

Ex Post Merger Evaluation in the UK Retail Market for Books

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Abstract: The paper empirically evaluates the effects of a merger between two book retail chains in the UK. We build an original dataset of book titles with data on the prices at the store level and at the national level. We then apply difference-in-differences techniques to assess the impact of the merger. A key feature of the books market is that titles become obsolete very quickly. Therefore, we compare different titles before and after the merger in an hedonic approach. Since retail mergers may have either local or national effects (or both) according to the level at which retail chains set prices, we undertake an ex post assessment of the impact of the merger both at the local level and at the national level. At the local level, we compare the changes in the average price charged before and after the merger in the shops located in overlap areas (i.e. areas where both chains were present before the merger) and in non-overlap areas (i.e. areas where only one chain was present before the merger). Our results do not show any significant difference between non-overlap and overlap areas where the merger could have been expected to generate the strongest effect. To investigate the effects of the merger at the national level, we employ two distinct control groups, namely the competitors and the top-selling titles. In both cases we find that the merger did not result in an increase in prices at the national level.

Keywords: Mergers, Ex post Evaluation, Book market, Retail sector

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1. Introduction

Mergers in retailing markets are an important phenomenon. There has been an increasing number of retailing mergers in recent years which have been reviewed by the European Commission (EC). Several of these concentrations have been challenged by the EC and were approved only under particular conditions and obligations (see Figure 1). Mergers in these sectors present some specific features that differentiate them from concentrations in other markets and that should be taken into account both in the merger review process and in any retrospective study.¹ Generally speaking, retail industries are characterized by a high degree of concentration, the presence of vertical structures, and relevant buyer power. Another specific feature of retail markets is the interplay between local and national competition. Retail businesses generally have multiple outlets across a country, but the retail offer may be set either nationally or locally. This aspect is particularly relevant for merger assessment, since it implies that one should evaluate the impact of the merger both on local competition and on national competition.

[insert Figure 1 here]

Despite the growing interest in the policy arena, very little work has been done so far on the ex post evaluation of mergers in the retailing sector.² Moreover, most studies analyze mergers in the food retail sector. Other retail markets are however also important. Among these, the markets for creative goods – like music records, movies, video games, software and books – share some peculiar features. They are generally characterized by a very short life cycle (like fashion products) but furthermore by uncertain demand and short profitability. Moreover, they can be considered experience goods, and are characterized by the fact that there are no repeated purchases of the same product.³ In this respect, these products could be compared to semi-durable goods like the appliances analyzed by Ashenfelter et al. (2011).

With regard to books, due to demand uncertainty forecasting the success of a single title is not an easy task. As shown by Beck (2007), different titles may have different sales pattern, which are difficult to predict, since there are several factors that contribute to the success of a title.⁴ Moreover, also retailers' promotions, which may differ by category of

¹ As an example of the attention that antitrust agencies are increasingly devoting to retail mergers, see the joint Competition Commission/Office of Fair Trading report on retail mergers (Competition Commission and Office of Fair Trading, 2011).

² One notable exception is Skrainka (2012), who studies the effects of the merger between two UK grocery retailers using consumer data.

³ These features of the book industry are reported by Canoy et al. (2006).

⁴ Some papers analyzed the effect of word of mouth and critics on book sales (Beck, 2007 and Clement et al., 2007 on German data; Chevalier and Mayzlin, 2006, for online retailers), others (Sorensen, 2007) analyze the

titles, seem to play a role in determining the success of certain titles. Therefore, generally speaking, each title is a short-lived product, whose pattern of sales is largely unpredictable. This implies that a single product may have a different value to consumers in different periods of time. From the point of view of ex post merger analysis, it is therefore not correct to identify the effect of the merger simply looking at the prices of each product before and after the merger.

In this study we follow one strand of the growing literature on retrospective merger policy evaluations and analyze the merger between two large UK books retailers, Waterstone's and Ottakar's, which had been cleared by the UK Competition Commission (CC) in 2006.⁵ The aim is to provide an additional methodological piece on how to possibly address the challenges posed by the kind of products and by the kind of competition described above. A key feature of retail mergers is that they may have either local or national effects (or both), according to the level at which retail chains set prices. In our case, even if the CC did not find evidence of local competition on prices before the merger, we want to check whether the merger created an incentive to change the national policy in response to local competition, or to change the price on a national level reflecting changed local conditions. From the methodological point of view, this also allows us to provide alternative instruments to assess the effect of mergers when the aggregation level of the data differs. At the local level, we employ a Difference-in-Difference (DiD) approach comparing the price evolution of a selected sample of the merging parties' titles in areas where the merging firms competed before the merger (overlap areas) with the price evolution of the same sample of titles in areas where only one chain was present (non-overlap areas). We do not find any significant difference in prices after the merger between non-overlap and overlap areas where the merger should have been reasonably expected to generate the strongest effect. At the national level, we also employ a DiD approach. We estimate the impact of the merger on the price of the selected titles relying on two different control groups: i) the same titles sold by the competitors and ii) the books in the top title category⁶, which are expected to be less affected by the merger given the high degree of competition from other retailers such as supermarkets and the internet. In both cases we find that the merger did not result in a price increase at the national level.

role of bestseller lists. Schmidt-Stölting et al. (2011) analyze the different impact of several factors on hardcover and paperback editions in Germany.

⁵ See HMV Group plc / Ottakar's plc, 12 May 2006, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2006/fulltext/513.pdf.

⁶ In any given year "top titles" are the two hundreds most sold books.

We conclude that the merger per se does not appear to have had any impact on price competition, even though this is observed to increase during the sample period mostly due to structural changes in the industry and, in particular, to the rapid growth of low-cost retailers, such as online bookstores and supermarkets. Therefore, the CC's decision to approve the merger seems to have been the appropriate one if indeed competition occurs at the price level.

We contribute to the literature on ex post merger evaluation in several respects. From the methodological point of view, we add to the strand of literature that employs a DiD approach for assessing the validity of merger decisions by applying it to a setting where the limitations of this approach are not very severe.⁷ In particular, as Friberg and Romahn (2012) point out, one challenge in the application of such methodology is the difficulty of properly identifying a before-merger period and an after-merger period. In our setting, however, the definition of the timing of the merger does not pose particular problems, also because the merger was cleared without any remedies.⁸ Moreover, as discussed above, the different aggregation level of our dataset allows us to perform the DiD exercise using different control groups, both at the local and at the national level, thereby alleviating another potential shortcoming of this methodology (i.e. problems due to the choice of an appropriate control group).

Another contribution of our paper to the literature on ex post merger review lies on the fact that this is one of the first studies to perform an analysis of the effect of a merger in the retailing sector. As outlined in a joint report by the CC and the Office of Fair Trading (Competition Commission and Office of Fair Trading, 2011), it is often difficult to find evidence of local effects of mergers because of data limitations. This is an advantage of our case study since we have suitable data both at the local level and at the national level.

The retail market for books is particularly interesting as a case study since, as explained above, it involves goods with peculiar characteristics. From a methodological viewpoint, the feature of short life cycle and demand uncertainty which characterizes the products under examination poses challenges to the empirical analysis, since it does not allow us to employ a constant sample of products over time. For this reason, rather than only using the same titles before and after the merger, we choose to compare different ones, but with very similar

⁷ Other papers which pursued the DiD methodology in merger analysis are Focarelli and Panetta (2003); Hastings (2004); Chandra and Collard-Wexler (2009); Ashenfelter and Hosken (2010); Ashenfelter, Hosken and Weinberg (2011). See Weinberg (2008) and Hunter, Leonard and Olley (2008) for a survey. Another strand of literature follows instead a structural approach. Among the most recent contributions, see Friberg e Romahn (2012) and Skrainka (2012).

⁸ See Section 2.1 for further details on the merger.

characteristics.⁹ Any difference in price due to these characteristics can be controlled for by using the hedonic price approach which models prices as a function of the characteristics of the products.¹⁰ This allows us to compare the prices of products that vary over time and still identify the effect of a policy change (the merger decision) on these prices, since the regression accounts for the changes in the characteristics of the products that may impact on prices. A similar problem is faced by Ashenfelter, Hosken and Weinberg (2011), who analyze the price effects of a merger between two appliance manufacturers in the US. Dealing with products with short lifetimes, they also use a model with product characteristics to account for product quality. Unlike them, however, we explicitly build a post-merger sample of titles which is representative of the entire population of titles in terms of observable characteristics.¹¹ Our methodological framework could therefore be applied to other mergers in this industry,¹² or in related industries sharing the same features.

In the next Section we discuss the institutional setting, and in particular the characteristics of the book industry and the merger. We then present our empirical strategy in Section 3. Section 4 contains a description of our dataset. We discuss the results of our econometric analysis in Section 5. Section 6 concludes.

2. The Book Industry and the Merger

The supply chain of the book industry is characterized by three groups of players: publishers, wholesalers, and retailers. Publishers lie at the top of the value chain. They work with authors and produce the books. Although the UK has over 10,000 publishers, in 2005 the ten largest groups represented more than half of total consumer sales, both by value and volume. Wholesalers represent the bridge between publishers and retailers, as they non-exclusively purchase from the former and sell to the latter. They mainly supply independent bookshops (i.e. retailers with up to five outlets) but also internet shops and other retailers.

Retailers can be classified into three broad groups:

- a) retailers specialized in the sales of books, as well as small independent bookshops;

⁹ Another example of short-lived products are music records, movies and videogames (see Beck, 2007). We employed a similar methodology in the assessment of the effects of another merger between two retailers of videogames (GAME Group plc and Game Station) in the UK (see Aguzzoni et al., 2011).

¹⁰ See Pakes (2003).

¹¹ See Section 4 for a description of the criteria adopted for the selection of post-merger titles.

¹² Other recent merger cases in the book retailing industry are LAGARDERE / NATEXIS / VUP (Case No COMP/M.2978, 2004), EGMONT / BONNIER (Case No COMP/M.4611, 2007), and the Norli/Libris case (Norway, 2011).

- b) non-specialist retailers for which books are either an important category, or for which books are part of a wide range of goods, such as supermarkets and major multiples; and
- c) online only book retailers.

These categories differ in the range of titles they hold: specialist shops and online retailers offer a large selection, whilst supermarkets and major multiples hold fewer (mainly best-selling) titles.

In the retail book market, pricing takes the form of setting the level of the discount off the recommended retail price (RRP), which is printed on the book by the publishers and acts as a ceiling for the retail price. Publishers generally set the RRPs according to estimates on what the market would bear (taking into account the expected discounts offered by retailers) and to cost-related demand shifters (type of binding, presence of colored images, etc.).¹³

In the UK market, discounts are generally larger for bestsellers than for deep-range titles. In 2005, the average discount on RRPs, across all retailers, was equal to 40% for the former category and 10% for the latter.¹⁴ Our empirical framework enables us to analyze pricing strategies by title category, where categories are defined on the basis of sale ranking.¹⁵

The prices offered by retailers are, to some extent, influenced by the discounts they are able to negotiate upstream. In general, independent bookshops receive the lowest discounts and supermarkets and book clubs the highest. The structure of discounts comprises a standard discount, typically over the entire publisher's range, and a promotional discount for some specific titles. Price-promoted books are generally prominently displayed by retailers. Nonetheless, there are other activities to attract consumers, including: book reviews and bestseller lists in newspapers and magazines, direct advertising to consumers, and publicity events (e.g. book signings and author readings).¹⁶

We analyze the UK book industry around the time when the merger between two of the major book retailers (Waterstone's and Ottakar's) took place. Table 1 reports the national market shares for book retailers in 2005, the year when the merger was announced.

[Insert Table 1 here]

The main trends, up to 2005, had been a sharp growth in the market share of supermarkets and online retailers (both increased by 4% between 2001 and 2005), and a decrease in the share of

¹³ Clerides (2002) provides evidence of the fact that book prices seem to depend more on cost-related demand shifters than on pure demand shifters (new editions, author's previous publications). Beck (2004) empirically analyzes the role of resale price maintenance in the book industry.

¹⁴ See HMV Group plc / Ottakar's plc, 12 May 2006, available at: http://www.competition-commission.org.uk/assets/competitioncommission/docs/pdf/non-inquiry/rep_pub/reports/2006/fulltext/513.pdf.

¹⁵ See Section 4.2 for a definition of the categories used in our empirical analysis.

¹⁶ See Sorensen (2007) for an assessment of the impact of bestseller lists on book sales.

non-internet distance sellers (principally book clubs). Anecdotal evidence from a survey that we ran on market participants suggests that growing pressure from online retailers from supermarkets in the years under examination.¹⁷ This seems to be due to their aggressive discounts policy.¹⁸

With regard to the degree of concentration, at the time of the merger the combined share of the merging parties was 24%. The shares of the four largest retailers (i.e. WHSmith, Waterstone's, Ottakar's and Borders) summed up to 45% (55% if only deep-range books were considered).

2.1 The Merger

On August 2005 two of the major book retailers, Waterstone's and Ottakar's, announced their willingness to merge. The Competition Commission opened a merger procedure and, on May 12th 2006, cleared the merger unconditionally. At the time of the merger, Waterstone's was controlled by the HMV Group.¹⁹ Waterstone's, the book-retailing segment, had 190 stores in the UK with a selection of titles generally carrying between 30,000 and 40,000. Ottakar's was established in 1987 with the aim to create a chain of bookshops in market towns throughout the UK. Since then, it had grown both organically and through acquisitions and, on December 31st 2005, it had 141 stores carrying between 20,000 and 30,000 titles.

The CC defined the product market as the retail sale of new books to consumers. It also considered to further segment the market between best-sellers (the 5,000 top-selling titles in a given calendar year) and deep-range titles (the remaining titles). The CC found evidence that the competitive conditions on the two segments could differ as supermarkets and internet retailers' commercial offer focused on best sellers, but it then rejected this definition since there were no retailers selling only deep-range titles and the distinction between deep-range and best-seller titles was somewhat arbitrary.

Concerning the geographical dimension, the CC also considered whether competition was at the national or local level by examining three dimensions of competition: prices, range of titles stocked and service quality. The CC found that the parties usually set uniform national prices and, as a result, local competition was generally in terms of titles range and service quality. The CC analyzed the possible difference in range at the parties' stores in overlapping

¹⁷ See Appendix 4.

¹⁸ We cannot investigate this issue since we only have aggregate data on all competing retailers, including specialist ones.

¹⁹ The HMV group is a global entertainment retail chain. It bought the Waterstone's chain in 1998 and merged it with its own bookstore chain called Dillon. The HMV group eventually sold the Waterstone's chain in 2011.

locations with respect to non-overlapping ones but it concluded the presence of a competing Waterstone's or Ottakar's store nearby made no difference on the size of the range stocked, and this was mostly determined by the size of the store.

The CC also looked at several other factors potentially affecting the service quality within stores: number of staff, level of staff experience, book signings, opening hours, and the number and timing of refurbishments relative to competitor store openings. It found noticeable differences between overlap and non-overlap locations only in relation to book signings and store refurbishments but, based on the results of customer surveys, it concluded that these were not key competitive variables since not central to a bookshop's offer for most consumers.

3. Empirical Strategy

The analysis we undertake aims at evaluating the effects of the Waterstone's/Ottakar's merger on the retail market for books in the UK. Since commercial data providers only hold data on prices, while all the information on the range of books stocked and on the quality of service are held by the retailers themselves, our econometric analysis focuses on the effects of the merger on the price dimension. The price variable of interest is the discount applied to RRP, because this is the variable retailers compete on. Nonetheless, for the sake of simplicity, we often refer to prices and price competition in the text.

During its investigation, the CC analyzed the geographic extent of price competition and concluded that Waterstone's and Ottakar's stores applied uniform national prices before the merger. Nonetheless, we want to allow for the possibility that the parties had moved to a locally-based price competition following the merger. Since our choice of the empirical strategy depends on whether competition, over the period examined, took place at the local or at the national level, as a preliminary step we evaluate the geographic extent of price competition. To address this issue we undertake a statistical analysis of price variability across Waterstone's and Ottakar's stores (see Section 5.1). As we show below, the results are not conclusive. We find some variability, which indicates that prices are to some extent set on the basis of the local market conditions. Yet, the degree of this variability is limited and may be due, at least partially, to the presence of bundle sales²⁰. Hence, as we could not establish the exact geographic dimension of price competition, we carry out two distinct analyses: one

²⁰ When two or more books are sold in bundles ("buy 3 pay 2") the size of the discount attributed to each book could be somehow arbitrary as it depends on the bundle itself. Hence two bookstores adopting the same bundle policy might register different discounts for the same book depending on the type of bundles sold.

on discounts at the local level and one on discounts aggregated nationally. For the purpose of this paper, this allows us to show how one can run different types of empirical exercises when the data availability varies in the degree of aggregation.

