0.200
	(1.066)	(0.330)
PureCollection	-0.615	-0.095
	(0.923)	(0.203)
BeyondRetro	-0.301	-0.037
	(1.077)	(0.161)
GetTheLabel	-1.715*	-0.457
	(1.019)	(0.398)
SisterJane	-0.292	-0.035
	(1.077)	(0.160)
Selfridges	-5.727***	-0.961***
	(0.937)	(0.010)
AnnSummers	-0.780	-0.134

	(0.922)	(0.238)
Cos	-1.396	-0.333
	(1.098)	(0.416)
MaisonThreads	-1.743*	-0.468
	(1.015)	(0.396)
Constant	4.849***	
	(0.929)	
Number of Observations	948	948

Notes: This table shows the results of Probit (2) and its corresponding Average Marginal Effects (AME). The dependent variable is *fast_delivery.* The independent variables are stated in the rows. Standard errors are reported in parentheses. * p<0.1 **p<0.05 ***p<0.01

Table B shows the full regression results of the Probit (2) model, including all individual firm FE. *Newbie* is taken as the reference variable, omitting it from the model. Out of 78 firms included in the model, 37 were found to have significant coefficients. All significant results are negative, suggesting that on average, almost half of the companies are less likely to offer a next-day delivery service, when compared to *Newbie*. When comparing Columns (1) and (2), it is observed that for *KarenMillen, Oasis, TKmaxx, Matalan, GymShark, Office, RouteOne, HipStore, Tessuti, LandsEnd, Barbour, Hobbs, Joules, NastyGal, GetTheLabel,* and *MaisonThreads*, after calculating the average marginal effect, the coefficients become insignificant. Therefore, for these firms, only their association with *fast_delivery* can be concluded. That is, they are all less likely to offer next-day deliveries than *Newbie*.

Column (2) can be used to quantify the fixed effects of the remaining firms with significant coefficients. Compared to *Newbie,* most firms are highly unlikely to adopt a next-day delivery service. That is, on average *Selfridges, PullaAndBear, ISawItFirst, FootAsylum, Farfetch* and *Diesel* are more than 90% unlikely to offer next-day delivery services than *Newbie,* at a 1% significance level. Similarly, *Next, Bmretail, Regatta, WollenMill, Missguided, InTheStyle, Brandalley* and *MnS* are more than 70% but less than 90% less likely to adopt next-day deliveries than *Newbie,* at a 1% significance level. *Liberty, PrettyLittleThing, WhiteStuff, Warehouse* and *Burberry* have on average, a probability to offer next-day delivery services of between 60% and 70% lower than *Newbie*, at a 5% significance level. Lastly, FatFace and

Poetry, on average, are around 50% less likely to adopt a next-day delivery strategy than Newbie, at 10% and 5% significance levels accordingly.

Probit (2) shows that there are other factors, besides the market characteristics, which can impact strategic decisions, such as the firm-specific values and attributes, suggesting that the companies are heterogeneous. This provides additional information for not rejecting Hypothesis 3.