3.1 Local Competition: The Empirical Strategy

To evaluate the merger's effect on discounts at the local level we carry out a DiD analysis in which we compare the change in discounts before and after the merger in the overlap areas (the treatment group) with the change in discounts over the same period in the non-overlap locations (the control group). The hypothesis we test is that, if local managers were free to set prices at the store level and the merger had anticompetitive effects, these effects should have been larger in the overlap areas, because of the reduction in local competition. We therefore adopt the following general estimation equation:²¹

$$disc_{ist} = \alpha + \beta \cdot post_merger_{ist} + \lambda \cdot overlap_s + \delta \cdot post_merger_{ist} \times overlap_s + \gamma \cdot X_i + \mu \cdot Z_{st} + \varepsilon_{ist} \quad (1)$$

where $disc_{ist}$ is the discount on the recommended retail price on title i granted in store s at time t , α is a constant, $post_merger_{ist}$ is a dummy equal to 1 for the titles observed in the post-merger period and 0 before, while $overlap_s$ is a dummy equal to 1 for the titles sold in overlapping stores and 0 otherwise, X_i is a set of title-specific control variables, Z_{st} is a set of variables aimed at controlling for changes across time in local market features, and ε_{ist} is the error term.²²

Our key variable is the interaction between $post_merger_{ist}$ and $overlap_s$, whose coefficient (δ) measures the price change in overlap locations relative to the price change in non-overlap areas. This coefficient quantifies the additional variation experienced by the prices in the overlap areas with respect to the average price change in the non-overlap areas. In what follows we refer to the interaction variable as *TrEff*. The $post_merger$ coefficient (β) measures any price change (between the pre-merger and the post-merger period) common to all locations, while the coefficient γ , related to the *overlap* regressor, accounts for any idiosyncratic differences between overlap and non-overlap areas that are not related to the merger.

²¹ We estimate this equation using either fixed effects or random effects and we include a time trend and a time fixed-effect. These different specifications are discussed below.

²² We test for autocorrelation in the error process by means of the Wooldridge test. We find that the null hypothesis of no autocorrelation is strongly rejected. We thus control for this problem by clustering the error at title and store level. As a further robustness check we also estimate regressions in which we impose an AR(1) error structure on the model. The resulting estimates are similar to those obtained by clustering the error.

3.2 National Competition: The Empirical Strategy

As for the analysis at the local level, we perform a DiD exercise also to investigate the effects of the merger on prices at the national level. A major issue in implementing this analysis is the identification of a suitable control group. We employ two different ones. First, we use the prices charged by the rival firms.²³ This control allows us to disentangle the merger effect from any common factors affecting both the treatment and the control group. Indeed exogenous supply or demand shocks affecting the whole industry should be expected to hit in a similar way the prices of the merging parties and those of their competitors. However, if firms compete on prices, the discounts applied by all retailers in the market are likely to be correlated and, thus, the merger may affect not just the discounts granted by the parties, but also those granted by their competitors. Hence this would suggest that the prices of the competitors are not a valid control group. Nonetheless, according to the theoretical findings of Deneckere and Davidson (1985), the merging parties should increase prices by more than rivals, i.e. reduce their discounts less. Thus, comparing the change in prices of the merging parties to that of the competitors may still provide a useful estimate of the effects of the merger. In this case the general estimation equation is:

$$disc_{ijt} = \alpha + \beta \cdot post_merger_{ijt} + \lambda \cdot merged_j + \delta \cdot post_merger_{ijt} \times merged_j + \gamma \cdot X_i + \mu \cdot Z_t + \varepsilon_{ijt} \quad (2)$$

where $disc_{ijt}$ is the discount on the recommended retail price on title i granted by retailer j at time t , α is a constant, $post_merger_{ijt}$ is a dummy equal to 1 for the titles observed in the post-merger period and 0 before at retailer j , $merged_j$ is a dummy equal to 1 for the titles sold by the merging parties and 0 otherwise and measures the time-invariant difference between the merging parties and their competitors. X_i is a set of title-specific control variables and Z_t is a set of variables aimed at controlling for changes across time in the demand and supply conditions at the national level. As above, the key variable is the interaction between $post_merger_{ijt}$ and $merged_j$, whose coefficient (δ) measures the price change, attributable to the merger, of the merging parties relative to the price change of competitors.²⁴ In what follows we refer to this interaction variable as *TrEffl*.

²³ Ashenfelter et al. (2011) use a similar control group to identify the effect of the merger between Maytag and Whirlpool. However, since in their case the merging firms are manufacturers, their control group are rivals' products within each appliance category. In our case, instead, we compare the same titles sold by competing retailers.

²⁴ Like for the analysis at the local level, we test for autocorrelation in the error process and find that the null hypothesis of no autocorrelation is strongly rejected when the data are aggregated nationally. In order to control for this problem, we cluster the error at the level of title.

The DiD approach relies on the key assumption that the treatment (the merging parties) and control group (the competitors) are subject to a same common trend. However, this might not be the case, as the analysis in Section 5.3 suggests. Hence, we also perform a DiD exercise in which we use a different control group, namely the top-selling titles.²⁵ The top-sellers appear to be the category where the merging parties face the greatest competition, as these titles are sold by all types of retailers and, in particular, by supermarkets which have the most aggressive pricing policy. Therefore, the merger could be expected to have produced no effects, or very limited ones, on the prices of these titles. The estimation equation is then as follows:

$$disc_{ikt} = \alpha + \beta \cdot post_merger_{ikt} + \lambda \cdot titlecategory_k + \delta \cdot post_merger_{ikt} \times titlecategory_k + \gamma \cdot X_i + \mu \cdot Z_t + \varepsilon_{ikt} \quad (3)$$

where $disc_{ikt}$ is the discount on the recommended retail price on title i in category k at time t , α is a constant, $post_merger_{ikt}$ is a dummy equal to 1 for the titles observed in the post-merger period and 0 before for category k , $titlecategory_k$ is a dummy equal to 1 for the titles (in category k) other than top-sellers and captures the systematic difference (i.e. not related to the merger) between top-selling titles and other categories of titles, and the coefficient δ captures the effect of merger on these latter book categories (i.e. evergreen, best-seller, and deep-range books).²⁶ In the rest of the paper we refer to the interaction between $post_merger_{ikt}$ and $titlecategory_k$ as *TrEff2*. This equation is run only on the merging parties' prices.

Notwithstanding its suitability as control group, we are aware that the post-merger sample of top-selling titles is rather limited and, hence, that small variations on the discount on a single title (or very few ones) may artificially increase/decrease the average discount of the category. In order to address this potential problem, we also carry out a before-and-after analysis, where we compare the pre-merger and post-merger prices of Waterstone's and Ottakar's, while controlling for the cost and demand factors that may have affected their prices independently of the merger. Despite its own limitations,²⁷ we consider it useful to run also a before-and-after exercise to verify the results of the DiD analysis.

3.3 Methodological Issues

²⁵ As we will explain in Section 4.2, we identify four categories to classify the titles, namely best-seller, deep-range, evergreen and top-seller. The latter includes the first 200 best-selling titles in any calendar year.

²⁶ The error term is clustered at the title level.

²⁷ Although in principle it is possible to control for all changes in observable economic factors other than the merger that may affect prices, there might be other factors that are not observable and therefore cannot be controlled for, which may lead to biased estimates.

Random vs. Fixed-effects. Given the panel nature of our data, one of the major methodological issues we have to address is whether to use random or fixed-effects. Ideally we would like to run a regression with fixed effects for each title, so as to capture all the title-specific (unobserved and observed) characteristics that may affect their prices. However, the use of title-specific fixed-effects has the drawback that the effect of the merger on discounts is identified only from titles sold both before and after the merger, because for the books whose prices were observed in only one period the interaction variable is perfectly collinear with the title fixed effects (i.e. it is time-invariant).²⁸ This may affect the estimates because it reduces the size of the sample of titles on which the effects of the merger are actually measured and it does not allow us to capture any change in the prices of the titles published after the merger.²⁹ In our sample this problem arises from two different sources: (i) some of the titles included were published after the merger, and (ii) some of the titles included changed category over the period examined (this is relevant only when we ran the category-specific regressions). The titles which belong to (i) are mainly top-selling titles and, in very few cases, best-sellers and deep-range books, while the titles which belong to (ii) the problem spans across all the categories, since it is frequent that a title moves down or up the ranking from one year to the next. To overcome this problem, when we run the regressions for each category of titles separately, we use a random-effect specification within an hedonic pricing approach. Hence, instead of the title-specific fixed-effects, we include a set of observable characteristics that may affect a title's price.³⁰ However, when we consider the titles altogether, the fixed-effects problem is less of a concern since the potential distortion comes only from titles that are published after the merger. These titles represent only a small fraction of the sample (20 out of 200 titles). Hence, in the pooled regressions we opt for a specification with fixed-effects at title level.³¹

²⁸ In other words, for those titles the fixed-effects specification does not allow us to disentangle how much the prices changed as a result of the merger because the variance of the interaction regressor is already captured by the title's fixed effect.

²⁹ This limit may be serious as, in principle, it is possible that the merged parties may have chosen to increase only the prices of the new titles introduced after the merger was consummated while maintaining the prices of those titles published before the merger.

³⁰ The random-effect specification has a potential drawback as the estimator can be biased if there are unobservable characteristics that systematically changed after the merger occurred. Following the approach of Ashenfelter et al. (2011), we then run the regressions on the sample of titles published before the merger using both a random-effect and a fixed-effect specification. We find that the estimate of *TrEff* is similar under both specifications, thereby suggesting that unobservable product characteristics do not result in bias of the estimator of the random-effect regression.

³¹ To assess the validity of the fixed-effects approach we perform two distinct checks. First, we run a regression with a random-effect specification and conduct a variation of the Hausman test to evaluate the appropriateness of the RE estimation. The test indicates a fixed-effects specification as preferable in this case. Second, we run the RE specification on the entire sample and on a reduced sample where the titles published after the merger are

Merger window. A further methodological issue we have to address is related to the selection of the window of data surrounding the merger to be excluded from the analysis, since we do not know when the merging parties started operating as a single entity. We consider two possible windows (6 and 12 months) around the date of the merger clearance and run all regressions using these different samples. We find that the results are essentially unaffected by the size of the window. We therefore use a window that drops the least number of observations, i.e. the one that excludes only the 3 months around the merger date (3 months before and 3 months after the clearance), as this window allows a more efficient exploitation of the dataset.³²

4. The Data

To perform the analyses described above, we built two different datasets, one with data on discounts at store level and one with average national discounts. We acquired data from Nielsen on the volumes and values of the books sold by 60 of HMV's stores for over 200 titles. Nielsen provided us with weekly figures on these volumes and values (and with data on some book specific characteristics) for each selected title both at store level and aggregated at the national level, from the first week of January 2004 until the last week of December 2007. The following two sections describe how we selected the sample of stores and of titles.

We also gathered information on market characteristics (such as population, GDP, internet penetration, etc.) both at the local and the national level that we used to select the 60 stores covered in our analysis and as control variables in the econometric exercises. All this data was collected from public sources. A description of the control variables that we collected data for is provided in Section 4.3 below.

4.1. The Choice of the Stores

The DiD analysis at the local level requires us to identify the stores to include in the treatment and in the control groups, where the treatment group consists of Waterstone's and Ottakar's stores from overlap areas and the control group consists of Waterstone's and Ottakar's stores

dropped. We do not observe any relevant difference in the significance and magnitude of the coefficients of interest, which further confirms that the FE specification is appropriate as it does not neglect crucial information.³² We are aware the CC's clearance was for an anticipated merger. However, according to press reports, Ottakar's agreed the takeover offer from Waterstone's on May 31st 2006 and all Ottakar's stores were rebranded as Waterstone's by November of the same year, i.e. few months after the clearance. This indicates that the parties merged soon after the clearance and, thus, that this may act as a good proxy of the date when the merger actually occurred. Moreover, the fact that the estimates are essentially unaffected even if we consider a 12-month window supports the view that the results are not sensitive to the exact identification of the merger date.

from non-overlap areas.³³ Ideally, the stores in the control group should closely resemble, in terms of demand and supply conditions, the ones in the treatment group, so that any post-merger difference between the two groups could be attributed to the merger. Hence, we select two groups of shops with homogeneous observable characteristics, so that we can assume that the non-observable characteristics are similarly distributed.

We use price data on a total of 60 stores. Accordingly, we build a sample in which the number of Waterstone's and Ottakar's stores is equally split between overlap and non-overlap areas (i.e. 30 and 30). For the overlap areas, we draw the 30 stores from 20 different areas (out of the 33 overlap areas identified by the CC).³⁴ For 10 overlap areas we select one store for each chain. Then, to increase the coverage of overlap areas, we draw the other five Waterstone's stores from the other five areas and the last five Ottakar's stores from another different set of five areas. Hence, we cover a total of 20 different overlap areas.³⁵ As for the control group, we select 30 non-overlap areas: 15 in which we observe only Waterstone's stores and 15 with only Ottakar's stores.

Overall, the 60 stores in our sample are selected from a total of 50 areas of which 20 are overlap areas and 30 non-overlap areas. Once decided the number of areas and the type of stores required, we have to choose the method for the selection of specific areas and stores to be included in our sample. To this aim we follow an approach based on the so called Propensity Score Matching (PSM).³⁶ PSM postulates that the probability of treatment depends on observable characteristics and the actual assignment is random once one accounts for the predicted probability of treatment. It is then possible to build a control using these predicted probabilities. The intuition of PSM applied to this case is the following. The treatment is the presence of both chains in the same area. We postulate that, although we observe only some "treated areas", the overlap and non-overlap areas may have similar probability of treatment as they share similar demand and supply conditions.

³³ In the definition of overlap and non-overlap areas we follow a similar approach to the one adopted by the CC: "[...] local competition, to the extent that it exists, is concentrated on nearby stores (within the same shopping location), and also encompasses out-of-town stores which may themselves be shopping destinations, such as supermarkets and Borders' superstores. Waterstone's and Ottakar's do not in general have such destination stores and therefore our assessment of local competition was focused on nearby locations, in particular 33 overlap areas, located over the entire breadth of Great Britain." (Cfr. "HMV Group plc and Ottakar's plc Proposed acquisition of Ottakar's plc by HMV Group plc through Waterstone's Booksellers Ltd", 12th of May 2006, pag. 5).

³⁴ Cfr. Appendix E of the CC decision.

³⁵ Differently, we could have decided, for all areas, to draw both a Waterstone's and an Ottakar's store. However, this approach would have limited the analysis to only 15 areas (less than half of the 33 identified areas). We thus decided to increase the scope of our analysis and followed the above proposed selection method.

³⁶ For an introduction to Propensity Score Matching see Cameron and Trivedi (2005) p. 873.

We consider a wide range of local market conditions (population, presence of universities, gross value added, internet penetration, average house prices, etc.) and, based on these, we estimate the predicted probability of treatment (propensity score). Then, for each treated (overlap) area we select the control (non-overlap) area that exhibits the closest propensity score. Appendix 1 contains a more detailed description of the methodology, as well as the final list of stores resulting from the matching process.

4.2. The Choice of the Titles

During its inquiry, the CC considered whether there was a separate market for best-seller and deep-range titles.³⁷ Although it concluded that this was not the case, the CC recognized that the merger may have had a different impact on these titles because of the lower degree of competition that characterised the sale of deep-range titles. Indeed, while best-seller titles faced strong and growing competition, in particular, from supermarkets (and also from non-specialist and internet retailers), deep-range titles appeared less affected because supermarkets and non-specialists stores stocked only a small number of such titles. There is no evidence that the competitive framework between best-seller and deep-range titles has significantly changed since the merger (though supermarkets and non-specialist retailers apparently enlarged the range of the deep-range titles in stock in the recent years). Therefore, we have to account for this difference in our analysis.

In addition, we notice that the best-seller category includes a wide range of titles ranking from 1 to 5,000. These titles differ greatly with respect to the volume sold. For instance, in 2007 the volume of the 200 top-selling titles represented around 33% of the total sales of best-sellers with an average of more than 214,000 copies sold. On the other hand, the 200 books ranked from 4,800 to 5,000 represent just 1% of the total sales and show an average of 7,100 copies sold per title. This lead us to suspect that the retailers' pricing policy may significantly differ even within the best-seller category. In particular, since supermarkets, which are by far the strongest price competitors of the specialist retailers, tend to concentrate their offer on the very top-selling titles, the pricing strategy of the merging parties for these titles might be different from the one adopted on "standard" best-sellers. To capture these potential differences we define a "top-seller" category, which includes the first 200 top-selling titles for a particular calendar year.

³⁷ The CC defined best-seller books as the 5,000 top-selling titles for a particular calendar year and deep-range books as the titles ranked below 5,000. 5,000 was identified by the CC as the threshold separating these two categories, because it appeared to be the point at which discounting began to level off.

We also identify a further set of titles that may show a pricing policy different from “standard” best-sellers, which we call “evergreen”. Evergreen are those titles that are successfully sold for a long period of time. More specifically, this category includes those titles that were among the best-sellers for the entire period under analysis (2004-2007). Unlike most best-sellers, that may perform well in terms of sales during one year and then fall out of the best seller group (i.e. be ranked below 5000) the next one, evergreen titles are sold in reasonable high volumes for many years and appear to be consistently among the best-sellers for a longer period of time. These titles might be in principle subject to a stronger competitive pressure compared to “standard” best-sellers, because they are traded in most of the retail channels. A possible explanation is that stocking evergreen titles might be less risky for those retailers that have limited shelf space for books (i.e. non-specialist retailers and supermarkets), as they can guarantee a quite stable flow of sales. As a result, our definition of best sellers is somewhat different from the CC’s one because it includes titles ranked 200 to 5,000 which are not evergreen.

It must be noted that the status of a title (i.e. whether it is a best-seller, a top-seller, an evergreen or a deep-range title) may vary over time.³⁸ For example, books that are best-sellers in a given year may become deep-range in the following year, similarly top-sellers may quickly fall down the ranking after the year of publication, thereby becoming best-seller or deep-range ones. To account for this fact, we selected a sample of titles that are representative of the different categories for each of the years under examination. This results in an unbalanced panel, where some titles are observed for the entire period while others enter the sample after 2004.

Finally, we also consider other potential sources of differences in the pricing policies, i.e. the type of binding (hardcover vs. paperback) and the genre. The type of binding represents a way of discriminating among consumers with heterogeneous valuation and it is often connected to inter-temporal pricing policies aimed at exploiting the different willingness to pay of consumers.³⁹ It is less clear whether retailers adopt different pricing strategies according to the genre, but we think it is worth investigating also this aspect. Therefore, in order to assess any potential effect of the merger that may affect only books with a specific characteristic and

³⁸ Clearly, with the exception of evergreen titles which are, by definition, best-sellers in every year.

³⁹ See Clerides (2002).

to offer a reasonable representation of the universe of books sold, we include in our sample titles with different types of binding and genre.⁴⁰

We completed our dataset by collecting information for each title in the sample on a number of title-specific characteristics, namely the date of publication, the number of pages, whether it is part of a series and whether it contains figures.⁴¹

Subject to all the above criteria we asked Nielsen to randomly select 200 titles. The table below provides some statistics of the selected sample.

[insert Table 2 here]

Since the type-status of a title may vary from one year to another, the composition of the sample may change too. Given the concerns raised by the deep range titles in the CC's inquiry, we made sure that around 50% of the titles in each calendar year were deep-range, so as to have a representative sample of this category. The table below reports the number of titles included in each category for each year.⁴² The annual size of the sample increases over time as titles published after 2004 are progressively added to the sample.

[insert Table 3 here]

Appendix 2 lists the 200 titles on which we perform the econometric analyses.

4.3. The Control Variables

Besides the title-specific control variables described in the previous subsection, we also built a large dataset of variables to control for demand and supply conditions. We consider several factors that may potentially affect demand and supply in the retailing book market. With respect to the demand side, we collected information on (i) population; (ii) population density; (iii) average sales of books in volumes; (iv) gross value added; (v) number of universities; (vi) level of education; and (vii) the diffusion of internet sales (which we proxy through the level of internet penetration). The first four variables are mainly aimed at controlling for the dimension of the market, while the latter should provide an indication on the local population's propensity to buy books. With regard to the supply side, we gathered data on: (i)

⁴⁰ We employ Nielsen classification of genres, which distinguishes book titles in four macro-categories: (i) Children's, Young Adult & Educational, (ii) Adult Fiction, (iii) Adult Non-Fiction: Trade, and (iv) Adult Non-Fiction: Specialist.

⁴¹ If a book contains figures, publishers need to print coloured versions which in turn may raise the RRP. We do not know whether this may also affect the way retailers set the discounts, however we believe it is worth including this characteristic in the regression as a control.

⁴² Whenever a title could be classified both as evergreen and top-seller, we assume that the latter classification prevails.

potential cost shifters (i.e. the cost of paper and average house prices⁴³); (ii) a measure of the intensity of competition (i.e. the number of retailers operating in a given area).

These variables were collected both at the local and the national level.⁴⁴ The table below provides a description of all these control variables.

[insert Table 4 here]

4.4. Other Data-Related Issues

Categories. As we show later, the different categories of titles seem to exhibit different discount patterns over time. Hence, a pooled regression on all titles might not capture the price movements specific to each category. For this reason we run the regression on each category separately. Nonetheless, we are aware that the classification of the titles we adopted is somewhat arbitrary and that it may not necessarily reflect exactly how retailers set their pricing strategies. Therefore, we also perform a pooled regression run on all the titles together.

Data aggregation. Throughout the analysis we aggregate data at the monthly level, even though Nielsen provided us with weekly figures. This choice was mainly driven by the fact that the weekly sales of a title relative to its monthly sales are lower and present a higher variation, which might introduce too much undue variation in the sample. In particular, when the volumes sold are low, the average price is more affected by typing errors and by the nature of the sales (i.e. whether stand-alone or part of a bundle). By aggregating at the monthly level, the average price is less affected by measurement errors or the presence of bundle sales.

5. Empirical Results

In this section we present the main results of the empirical analysis. Before doing that, we start by briefly discussing the issue of whether price competition is at the local or at the national level.

5.1 Local vs. National Price Competition

To ascertain the geographic extent of price competition among retailers, we calculate the standard deviation of the discounts granted by Waterstone's and Ottakar's across the 60 stores

⁴³ As a proxy of the cost incurred for opening and running a store.

⁴⁴ Except for the cost of paper (*woodpulp*) which is a commodity traded internationally (source: *World Bank*).

in our sample for each title and for each month.⁴⁵ For each title in a given month, we consider the average percentage discount applied by each store selling that title. We then compute the standard deviation of these percentage discounts across stores. Finally, we estimate the distribution function of the standard deviation using a Kernel density estimator. If competition takes place mainly at the national level, one would expect low variability across stores and, thus, that the distribution of the standard deviation concentrates around 0. By contrast, if retailers compete locally, one would expect to observe a density function of the standard deviation which is more evenly distributed.

Figure presents the distribution of the standard deviation of the discount across stores for all the titles together pre and post-merger. The standard deviation across stores is slightly lower (more concentrated around 0) in the post-merger period. However, the reduction in the variability after the merger is limited, which does not suggest any relevant change in the geographic scope of competition.

[insert Figure 2 here]

We also estimate the distribution function of the standard deviation for each of the four categories of titles (see Figure 3). We observe a significant difference in the distribution between the pre-merger and the post-merger period only for top-selling titles, but the variability is always relatively high. From Figure it also emerges that the discount variability seems to differ across categories over the whole period. This suggests that the geographic scope of the pricing policy of Waterstone's and Ottakar's might differ depending on the type of title. In particular, top-selling titles and, to a lesser extent, evergreen ones show a relatively marked standard deviation, which suggests that discounts were set locally. Instead, the discount variability of best-sellers and deep-range titles appears to be lower and to concentrate around 0, which may indicate that for these titles the parties tended to adopt a uniform pricing strategy across the UK.⁴⁶

[insert Figure 3 here]

⁴⁵ The analysis of the price dispersion across stores might be affected, at least to some extent, by the presence of bundle discounted sales in the dataset. Bundle discounted sales, such as "3 for 2", are common across retailers and they are largely used as a promotional activity. Titles included in these bundles are effectively sold at a discount, which is higher than the one applied to stand-alone purchases. This implies that the more titles a store sells through bundle-offers, the lower its average selling price. As a consequence, some price dispersion across stores may be the result of different successful promotional bundle campaigns, rather than of different pricing policies. Unfortunately, we could not control for this problem, as Nielsen does not collect information on whether a book is sold stand-alone or as part of a bundle offer. Therefore, the results relative to the price dispersion across stores must be interpreted cautiously.

⁴⁶ This aspect was further investigated through the analysis of percentiles distribution (see Appendix 3).

Two conclusions can be drawn from the previous analysis on the discount variability across stores. First, we do not find evidence of any relevant change between the pre-merger and post-merger situation with respect to the geographic scope of the pricing policies of Waterstone's and Ottakar's. Second, we observe some discount variability across stores which may indicate that price competition takes place at the local level to some extent both before as well as after the merger. However, the degree of local competition on discounts seems to vary significantly across categories, with deep-range titles at the lowest extreme and top-selling titles at the highest. Overall, the evidence on whether price competition takes place at the local or at the national level cannot be considered conclusive. Hence, we will assess the effects of the merger on prices both on individual stores' prices and on nationally aggregated prices.

5.2 Local Price Competition

As a preliminary step, we plot the monthly average discounts in the overlap and non-overlap locations (see Figure 4). If the merger increased the price (i.e. reduced the discount), we would expect to observe an increase in the vertical distance between overlap and non-overlap lines after the merger. We find that discounts in overlap areas post-merger were not systematically lower than those observed in non-overlap areas and, moreover, that they tended to follow broadly the same pattern. Interestingly, the discounts on best-sellers and deep-range titles seem to have slightly decreased over time. Such a trend apparently started well before the merger. Discounts on evergreen titles decreased over time as well, although the trend is less marked. Instead, the discount pattern for top-selling titles is less clear.⁴⁷

[insert Figure 4 here]

Table 5 reports the results of the DiD regression (estimation equation 1). In the first column, we use the full sample of all titles (with fixed effects for each combination of stores and titles). The coefficient for *TrEff* is not significantly different from zero. Therefore, the merger does not seem to have had a different impact in overlap and non overlap areas. We also consider whether the effects of the merger materializes only in the overlap areas where the merging parties close a store after the merger. The coefficient *TrEff_closed*, which captures the effect of the merger in those areas, is not significant, thereby indicating that not even in

⁴⁷ The more pronounced volatility is partially due the fact that our sample for these titles is small, which implies that a change in the discount applied only to a few titles may significantly affect the average. In particular, in the first four months of 2007 we have only one top-selling title in our sample, which was sold at a very high discount; this explains the sudden increase we observe at the beginning of 2007. This occurrence could affect the results for those titles. Therefore, when running the econometric exercise on top-selling titles, we exclude the data for the first four months of 2007.

those areas do we observe a systematic difference in the prices before the merger relative to those after the merger.

Columns 2 to 5 report the results of the regressions run on best-selling titles, deep-range titles, evergreen titles, and top-selling titles respectively. As extensively discussed above, for these specifications we use a random-effect specification.

[insert Table 5 here]

Again, the terms of interest, i.e. the coefficients for *TrEff* and *TrEff_closed*, are never statistically significant, which seems to confirm that the merger did not adversely affect the discounts applied by the merging parties in the overlap areas. We find a significant and negative time trend for all categories, except the evergreen titles, which is broadly consistent with the graphical analysis. In addition, we also look for shifts in this trend after the merger (the *post_merger* coefficient), and we find statistically significant effects only for deep-range titles, which exhibit a positive shift (+ 2,5%), and for top-selling titles, which have a negative shift (- 2%).⁴⁸ We do not extensively report results on all other control variables, which mostly conform expectations.⁴⁹

In conclusion, the merger does not seem to have adversely affected prices in the overlapping areas where it could have been expected to generate the strongest effects due to the increase in the level of market concentration. This does not rule out the possibility that the parties changed their pricing strategy at the national level as a result of the merger. In order to address this issue, in the next section we analyse the price data aggregated nationally.

5.3. National Price Competition

The analysis of the effect of the merger at the national level is conducted using a DiD methodology with two different groups as controls for permanent time-varying factors: (i) the same titles sold by the competitors of Waterstone's and Ottakar's; and (ii) the top-selling titles

⁴⁸ As a further check we also run the same regressions using time fixed-effects (i.e. we introduced a dummy for each month) instead of a linear trend and the results are broadly similar (see Table A5.1 in Appendix 5).

⁴⁹ We observe some common and statistically significant effects relative to the title characteristics. First, around Christmas the discounts (*season*) tend to be higher (except for deep-range titles). Second, paperback titles (paperback) are associated with lower discounts compared to hardcover titles (except for the top-selling titles). Third, the discounts appear to be lower (except for deep range books) as the time elapsed from the publication (*elapsed_year*) increases. Fourth, the publication of a new title is on average accompanied by promotional discounts (except for the deep-range category) as shown by the sign of the coefficient *just_pub*. Fifth, when a book contains figures (*figure*) the discount is on average lower. Sixth, titles that are part of series (*series*) are usually sold at a higher discount. Finally, the estimates indicate that Waterstone's stores (the coefficient of the dummy *waterstone*) before the merger applied on average a discount 1.6% higher than Ottakar's shops. The other control variables included in the model are, instead, mostly not significant and, even when they are, the sign of the coefficients differ across categories. In particular, the variables controlling for local market features (i.e. nature and number of competing retailers, population, property price, urban vs. rural area, presence of universities and degree of education) do not seem to play a role in how the discounts were set.

sold by the merging parties. As a robustness check, we also perform a standard before-and-after analysis which compares the discounts applied by the merging parties before and after the merger.

We have data on the national volume and value for the 200 titles we selected, separately for the merging parties and for the entire market. Value and volume figures for the competitors are then obtained as difference between the data of the entire market and those of the merging parties. Similarly to the analysis of price at the local level, we start by plotting and comparing graphically the average discounts applied by the merging parties and the competitors.^{50,51}

[insert Figure 5 here]

The discount patterns of the merging parties and competitors diverge over time. The former decreased their discounts, while the latter increased them. This appears to hold for all categories, except for top-selling titles, for which no clear trend can be identified either for the merging parties or their competitors. The diverging trend started indicatively around the beginning of 2005, i.e. well before the merger was consummated. Hence, this may hardly be the result of the merger because it would imply that the parties started acting as a single entity one and a half year before the CC's decision (which was issued in May 2006).⁵² Whatever the cause of these trends, there is an issue that makes it difficult to draw any conclusions from the graphs presented above. The "competitors" group contains a wide set of retailers, ranging from specialist and non-specialist chains to supermarkets and internet retailers. According to the data provided by the Booksellers Association,⁵³ the market shares held by supermarkets and internet retailers have continuously increased over the past years (Figure 6).

[insert Figure 6 here]

This observation, in combination with the fact that supermarkets and internet retailers tend to apply higher discounts than specialist and non-specialist book retailers,⁵⁴ may explain, at least

⁵⁰ In the econometric analysis the information of Waterstone's and Ottakar's are aggregated and considered as a common company both pre- and post-merger. This is done in the light of the fact the parties seem to adopt similar pricing strategies over the whole period under examination. Nonetheless, we also run the regressions by keeping Waterstone's and Ottakar's separate and the results do not appear to change significantly.

⁵¹ The distribution of monthly national discounts for all titles together is provided in Appendix 5 (see Figure A5.1).

⁵² Some studies found evidence of anticipatory price increases before the parties were legally granted permission to merge (e.g. Weinberg, 2008). However, even considering the first announcement of Waterstone's bid for Ottakar's was made in August 2005 as the date when the parties started acting as a single entity, the diverging trend began some 8 months earlier. This seems to rule out the hypothesis that the merger triggered the negative trend in the discounts.

⁵³ Booksellers Association website: <http://www.booksellers.org.uk/Industry-Info/Industry-Reports/Book-Industry-Statistics/UK-Book-Sales---Retail-1999-2008.aspx>, visited October 2010.

⁵⁴ Anecdotal evidence on this is provided by our survey of market participants (see Appendix 4). Clay et al. (2002) instead find that, in the US market, online and physical stores have similar prices, although online prices are characterized by a higher dispersion.

partially, the increase in the average discounts in the “competitors” category.⁵⁵ In other words, the apparent increasing trend may simply be due to a change in the composition of the group, where the increasing weight of supermarkets and internet retailers drives the observed pattern of the average discount.

The fact that the discounts of the merging parties and the competitors show two diverging trends, which started even before the merger, poses concerns on the validity of the DiD approach. Indeed, the common trend assumption which lies at the very base of the DiD methodology seems to be violated in this case. We try to address this issue by imposing two distinct trends, one for the merging parties (*month_t_merged*) and one for the competitors (*month_t_comp*), so as to isolate the effect of the trends from that of the merger.⁵⁶

Table 6 presents the results of this econometric exercise (equation 2). In the pooled regression (column 1) with fixed effects the coefficients of both these trends are significant and have the expected sign (negative for the merging parties and positive for the competitors).⁵⁷ *TrEff_i* is not significant in this specification suggesting that the merger does not appear to have had any relevant impact on discounts. Consistent with the results of the pooled regression, the analysis at the category level (from column (2) to (5)) shows that *TrEff_i* is never significant and that the coefficients associated to the trends, when statistically significant, are negative for the merging parties and positive for the competitors. The only exception is for the top-selling titles, where both trends are negative and significant. Finally, the *post_merger* dummy, which should capture any common deviation from the trend after the merger, is not significant either in the pooled regression or in the category-specific one.

[insert Table 6 here]

We then look at a different control group, the top-selling titles.⁵⁸ We choose these titles because, even if the merger may have affected them, it is likely that this effect is limited since these titles are sold through all retail channels including internet retailers and supermarkets that tend to adopt aggressive pricing policies. In Figure 7 we plot the average discounts applied by the merging parties for each category. Although the pre-merger price patterns in

⁵⁵ This issue could have been addressed by splitting the data by retail channel and using only the large chains and independent shops channels as a control group. Unfortunately, Nielsen could not provide us with the data by retail channel because of confidentiality reasons.

⁵⁶ The resulting estimates might be, nonetheless, biased as the linear trends may not be able to fully capture the different dynamic of discounts for the merged parties and for the competitors. Hence, the results have to be considered with caution.

⁵⁷ We specify a fixed effect for each combination of titles and retailers (i.e. whether it is sold by the merging parties or by the competitors).

⁵⁸ The regression is run only on the merging parties' data.

the control and the treatment groups vary across categories, they do not show diverging trends, which suggests that the assumption of common trends may be reasonable in this case.

[insert Figure 7 here]

The results of the DiD analysis with the top-selling titles as the control group (equation 3) are presented in Table 7. Columns (1), (2), and (3) report the estimates of the regressions with best-sellers, deep-range books and evergreen books as the treatment group respectively.

[insert Table 7 here]

The coefficient $TrEFF_2$, that measures the effect of the merger relative to the top category, is never significant, thereby indicating no negative impact of the merger on the discounts applied to best-seller, deep-range and evergreen titles. We also check these estimates by using a specification with time fixed-effects instead of a linear trend and we find similar results.⁵⁹

Overall, even though some caution in the interpretation of the estimates is required because of the limited size of the post-merger sample for top-selling titles, our results show that the merger did not produce any negative effect on prices at the national level. This is consistent with the outcome of the DiD regression that uses the prices of the competitors as control group.

Robustness Check: Before-and-After Analysis. As a final check, we also perform a standard before-and-after regression on the merging parties' data to assess the effect of the merger. In this setting we impose a trend to account for the long term evolution of the discount and the effects of the merger are captured by a dummy, which is equal to 1 for the observations after the merger and 0 otherwise (i.e. the potential impact of the merger is measured by a vertical shift in the trend). The results of these estimates confirm that the merger does not seem to have adversely affected prices.⁶⁰ Moreover, we also controlled for changes in the slope of the trend. In this case a significant and negative coefficient would indicate that the merger may have speeded up the decreasing pattern of the discounts. As before, we find that following the merger there was no significant change in the trend of the discounts.

6. Conclusions

⁵⁹ See Table A5.2 in Appendix 5.

⁶⁰ See Table A5.3 in Appendix 5.

The ex post assessment of merger effects is an important and increasingly used tool to inform and guide the decision making of antitrust agencies in prospective merger cases. Despite the large number of mergers in the retailing sector that antitrust authorities have decided upon in recent years, there is lack of empirical work on the estimation of the effects of consummated mergers in these industries. Our paper tries to fill this gap by estimating the price effects of a merger, that took place in 2005, between two major bookstore chains in the UK: Waterstone's and Ottakar's. A peculiar characteristic of mergers in retail industries is the fact that they can exert their influence at different geographical levels since retail chains may set their pricing policies either at the national or local level. Unlike studies on ex post merger evaluations in other sectors, our empirical framework takes into account this feature by performing an assessment of the effect of the merger both at the national and local level.

To do so, we build an original database with information on a set of book titles both at the store level and at the national level. In doing so, we take into account another important feature of the market under examination, namely the short life of books. Therefore we select a sample of books which does not remain constant over the whole period, using an hedonic price approach to account for the changes in the characteristics of the products that may impact on prices.

As for the effects of the merger on local competition, we perform a DiD exercise where we compare the price change in overlap areas and in non-overlap areas before and after the merger. Our results show that the merged entity did not change her prices in a significant way after the merger. Also at the national level, results of two different DiD exercises (one with competitors as control group, and one with top-selling titles as control group) do not show any significant effect of the merger on prices.

Arguably, the merger might also have affected competition along different dimensions. In particular, it might have led to a reduction of the titles on offer and to a standardization of the range stocked, which could have had a negative impact on consumer welfare.⁶¹ Unfortunately, due to the unavailability of data on variables other than prices, we were not in the position to assess the magnitude of this effect and how it may have impacted on consumer welfare, nor to ascertain whether it has been caused, or exacerbated, by the merger. Although these aspects do not seem to be crucial in the case under examination, as the survey of market participants seems to confirm, they might be relevant in other retail industries and therefore should be considered in further ex post evaluation exercises.

⁶¹ Inderst and Shaffer (2007) build a model showing that retail mergers may reduce product variety.

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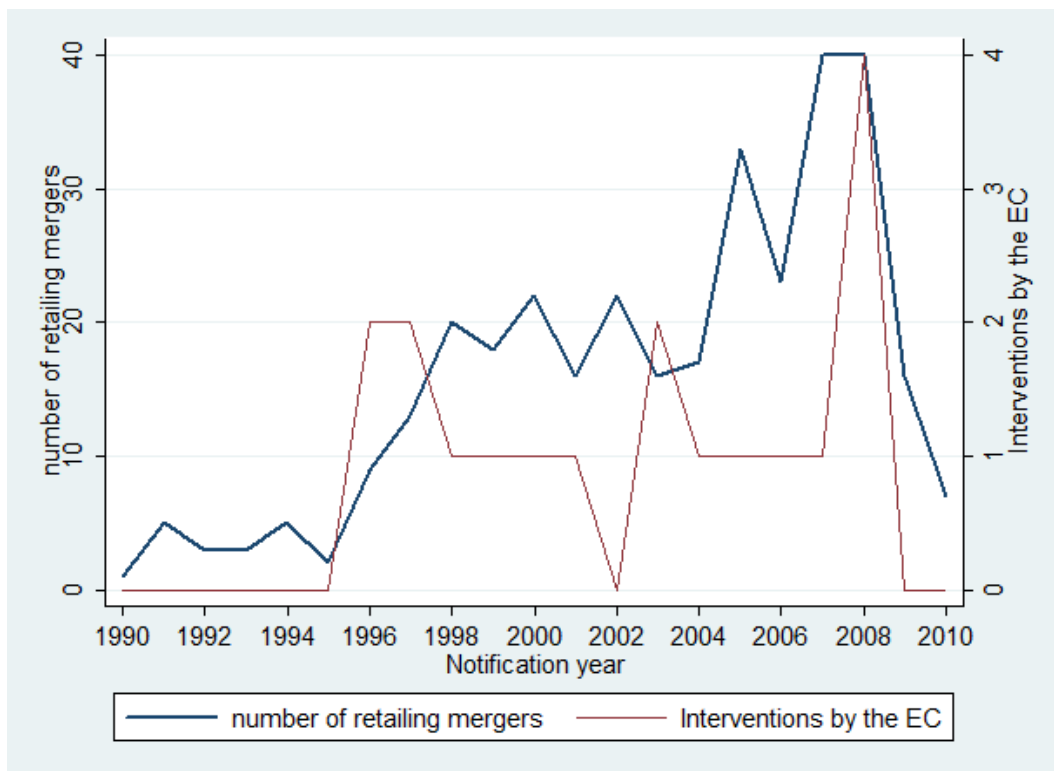
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Figures and Tables

Figure 1: Retailing mergers notified to the European Commission, 1990-2010



Note: Mergers in Nace codes G46 (Wholesale trade, except of motor vehicles and motorcycles) and G47 (Retail trade, except of motor vehicles and motorcycles). Source: European Commission database.

Figure 2: Distribution of the Monthly Standard Deviation: pre vs. post merger

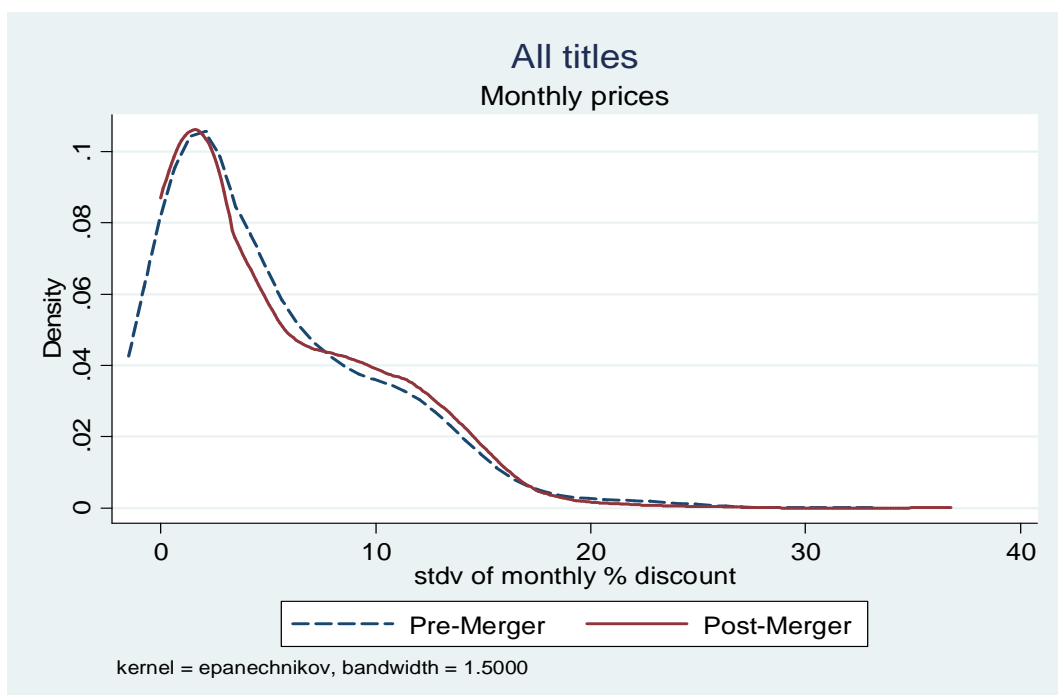


Figure 3: Distribution of the Monthly Standard Deviation by Title-Category:

pre vs. post-merger

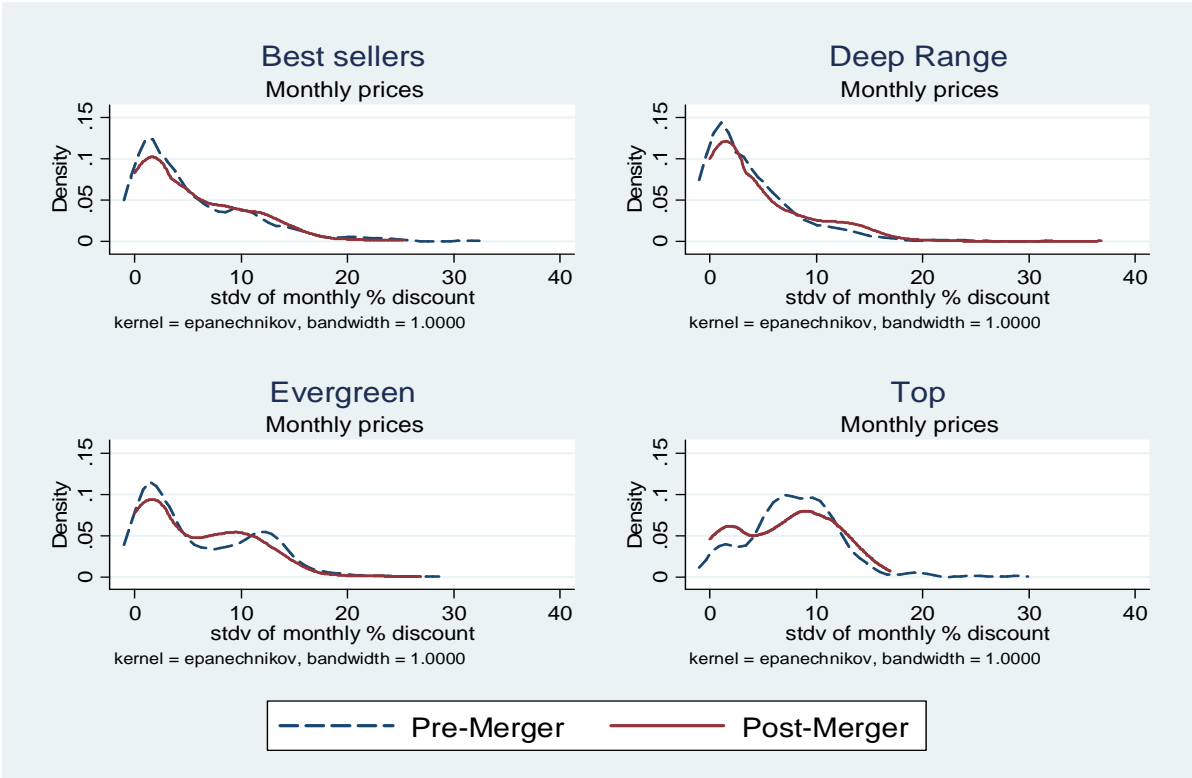


Figure 4: Distribution of the Monthly Discounts: Overlap vs. Non-overlap Locations

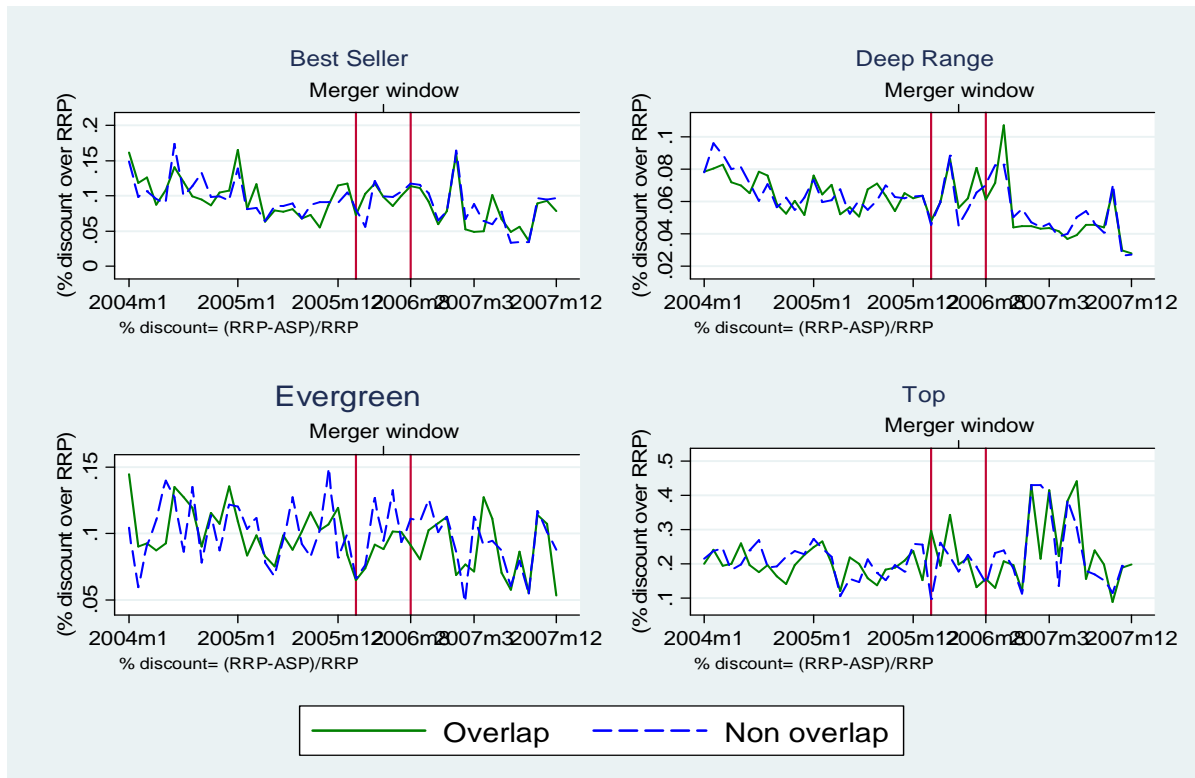


Figure 5: Distribution of monthly national discounts: merging parties vs competitors

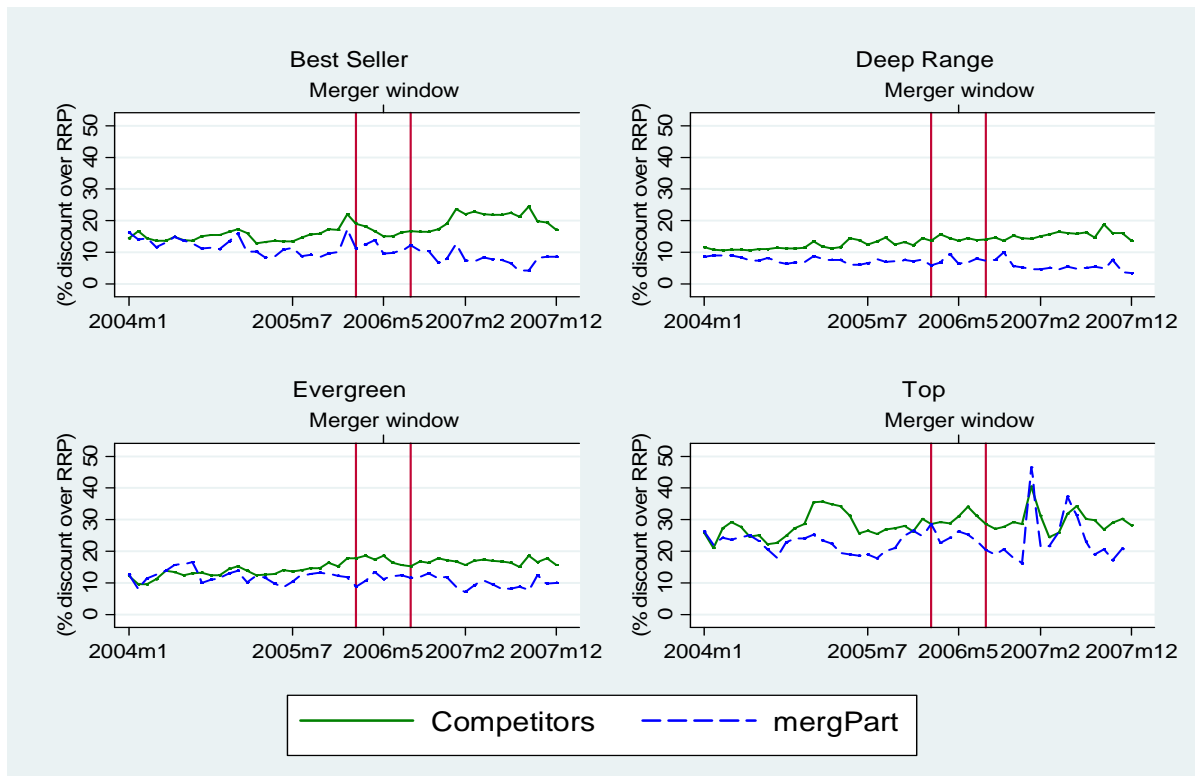
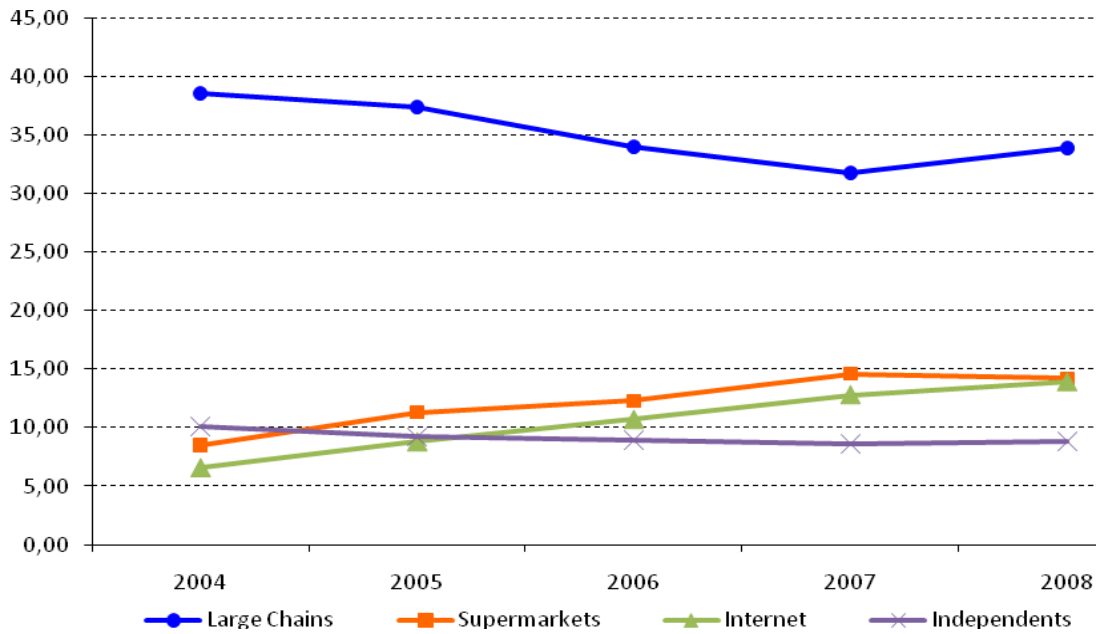


Figure 6: Retailing book market: market share by volumes



Source: <http://www.booksellers.org.uk/>

Figure 7: Average discounts by category – the merging parties

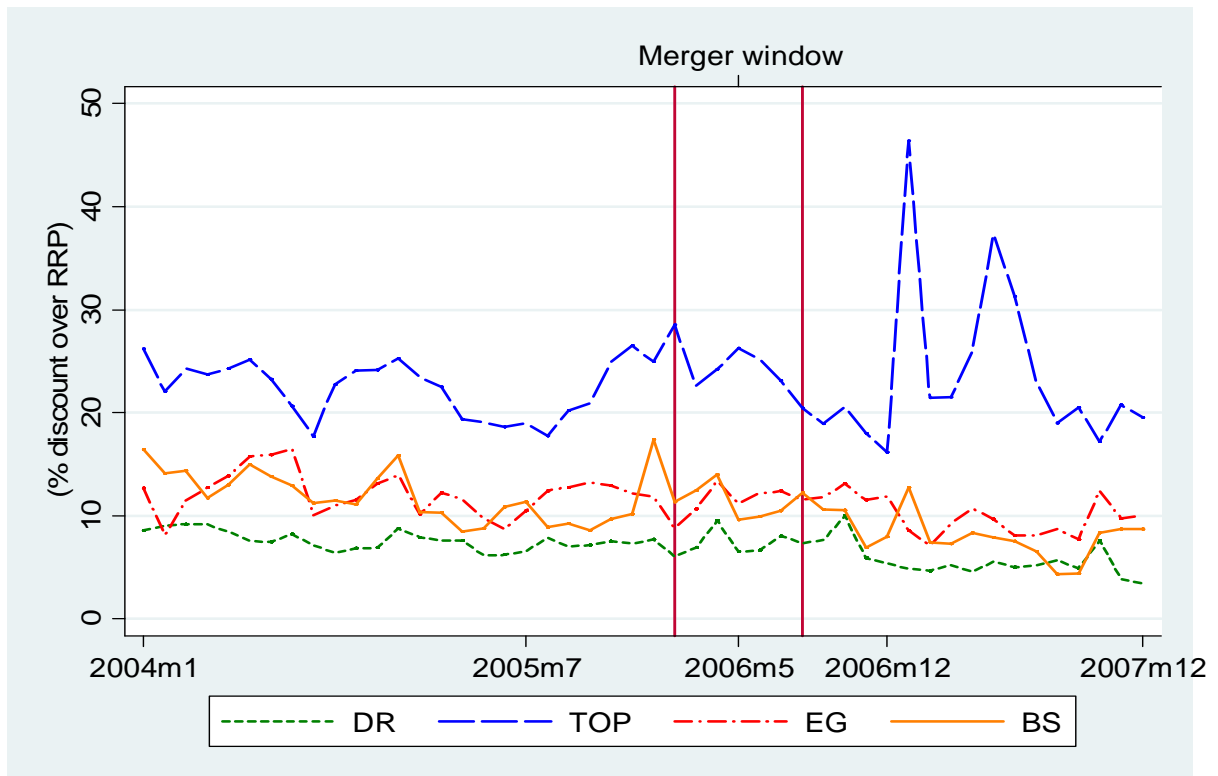


Table 1: National market shares of retailers (based on the value of sales)

National market shares (in 2005)	
Waterstone's	17%
Ottakar's	7%
Other specialist bookshops ⁶²	15%
Other stores including WHSmith	19%
Supermarkets	8%
Internet	8%
Book clubs and other distance sellers	15%
Other	10%
Total	100%

Source: CC's calculations based on TNS and Nielsen Bookscan data.

Table 2: Number of titles by category and type of binding

	Hardback	Paperback	Total
Fiction	6	56	62
Specialist	-	20	20
Trade	16	50	66
Young	6	46	52
Total	28	172	200

Table 3: Number of titles by category and year

	Book Type				Total
	Best-seller	Deep-range	Evergreen	Top	
2004	28	76	31	19	154
2005	48	82	35	14	179
2006	33	106	41	11	191
2007	23	125	41	10	199

⁶² Including Borders and Blackwells.

Table 4: Description of control variables

Variable	Description
month_t	month trend
closed	dummy for closures in the area
TrEff_closed	dummy which combines TrEff and Closed
season	seasonal dummy (christmas period)
trading_m1	number of stores for specialist retailers
trading_m2	number of stores for non-specialist retailers
trading_m3	number of supermarkets ⁶³
woodpulp	cost of paper
internet	internet penetration
house_price	house prices
waterstone	dummy for Waterstone's stores (before rebranding)
avgsales_area	average sales per location ⁶⁴
population	population
pop_density	population density
urban area	dummy for urban areas
universities	number of universities
Education	average level of education ⁶⁵
GVA ⁶⁶	gross value added
classD1, D2, D3 and D4	genre (D1=Fiction, D2= Specialist, D3=Trade, D4=Young)
series	dummy for titles which are part of a series
figure	dummy for titles containing figures
pages	number of pages
elapsed_year	years elapsed since the publication
just_pub ⁶⁷	dummy for the first 2 months after publication
paperback	dummy for paperback titles

⁶³ This variable also includes other retailers (such as DIY chains) that sell books as a part of a wide range of goods.

⁶⁴ Average sales (volumes) of Waterstone's and Ottakar's stores per area (in 2005).

⁶⁵ The level of education was measured using 7 levels as defined by the National Qualification Framework. These levels range from 1 (secondary education -GCSE- with marks below or equal to D) to 7 (Doctoral degree).

⁶⁶ GVA measures the contribution to the economy of each individual producer, industry or sector, and it is used in the estimation of Gross Domestic Product (GDP). The link between GVA and GDP can be defined as: $GVA + \text{taxes on products} - \text{subsidies on products} = \text{GDP}$ (see the *Office for National Statistics*).

⁶⁷ We observed that retailers may grant higher discount on titles that are just published. To capture this aspect we then introduced a dummy equal to 1 for the first two months since a title is published and 0 otherwise.

Table 5: DiD on local prices - Overlap vs. Non-overlap Areas

	All titles (1)	Best Sellers (2)	Deep-range (3)	Evergreen (4)	Top Sellers (5)
		0.382 (1.007)	0.118 (0.531)	0.0919 (0.277)	0.590 (1.274)
post_merger	1.261*** (5.70)	0.569 (1.147)	2.449*** (10.68)	-0.293 (-0.796)	-1.989** (-2.118)
TrEff	-0.252 (-1.16)	-0.0703 (-0.134)	-0.164 (-0.732)	0.0961 (0.258)	0.0132 (0.0178)
closed	0.045 (0.13)	-0.0517 (-0.0887)	-0.295 (-0.804)	0.0142 (0.0243)	0.501 (0.606)
TrEff_closed	0.051 (0.11)	0.463 (0.472)	0.368 (0.764)	0.161 (0.221)	-1.157 (-0.756)
constant	18.410*** (5.64)	9.616*** (4.125)	14.90*** (11.44)	5.404*** (2.813)	12.34*** (3.863)
observations	176,668	37,981	59,548	57,974	20,754
number of id	11,842	4,549	6,916	2,445	2,930
R-squared	0.061				
cluster	ISAN*ISBN ^{68,69}	ISAN*ISBN	ISAN*ISBN	ISAN*ISBN	ISAN*ISBN
Time Trend	YES	YES	YES	YES	YES
Effects	Fixed: ISAN*ISBN	Random	Random	Random	Random

The dependent variable is the price discount. In all columns we control for a monthly time trend, trading_m1, trading_m2, trading_m3, a seasonal dummy, the price of wood pulp, the internet penetration rate, the housing price, gross value added, and the years elapsed since publication. In the random effects specifications (columns 2 to 5) we additionally control for waterstone, avgsales_area, population, pop_density, urban_area, universities, education, classD2, classD3, classD4, series, figure, pages, paperback (see Table 4 for the description of control variables). Robust t-statistics (column 1) and z-statistic (columns 2 to 5) in parentheses, The symbols ***, **, and * represent significance at the 1%, 5%, and 10% level respectively.

⁶⁸ ISAN is the Nielsen's unique identifier of a store.

⁶⁹ ISBN is the Nielsen's unique identifier of a title.

Table 6: DiD on national prices (competitors as control group)

	All titles (1)	Best Sellers (2)	Deep Range (3)	Evergreen (4)	Top Range (5)
Merged		0.225 (0.0784)	-3.861*** (-2.749)	0.00529 (0.00277)	-1.483 (-0.526)
post_merger	-0.732 (-0.766)	-3.562 (-1.538)	-0.360 (-0.269)	-1.668 (-1.262)	-4.795 (-0.958)
TrEff₁	0.108 (0.0890)	0.692 (0.229)	0.646 (0.421)	0.365 (0.176)	-2.751 (-0.470)
month_t_merged	-0.134*** (-3.294)	-0.349*** (-3.223)	-0.109*** (-2.845)	0.0138 (0.129)	-0.445** (-2.312)
month_t_comp	0.0721* (1.922)	-0.0198 (-0.234)	0.0688 (1.420)	0.192*** (2.734)	-0.311* (-1.652)
constant	218.1*** (3.318)	21.77 (0.485)	47.39** (2.165)	60.62** (2.047)	-146.5 (-1.571)
observations	13,346	2,417	7,173	2,913	814
R-squared	0.064				
number of id	400	156	270	82	98
cluster	ISBN	ISBN	ISBN	ISBN	ISBN
Time Trend	YES	YES	YES	YES	YES
Effects	Fixed:	Random	Random	Random	Random
	ISBN*retailer				

The dependent variable is the price discount. In all columns we control for a monthly time trend, trading_m1, trading_m2, trading_m3, a seasonal dummy, the price of wood pulp, the internet penetration rate, the housing price, GVA (?), and the years elapsed since publication. In the random effects specifications (columns 2 to 5) we additionally control for Woodpulp; Pages; Series; figure; paperback; classD2; classD3; classD4; house_price; internet; GVA; elapsed_year; just_pub; Season (see Table 4 for the description of control variables). Robust t-statistics (columns 1) and z-statistic (columns 2 to 5) in parentheses, The symbols ***, **, and * represent significance at the 1%, 5%, and 10% level respectively.

Table 7: DiD on national prices (top titles as control group)

	Best Seller (1)	Deep Range (2)	Evergreen (3)
TrEFF₂	1.431	6.322	5.164
	(0.36)	(1.52)	(1.40)
titlecategory	-9.144***	-17.679***	-4.714**
	(-3.73)	(-7.32)	(-2.08)
post_merger	-6.463	-4.812	-6.841
	(-1.35)	(-1.09)	(-1.59)
constant	53.245	19.447	35.875
	(0.82)	(0.70)	(0.66)
observations	1,526	3,457	1,696
number of id	127	184	90
cluster	ISBN	ISBN	ISBN
Time Trend	YES	YES	YES
Individual Effects	Random	Random	Random

The dependent variable is the price discount. In all columns we control for a monthly time trend, trading_m1, trading_m2, trading_m3, a seasonal dummy, the price of wood pulp, the internet penetration rate, the housing price, GVA (?), and the years elapsed since publication. In the random effects specifications (columns 2 to 5) we additionally control for Woodpulp; Pages; Series; figure; paperback; classD2; classD3; classD4; house_price; internet; GVA; elapsed_year; just_pub; season (see Table 4 for the description of control variables). Robust z-statistic are reported in parentheses, The symbols ***, **, and * represent significance at the 1%, 5%, and 10% level respectively.

Ex Post Merger Evaluation in the UK Retail Market for Books
Online Appendix

Appendix 1. Selection of areas using propensity score matching

This Appendix describes the methodology used in the selection of areas. In its database (Nielsen bookscan) Nielsen collects information on book sales from a wide panel of Waterstone's and Ottakar's stores. As regards the pre-merger period, this panel includes 359 stores of Waterstone's and Ottakar's, located in 203 different areas¹ (defined at the local authorities level), of which 33 were overlap areas (as defined by the CC) and 170 were non-overlap ones.

To select the 60 stores for which we were given permission to collect data by HMV, we followed an approach based on the *Propensity Score Matching* (henceforth PSM). PSM has its roots in the *Matching* literature and it was developed as a means to correct for sample selection bias that may affect the estimate of the treatment effects. In non-experimental studies assignment of subjects to the treatment and control groups is not random, thus the estimate of a causal effect obtained by comparing a treatment group with a non-experimental comparison group could be biased because of systematic differences between the two groups. In other words, units receiving treatment and those excluded from treatment may differ not only in their treatment status but also in other characteristics that affect both participation and the outcome of interest

The bias can be reduced if the comparison of outcomes is performed using treated and control groups which are as similar as possible. It might be relatively simple to assign a comparison unit based on a single observable characteristic, however, if the matching process is to be effective in mitigating the potential bias, one needs to consider a full range of factors across which the treatment and control group might differ. Propensity-score matching allows this matching problem to be reduced to a single dimension

Under the PSM the degree of closeness among groups is measured by the *propensity score*, i.e. the probability of treatment, given the set of observed characteristics. The idea is that all relevant differences between the groups pre-treatment can be captured by observable characteristics in the data² and these characteristics can be used to estimate the *propensity score*. Through this approach a propensity score (which ranges from 0 to 1) is attached to every unit and the treatment and control group are then matched based on it.

A fundamental requirement for this method is that the predicted probabilities of treatment, for control and treated units, must have a wide common support region, i.e. the existence of a substantial overlap between the propensity score of control and treated units. That is in order to find valid matches.

In practice, we applied PSM accordingly to these steps:

- (a) Identify the relevant explanatory variables;
- (b) Estimate the predicted probability (*pscore*) of assignment to treatment for all areas;
- (c) Match (without replacement) each treated area with the control area that has the closest *pscore*.

In the first step the aim is to select all the observable explanatory variables that characterize the book retailing market at the local level (hence, we need variables that vary at the local level). These variables can be broadly classified in two groups: (i) factors that may impact on the demand and (ii) factors that may affect the supply. Table A1.1 lists the explanatory variables we relied on.

¹ From our selection we excluded all the shops in the London area which, although both Waterstone's and Ottakar's operated some stores in that area was not considered an overlap location by the CC.

² Once accounted for these differences, one can take assignment to treatment to have been random.

Table A1.1: Explanatory variables for PSM

Variable	Source
Demand factors	
Population	UK Office for National Statistics, Neighbourhood Statistics section or Scottish Neighbourhood Statistics when relevant (2001 census)
Population density	UK Office for National Statistics, Neighbourhood Statistics section or Scottish Neighbourhood Statistics when relevant (2001 census)
Average sales (volumes) of books (HMV year 2005)	Nielsen Bookscan
Number of universities	http://www.lovemytown.co.uk/Universities/UniversitiesTable1.asp
Share of population with a degree	UK Office for National Statistics, Neighbourhood Statistics section or Scottish Neighbourhood Statistics when relevant (2001 census)
Gross value added 2004	UK Office for National Statistics, Neighbourhood Statistics section or Scottish Neighbourhood Statistics when relevant (2001 census)
Internet penetration 2005	Internet Access, Households and Individuals, Office of National Statistics
Supply factors	
Average house prices 2005	http://www.landregistry.gov.uk/ for England and Wales, and www.ros.gov.uk for Scotland
Number of <i>specialist</i> stores	Nielsen Bookscan
Number of supermarkets	Nielsen Bookscan

Using the above variables, we estimated the predicted probability of being in an overlap area running a logistic regression on the discrete dependent variable of treatment assignment.³ The results from this regression can be found in Table A1.2.

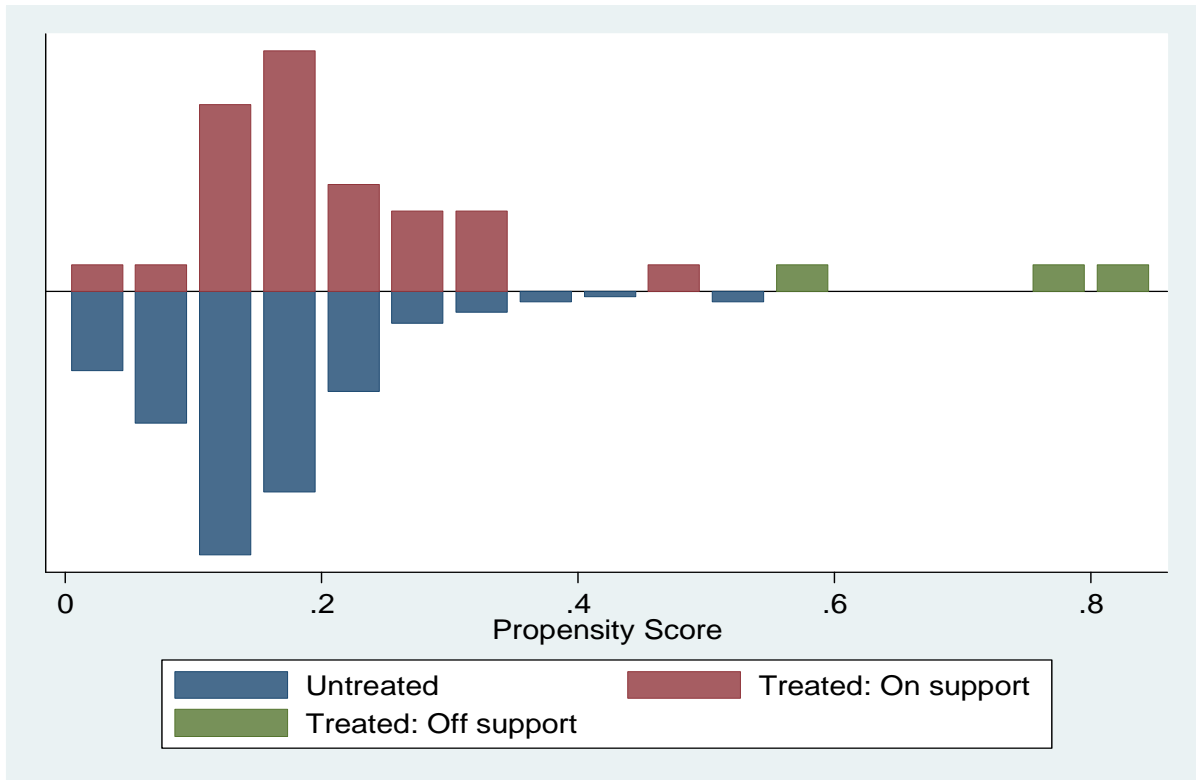
³ The dependent variable is the treatment status (overlap area = 1; non-overlap area = 0).

Table A1.2: Propensity Score Matching, estimation results

	dep variable: Overlap
population	0.00000139 (0.27)
pop_density	-0.000199 (-0.01)
avgsales	0.000000569 (0.09)
universities	-0.00950 (-0.01)
education	-0.00379 (-0.03)
GVA_2004	0.0000805 (0.51)
internet_2005	-0.0419 (-0.27)
house_price_2004	-0.00000477 (-0.37)
spec_proxy	-0.0170 (-0.12)
supermarkets	-0.0189 (-0.30)
scotland	-0.412 (-0.33)
constant	1.659 (0.22)
observations	50
t statistics in parentheses	
* p<0.05, ** p<0.01, *** p<0.001	

After the regression each local areas is assigned a probability of treatment. By looking at the distribution of these predicted probabilities (see Figure A1.1) we can check if the common support requirement is satisfied. We conclude that there is substantial overlap and we are then reassured that we can find a sufficient number of treatment local areas with a close enough match in the control group.

Figure A1.1: Pscore distribution by groups and common support



The selection of the treated areas was also constrained by data availability⁴ and out of the 33 overlap local areas we could use only 20. For each of the 20 selected local areas we found the closest match in the non-overlap areas following the PSM approach. Table A1.3 presents the final list of areas from this matching process.

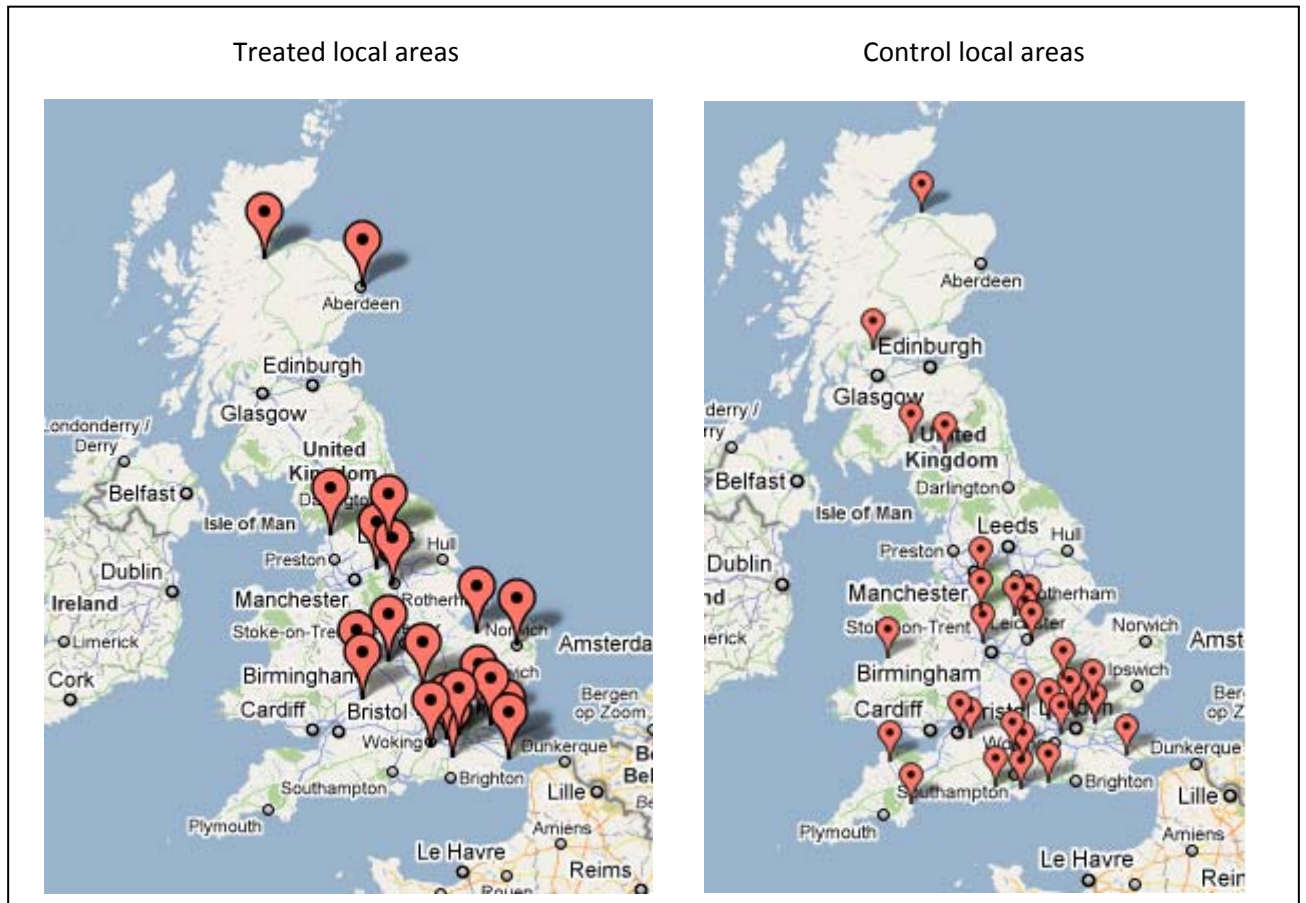
⁴ Some shops closed, or were not surveyed by Nielsen Bookscan.

Table A1.3: Store Matching Outcome

	Treated			Control		
	location	pscore	store	location	pscore	store
a) areas where we selected only a Waterstone's store	Southend-on-Sea	0.110	W	Oxford	0.111	W
	Worcester	0.269	W	Nottingham	0.256	W
	Canterbury	0.308	W	Bournemouth	0.300	W
	Kings Lynn	0.192	W	Bath	0.189	W
	Milton Keynes	0.102	W	Romford	0.103	W
b) areas where we selected only a Ottakar's store	Folkestone	0.222	O	Dumfries	0.222	O
	Bromley	0.033	O	Barnet	0.033	O
	Cheltenham	0.169	O	High Wycombe	0.171	O
	Guildford	0.162	O	Barnstaple	0.159	O
	Harrogate	0.115	O	Staines	0.115	O
c) areas where we selected both a Waterstone's and a Ottakar's store	Aberdeen	0.469	W	Bristol	0.508	W
	Aberdeen	0.469	O	Newport	0.382	O
	Chelmsford	0.285	W	Stirling	0.294	W
	Chelmsford	0.285	O	Elgin	0.279	O
	Coventry	0.167	W	Chichester	0.167	W
	Coventry	0.167	O	Newton Abbot	0.165	O
	Inverness	0.230	W	Winchester	0.233	W
	Inverness	0.230	O	Loughborough	0.230	O
	Huddersfield	0.071	W	Stockport	0.072	W
	Huddersfield	0.071	O	St Albans	0.071	O
	Crawley	0.203	W	Derby	0.202	W
	Crawley	0.203	O	Ashford	0.204	O
	Lancaster	0.198	W	Wolverhampton	0.194	W
	Lancaster	0.198	O	Andover	0.198	O
	Meadowhall	0.182	W	Stoke On Trent	0.188	W
	Meadowhall	0.182	O	Carlisle	0.186	O
	Norwich	0.309	W	Leicester	0.316	W
	Norwich	0.309	O	Aberystwyth	0.315	O
	Epsom	0.120	W	Bedford	0.116	W
	Epsom	0.120	O	Bishop's Stortford	0.123	O

A graphical representation of this selection can also be found in Figure A1.2, where it is possible to see that the matched overlap and non-overlap localities are equally spread around the UK (the only exception is for Wales where we could not find any overlap areas).

Figure A1.2: Geographic distribution of Treatment and Control Areas



For these selected localities we also tested the equality of means for the relevant explanatory variables and verified if the means across the two groups were not statistically different (see Table A1.4).

Table A1.4: Test on equality of means for explanatory variables

Variable	Mean		t-test	
	Treated	Control	t	p>t
pscore	0.196	0.203	-0.26	0.793
population	180000	170000	0.48	0.633
pop_density	14.051	13.62	0.11	0.912
universities	0.75	0.73333	0.08	0.937
education	19.9	20.6	-0.38	0.702
avgsales	180000	180000	-0.01	0.989
GVA_2004	16876	16630	0.22	0.824
GVA_2005	17327	17146	0.16	0.871
internet_2005	56.4	56.833	-0.39	0.702
internet_2007	62.0	63.1	-0.72	0.477
house_price_2004	180000	190000	-0.61	0.548
house_price_2007	220000	230000	-0.52	0.606
specialist_retailer ⁵	6.15	6.3667	-0.15	0.883
supermarkets	15.15	14.767	0.11	0.916
scotland	0.1	0.1	0	1

⁵ Number of specialist retailers per area.

Appendix 2. List of book titles for Waterstone's/Ottakar's merger

Table A2.1 below lists the 200 titles on which we performed the econometric analyses.

Table A2.1: List of the titles included in our dataset

	Title	Author
1	Complete Beginners' Cookbook	Watt, Fiona
2	"In the Night Garden" Little Library: Little Library: In the Night Garden	.
3	"Playboy": Bartender's Guide	Mario, Thomas
4	"York Notes on ""An Inspector Calls"": York Notes"	Scicluna, John
5	7000 Baby Names: Classic and Modern	Spence, Hilary
6	Adventure of English,The	Bragg, Melvyn
7	Allen Carr's Easy Way to Stop Smoking	Carr, Allen
8	Amber the Orange Fairy: Rainbow Magic	Meadows, Daisy
9	Angel	Price, Katie
10	Angels:Miniature Editions	.
11	Animal Discovery Cards: Baby Einstein S.	Aigner-Clark, Julie
12	Art of Drawing Manga, The	Krefta, Ben
13	Atonement	McEwan, Ian
14	Bad Beginning,The: Series of Unfortunate Events	Snicket, Lemony
15	Bare Bones	Reichs, Kathy
16	Beginner's French: Teach Yourself Languages	Carpenter, Catrine
17	Bible Code,The	Drosnin, Michael
18	Blow Fly	Cornwell, Patricia
19	BMA Concise Guide to Medicines and Drugs	Henry, John A.
20	Body Double	Gerritsen, Tess
21	Body Shape Bible,The: Forget Your Size Discover Your Shape Transform Yourself	Constantine, Susanna
22	Bond Assessment Papers:Second Papers in Maths 8-9 Years: Bond Assessment Papers S.	Baines, Andrew & Bon
23	Broker,The	Grisham, John
24	Brother's Journey, A: Surviving a Childhood of Abuse	Pelzer, Richard B.
25	Brussels and Bruges: AA Citypacks	Franquet, Sylvie & S
26	Castle of Wizardry: Belgariad S.	Eddings, David
27	Cause of Death	Cornwell, Patricia
28	Change Your Life in Seven Days	McKenna, Paul
29	Chapter House Dune:(Bk. 6) :Gollancz S.F.	Herbert, Frank
30	Child Called It,A	Pelzer, Dave
31	Cigars of the Pharoah: The Adventures of Tintin S.	Herge

	Title	Author
32	Coast	Somerville, Christop
33	Coming Out	Steel, Danielle
34	Concise Colour Medical Dictionary: Oxford Paperback Reference S.	Martin, Elizabeth
35	Concise Oxford Spanish Dictionary	.
36	Confusion,The	Stephenson, Neal
37	Contest	Reilly, Matthew
38	Cranks Recipe Book,The	Canter, David
39	Crucible,The: A Play in Four Acts: Penguin Modern Classics	Miller, Arthur
40	Curious Incident of the Dog in the Night-time,The	Haddon, Mark
41	Dark is the Moon:View from the Mirror S.	Irvine, Ian
42	Dark Tower,The:D rawing of the Three (Bk. 2)	King, Stephen
43	Devil's Disciples,The: The Life and Times of Hitler's Inner Circle	Read, Anthony
44	Diaries 1969-1979:The Python Years	Palin, Michael
45	Dr. Gillian McKeith's Ultimate Health Plan: The Diet Programme That Will Keep You Slim for Life	McKeith, Gillian
46	Duck:My Thomas Story Library	Awdry, W.
47	Elder Gods,The	Eddings, David & Edd
48	Electrician's Guide to the Building Regulations (Approved Document P, Electrical Safety in Dwellings)	.
49	Elegance	Tessaro, Kathleen
50	English Grammar in Use with Answers: A Self-study Reference and Practice Book for Intermediate Students of English	Murphy, Raymond
51	English Passengers	Kneale, Matthew
52	Enormous Crocodile,The	Dahl, Roald
53	Essential Costa Brava:AA Essential S.	Kelly, Tony
54	Essential Teaching Skills	Kyriacou, Chris
55	Face the Fire:Three Sisters Island	Roberts, Nora
56	Faithless	Slaughter, Karin
57	False Impression	Archer, Jeffrey
58	Farm:Usborne Look and Say	.
59	Filth	Welsh, Irvine
60	Flat Stanley in Space	Brown, Jeff
61	GCSE Double Science: Chemistry Revision Guide - Higher (Pt. 1 & 2)	Parsons, Richard
62	Girls Only! All About Periods and Growing-up Stuff	Parker, Victoria
63	Girls Out Late	Wilson, Jacqueline
64	Girls under Pressure	Wilson, Jacqueline
65	Good Night, Gorilla	Rathmann, Peggy
66	Gordon Ramsay's Playing with Fire: Raw, Rare to Well Done	Ramsay, Gordon

	Title	Author
67	Great Lies to Tell Small Kids	Riley, Andy
68	Harry Potter Pbk Boxed Set	Rowling, J.K.
69	High Fidelity	Hornby, Nick
70	High Hopes	Hopkins, Billy
71	Highest Tide,The	Lynch, Jim
72	Holy Bible,The:King James Version: Authorized King James Version	.
73	Holy Blood and the Holy Grail,The	Baigent, Michael & L
74	Horrid Henry and the Mega-mean Time Machine:(Bk. 13) :Horrid Henry	Simon, Francesca
75	Horrid Henry Meets the Queen:(Bk . 12) :Horrid Henry	Simon, Francesca
76	How to Boil an Egg:... And 184 Other Simple Recipes for One	Arkless, Jan
77	Humble Pie	Ramsay, Gordon
78	I Am Too Absolutely Small for School:Charlie & Lola	Child, Lauren
79	I Know You Got Soul	Clarkson, Jeremy
80	I Love Capri	Jones, Belinda
81	IEE on Site Guide (BS 7671: 2001 16th Edition Wiring Regulations Including Amendment 2: 2002)	.
82	Innocent Graves	Robinson, Peter
83	Internet for Dummies,The: For Dummies S.	Levine, John R. & Yo
84	Introduction to Buddhism:An Explanation of the Buddhist Way of Life	Kelsang Gyatso, Gesh
85	Introductory Guide to Anatomy and Physiology,An	Tucker, Louise
86	Invisible Boy,The: Magical Children S.	Gardner, Sally
87	It's Not About the Bike:My Journey Back to Life	Armstrong, Lance
88	Jasper's Beanstalk:Jasper	Butterworth, Nick &
89	Jolly Postman, or, Other People's Letters,The: Or, Other People's Letters:Viking Kestrel picture books	Ahlberg, Allan & Ahl
90	Jonathan Strange and Mr. Norrell	Clarke, Susanna
91	Jose Mourinho:Made in Portugal - the Authorised Biography	Lourenco, Luis & Mou
92	Kalahari Typing School for Men,The:No.1 Ladies' Detective Agency S.	McCall Smith, Alexan
93	Kama Sutra, The: Great Sex S.	Hooper, Anne
94	Krakatoa: The Day the World Exploded	Winchester, Simon
95	KS1 Maths: Question Book (Pt. 1 & 2)	Parsons, Richard
96	KS2 Science:S AT's Practice Papers - Levels 3-5 (bookshop)	Parsons, Richard
97	KS3 Science: Revision Guide - Levels 5-7	Parsons, Richard & G
98	Last Juror,The	Grisham, John
99	Last Term at Malory Towers: Malory Towers S.	Blyton, Enid
100	Learning to Counsel: Develop the Skills You Need to Counsel Others	Sutton, Jan & Stewar
101	Letter from America:1946-2004	Cooke, Alistair
102	Little Miss Scary: Little Miss library	Hargreaves, Roger

	Title	Author
103	Lord of the Rings,The: Return of the King (v.3)	Tolkien, J. R. R.
104	Lost for Words:The Mangling and Manipulating of the English Language	Humphrys, John
105	Lovely Bones,The	Sebold, Alice
106	Low-Fat Meals in Minutes: "Australian Women's Weekly" Home Library	Tomnay, Susan
107	Magician's Nephew,The: Chronicles of Narnia S.	Lewis, C.S.
108	Mammoth Book of Extreme Science Fiction, The: Mammoth Book of S.	.
109	Man Called Cash,The:The Life, Love and Faith of an American Legend	Turner, Steve
110	Memoirs of a Geisha	Golden, Arthur
111	Monkey Puzzle	Donaldson, Julia
112	Moondust:In Search of the Men Who Fell to Earth	Smith, Andrew
113	Mr. Christmas	Hargreaves, Roger
114	Mr. Fussy:Mr. Men Library	Hargreaves, Roger
115	Mr. Perfect	Robinson, Catherine
116	Mr. Uppity:Mr. Men Library	Hargreaves, Roger
117	New First Aid in English, The	Maciver, Angus
118	New Pocket Dog Training	Fogle, Bruce
119	New Rector,The:Tales from Turnham Malpas	Shaw, Rebecca
120	Next Accident,The	Gardner, Lisa
121	Nursing Calculations	Gatford, J.D. & Phil
122	Nursing Practice:Hospital and Home - The Adult	Alexander, Margaret
123	Office 2003 in Easy Steps:Colour Edition:In Easy Steps S.	Copestake, Stephen
124	One Child	Hayden, Torey L.
125	One Hundred Ways for a Cat to Train Its Human	Haddon, Celia
126	One Hundred Years of Solitude	Garcia Marquez, Gabr
127	Other Side of the Story, The	Keyes, Marian
128	Other Woman,The	Green, Jane
129	Oxford English Minidictionary	.
130	Oxford French Verbpak,The	.
131	Oxford Reading Tree: Stage 4: Storybooks: the Storm	Hunt, Roderick
132	Pale Horseman,The	Cornwell, Bernard
133	Pale Horseman,The	Cornwell, Bernard
134	Peekaboo Farm!: Peekabooks S.	.
135	Philip's Motoring Atlas Britain 2006:Philip's Road Atlases	.
136	Philosophy:The Basics: Basics (Routledge Paperback)	Warburton, Nigel
137	Picking Up the Pieces	Britton, Paul
138	Pippi Longstocking	Lindgren, Astrid
139	Precious Time	James, Erica

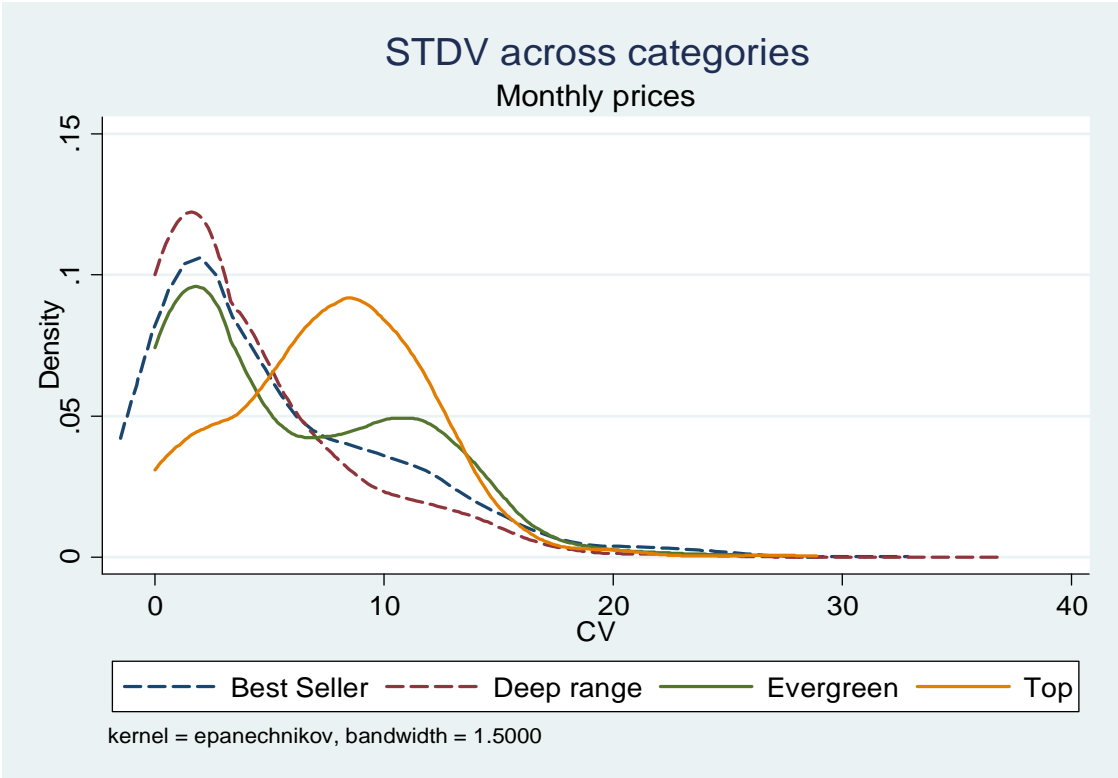
	Title	Author
140	Pregnancy Questions and Answer Book, The	Lees, Christoph & Re
141	Prince,The	Machiavelli, Niccolo
142	Q Pootle 5	Butterworth, Nick
143	Quick Course in Microsoft Excel 2000:Quick Course	.
144	Really Rotten Experiments: Horrible Science S.	Arnold, Nick
145	Rebecca	Du Maurier, Daphne
146	Recoil	McNab, Andy
147	Restaurant Guide,The:2004:AA Lifestyle Guides	.
148	Revenge of the Middle-aged Woman	Buchan, Elizabeth
149	Rick Stein's Mediterranean Escapes	Stein, Rick
150	River Cottage Meat Book,The	Fearnley-Whittingsta
151	Ronnie:The Autobiography of Ronnie O'Sullivan	O'Sullivan, Ronnie
152	Rottweiler,The	Rendell, Ruth
153	Rough Guide to Venice,The: Rough Guide Travel Guides	Buckley, Jonathan
154	RSPB Pocket Birds	Elphick, Jonathan &
155	Rules of Management: The Definitive Guide to Managerial Success	Templar, Richard
156	Russian Dictionary:Collins GEM	.
157	Salisbury and The Plain, Amesbury:1: 50 000:OS Landranger Map	.
158	Savage Stone Age,The: Horrible Histories S.	Deary, Terry
159	Secret of Crickley Hall,The	Herbert, James
160	Sexual Life of Catherine M, The	Millet, Catherine
161	Sharon Osbourne Extreme: My Autobiography	Osbourne, Sharon
162	Shopaholic and Sister	Kinsella, Sophie
163	Silly Verse for Kids: Puffin Books	Milligan, Spike
164	Silver Spoon,The	.
165	Smelly Slugsy:Read-to-Me Scented Storybook: "Fifi and the Flowertots"	.
166	Social Work:Themes, Issues and Critical Debates	.
167	Sorceress	Rees, Celia
168	South Africa: AA Explorer S.	Shales, Melissa
169	Sovereign:Shardlake	Sansom, C.J.
170	Spanish Verb Tenses: Practice Makes Perfect Series	Richmond, Dorothy De
171	Storm of Swords,A: (1) :Song of Ice and Fire	Martin, George R.R.
172	SUMO (Shut Up, Move On):The Straight Talking Guide to Creating and Enjoying a Brilliant Life	McGee, Paul
173	Taking,The	Koontz, Dean
174	Tao of Pooh and Te of Piglet,The: Wisdom of Pooh S.	Hoff, Benjamin
175	Thief of Time: A Discworld Novel	Pratchett, Terry

	Title	Author
176	This Little Puffin:Finger Plays and Nursery Games:Puffin Books	Matterson, Elizabeth
177	Thousand Days in Venice,A: An Unexpected Romance	de Blasi, Marlana
178	Thud!:Discworld Novels	Pratchett, Terry
179	Time and Chance	Penman, Sharon K.
180	Times Tables: Magical Skills (Level 2) :Magical skills	Fidge, Louis & Broad
181	Trojan Odyssey	Cussler, Clive
182	Truth,The: Discworld Novels	Pratchett, Terry
183	Twelfth Card,The	Deaver, Jeffery
184	Twilight Children: Three Voices No One Heard - Until Someone Listened	Hayden, Torey L.
185	Twist of Gold	Morpurgo, Michael
186	Twisted:Collected Stories of Jeffery Deaver	Deaver, Jeffery
187	Ultimate Dinosaur Glow in the Dark Sticker Book,The: Ultimate Stickers	.
188	Under Orders	Francis, Dick
189	Understanding Health and Social Care:An Introductory Reader: Published in Association with the Open University	.
190	Unlocking Formative Assessment: Practical Strategies for Enhancing Pupils' Learning in the Primary Classroom	Clarke, Shirley
191	Untouchable: Alpha Force S.	Ryan, Chris
192	Usborne Complete Book of Drawing:Usborne Activity Books	.
193	Vesuvius Club,The:A Lucifer Box Novel	Gatiss, Mark
194	Vieira: My Autobiography	Vieira, Patrick
195	Wasp Factory,The	Banks, Iain
196	Wedding Flowers: Over 80 Glorious Floral Designs for That Special Day	Roberts, Stephen
197	Wee Free Men,The	Pratchett, Terry
198	Wide Sargasso Sea: Student Edition:Penguin Modern Classics	Rhys, Jean
199	Wide Window, The: Series of Unfortunate Events	Snicket, Lemony
200	Yorkshire Dales: Walks: Pathfinder Guide	Conduit, Brian & Mar

Appendix 3. Local vs national price competition for Waterstone's/Ottakar's merger

This Appendix presents some further results on the analysis of the geographic scope of price competition among book retailers. Figure A3.1 below compares the distribution of the discount's standard deviation (calculated over the entire period) for the four title categories.

Figure A3.1: Distribution of monthly standard deviation (comparison by title category)



As already stressed, the discount variability differs across categories. Top-selling titles and, to a lesser extent, evergreen ones have a high standard deviation, while the discount variability of best-sellers and deep-range titles appears to be lower and concentrated around 0. This latter result suggests that for these titles price competition mainly occurs at national level. However, we cannot say, in particular for deep-range titles, whether this low variability was due to a strict application of a centrally set pricing policy, or to the fact that local conditions did not vary much (for example, because the demand for deep-range titles was scarcely elastic over the entire nation).

To further investigate the issue of local price variation, we also examined the percentiles of the discount distribution. For each title in each month, we derived the percentiles of this distribution and analysed them graphically. A higher vertical difference between percentiles would suggest higher dispersions of the discount across stores.

In the Figure A3.2 we plot a relatively narrow interval (percentiles 25th 50th and 75th), whereas in Figure A3.3 we plot a larger interval (percentiles 10th 50th and 90th).

Figure A3.2: Percentiles of the discount distribution (25th, 50th, and 75th)



Figure A3.3: Percentiles of the discount distribution (10th, 50th, and 90th)

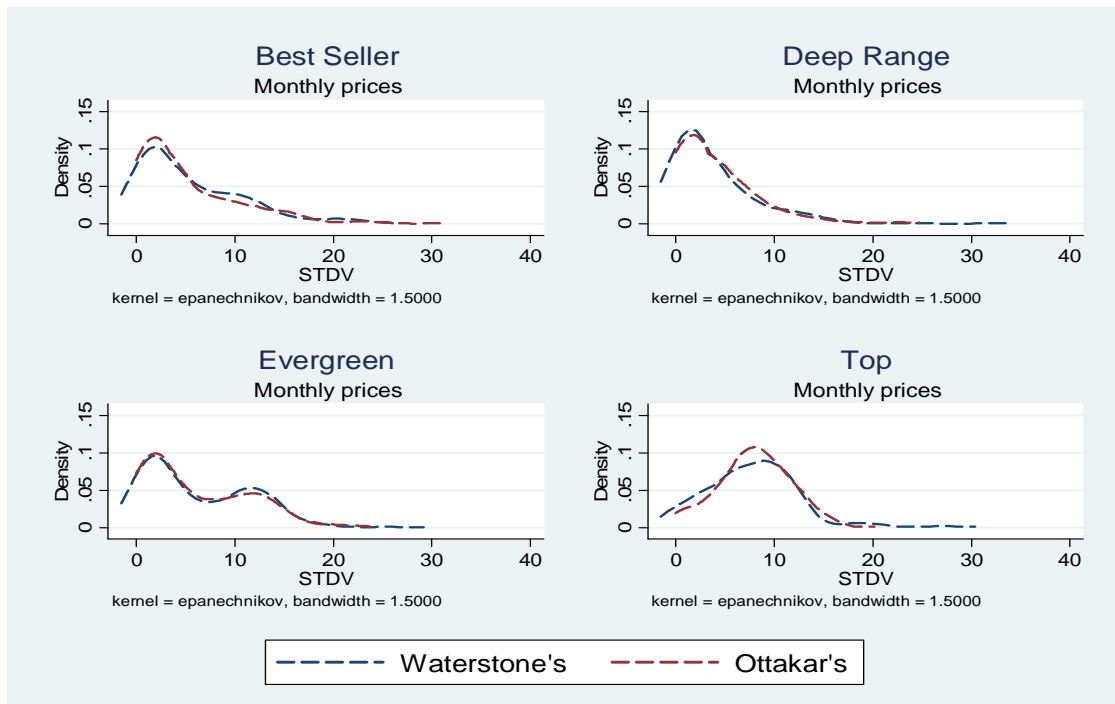
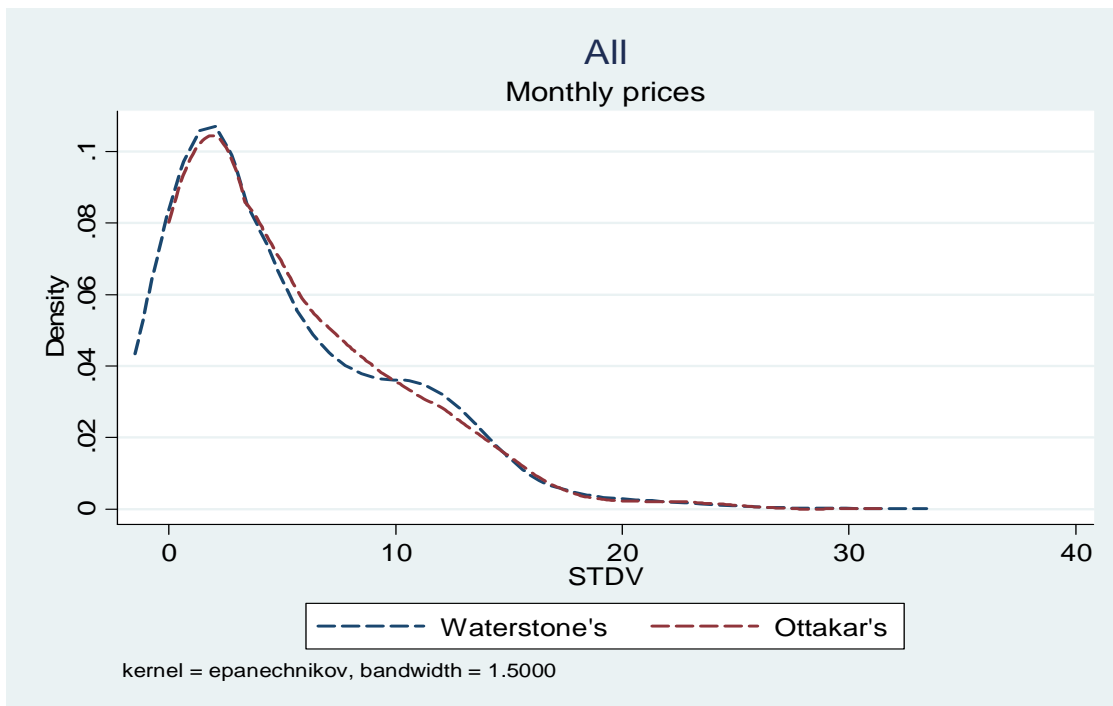


The percentiles analysis confirms the previous results. We observe a high variability for evergreen and top-selling titles, a lower one for best-sellers and a very low one for deep range titles.

Finally, we also verified whether there was any difference in the pricing policies adopted by Waterstone's and Ottakar's before the merger. This was done in order to check the opinions expressed by some market participants⁶ who claimed that Ottakar's tended to have a more local-oriented pricing policy. Hence, we computed the discount variability across Waterstone's stores before and after the merger and compared it with the same figures for Ottakar's. In the following figures we plot the distribution of the discount standard deviations across Waterstone's and Ottakar's stores before the merger.

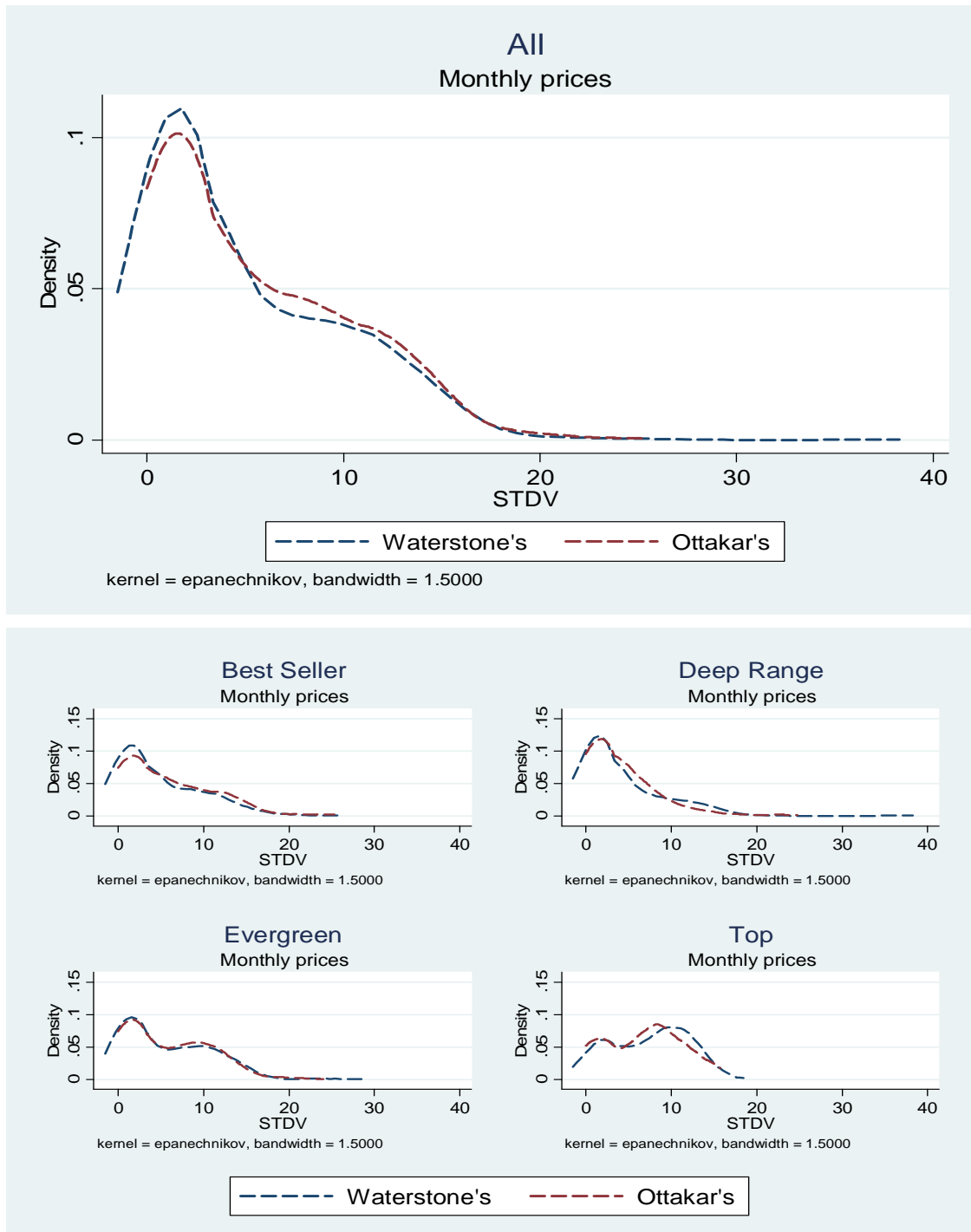
⁶ These opinions were expressed to both the CC during its inquiry and to us in the responses of our questionnaires.

Figure A3.4: Distribution of monthly standard deviation before merger: Waterstone's vs Ottakar's



The graphical inspection shows no significant difference between the merged parties, suggesting that before the merger the extent to which Waterstone's and Ottakar's adopted local pricing was similar. As expected, this holds all the more for the discounts applied once the merger was consummated (see the figure below).

Figure A3.5: Distribution of monthly standard deviation after the merger: Waterstone's vs Ottakar's



Appendix 4. The views of the market participants

As a integrating part of the ex post assessment, we also collected the views of a set of market participants. This was done through a written questionnaire. Out of the twelve players who had declared their willingness to participate in the questionnaire, we received responses from seven: two from wholesalers and five from publishers. However, one wholesaler completed only a shortened version of the questionnaire and one publisher extensively discussed his views on the effects of the merger on the industry by e-mail, but did not complete the questionnaire.

The questions focused on:

- the trends in the discounts off RRP's and in the volumes sold, distinguishing by retail channel⁷ and type of book. Special attention was devoted to understanding what determined these trends and identifying possible shifts;
- consumers' purchasing habits; and
- the changes in the merged entity's commercial strength.

Most of the questions were closed. When inquiring about opinions or facts, we listed a number of statements and asked the respondents whether and to what extent they agreed with them. When investigating for possible explanations and causes, we allowed for open-ended answers. In both cases we left space for comments and clarifications.

The majority of questions required separate answers for the two years preceding the merger (2004-2005) and the two following the merger (2006-2007), and thus stimulated a comparison between the pre and post-merger years.

Due to the low response rate, we do not consider the interviewed sample to be representative of the population. Hence, these questionnaires only provide some useful, additional information to evaluate and challenge the outcomes of the econometric analysis, but they do not have the same statistical validity of a survey.

1.1. Geographical dimension of the competition

To shed light on the issue of local versus national competition, we asked market participants whether, and to what extent, chains allowed individual stores to decide the level of the discounts according to local market conditions.

The answers consistently suggest that most retailers adopted a uniform national discount policy during the entire 2004-2007 period for all categories of books. In particular, this was true for Waterstone's, both before-and-after the merger.⁸ The results for Ottakar's were less clear cut: half of the respondents reported that its stores were allowed some autonomy (albeit limited) in setting discounts before the merger.

1.2. Trends in the discounts offered and in the volumes sold

To understand whether the merger had an impact on competition, we asked market participants to identify what had been the trends in the discounts on RRP's offered and the volumes sold for each category of titles in the years preceding (i.e. 2004-2005) and following (i.e. 2006-2007) the merger. We also asked for their views on what were the driving factors behind these trends and if there had been any changes that they considered to be a consequence of the merger. The questions were asked

⁷ We identified three retailing channels: non-specialist retailers, those who sell books as part of a wide range of goods (e.g. Tesco and WHSmith); specialists, those who are specialized in the sale of books, which have brick and mortar stores and may also sell online (being they part of large chains, like Waterstone's, or single independent bookshops); online retailers, those who don't have brick and mortar stores and only sell online (like Amazon).

⁸ Only one respondent stated that Waterstone's used to allow shop by shop discounts on a limited range of titles before the merger.

separately for three retail channels: specialist retailers, non-specialist retailers and on-line retailers. The answers do not reveal a lessening of competition following the merger.

With respect to specialist retailers, the respondents tend to agree that discounts had been increasing over whole period.⁹ By contrast, as regards volumes some respondents suggested that there had been a reduction in the volumes sold in the two years after the merger. The reason behind these trends was a growing pressure from on-line retailers and, in more recent years, from supermarkets, which had reduced the customer base of the specialist bookstores and had forced them to cut prices.¹⁰

As regards the other retailers (non-specialist and online retailers) the respondents share the view that they reduced their prices and enjoyed a consistent growth in volumes sold during the four years under scrutiny, due to their aggressive discount policies.

1.3. Competition among retailers

We asked market players about consumers' purchasing habits. In particular, we asked whether consumers that bought books from non-specialist retailers also bought from specialist ones; whether the reverse was true or not; whether consumers were willing to pay a small premium on the books they bought from brick and mortar outlets in exchange for the opportunity to browse among books and obtain advice from staff. We concluded by asking whether non-specialist retailers also sold deep-range books and whether this had changed over the period under examination.

Our aim was twofold. First, we wanted to collect views about the relevant market dimension, i.e. whether all retailer belong to the same relevant market. Second, we were interested in investigating the extent of competition among retailers on deep-range titles, for which there appeared to be less price competition.

From the answers provided, it emerged that (i) those consumers who buy mainly from specialist retailers also buy from non-specialist ones (while the opposite is not true); and (ii) only a minority of the consumers are willing to pay a (small) price premium over the price they would have got online in exchange for the opportunity to browse among books and obtain advice from staff, which is the typical benefit of brick and mortar outlets. Moreover, we found that shopping habits vary depending on what consumers are buying and for what purpose. All in all, respondents seem to share the view that those consumers who mainly buy from specialist retailers tend to diversify their purchases. This implies that the other retailers (non-specialist and internet retailers) are able to exert a competitive constraint on specialist outlets, at least to some extent.

As for the deep-range titles, there is consensus on the fact that deep-range portfolio of non-specialist retailers is rather limited.

1.4. Effects of the merger on the parties

We also questioned market participants about the effects of the merger on the merged entity's market behaviour.

In terms of the price and non-price dimensions, there were mixed views on whether the merged entity had an increased capacity of reducing the level and frequency of the discounts, as well as on the range of books it offered in its stores. One respondent claimed that "the merger led to a considerable reduction in consumer choice". It was also stated that the range reduction in which high street retailers have engaged might have a "devastating" effect in terms of cultural diversity, especially in some specific regions of the country. However, another respondent argued that reasons other than merger might have also played a role in the range reduction. In particular, the economic crises and the subsequent need for cost cuts led to a decrease in staffing (particularly buying teams) and fostered the

⁹ Only one respondent signaled a reduction in discounts offered by specialist retailers, specifically on deep range books.

¹⁰ Supermarkets mainly competed on top-selling titles, while online retailers on deep range ones.

process of centralization in buying decision, which in turn resulted in the rolling out “a bland customized and standard offer”.

As for the post-merger bargaining power, the answers seem to indicate that Waterstone’s increased its capacity to negotiate better conditions from publishers with a more mixed picture for wholesalers, which one respondent said placed small independent publishers in a difficult bargaining position¹¹. These results are shown in Figure A4.1 and Figure A4.2 below.

Figure A4.1: Views on the effects of the merger on the merged entity’s bargaining power

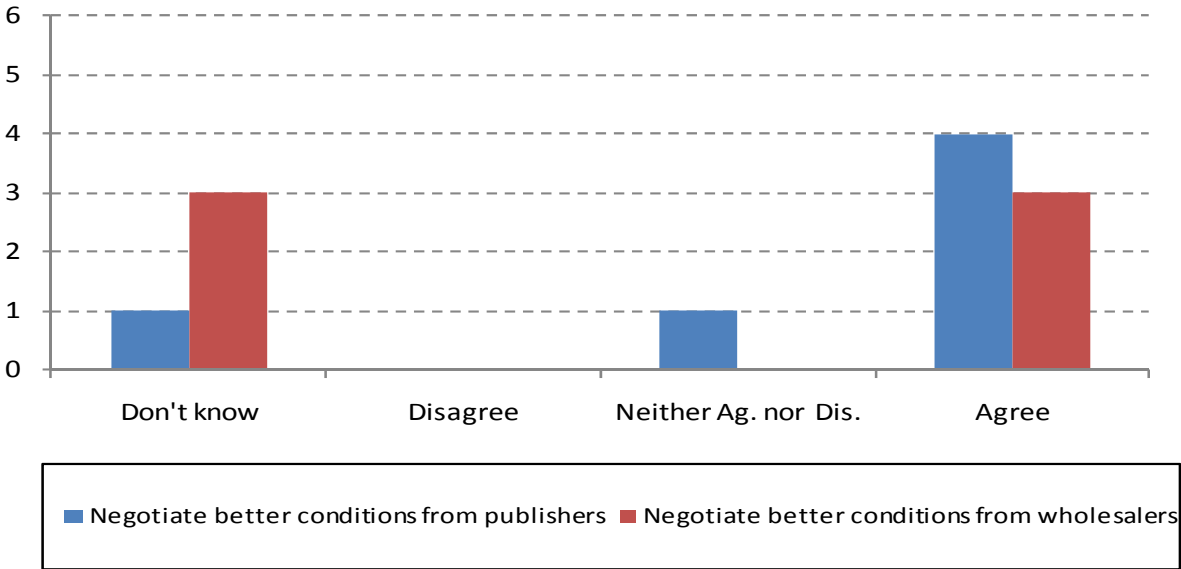
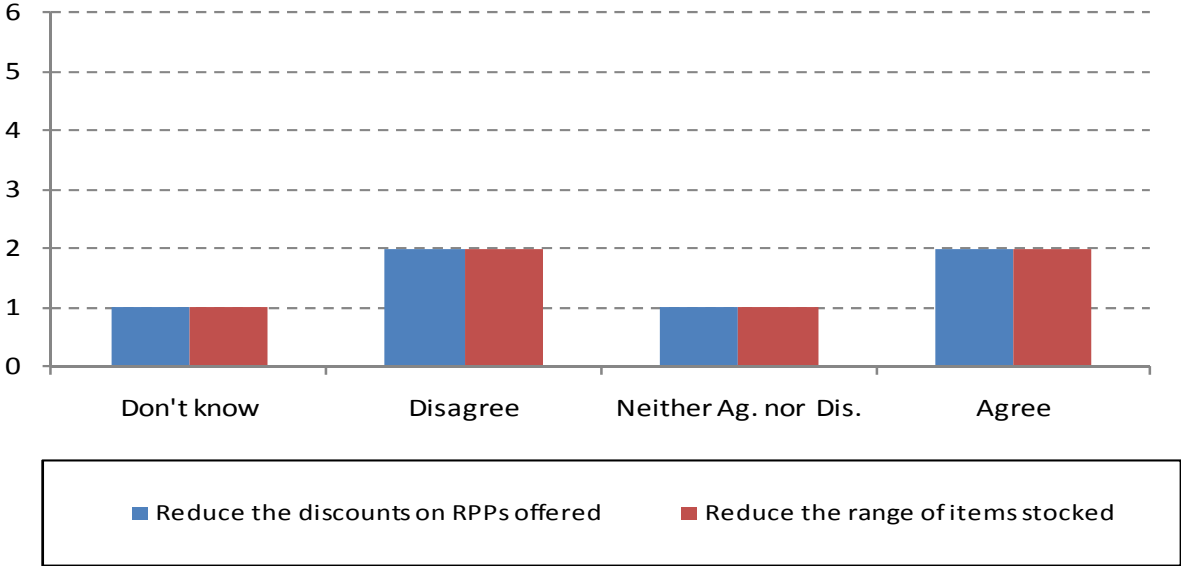


Figure A4.2: Views on the effects of the merger on the merged entity’s discounts and range



¹¹ Yet, the same respondent recognized that this situation might have deeper roots in the deregulation process that followed the end of the Net Book Agreement. It wrote that “the essential problem is that the UK market is completely deregulated with regard to price” and “the uncontrolled price wars now raging are in the process of destroying the traditional high street”. In this context, the merger may have then exacerbated and speeded up this process “through the permission of unprecedented aggregation of buying power into ever fewer hands”.

Appendix 5. Robustness checks on national competition analysis

Figure A5.1: Distribution of monthly national discounts: merged parties vs competitors (All titles)

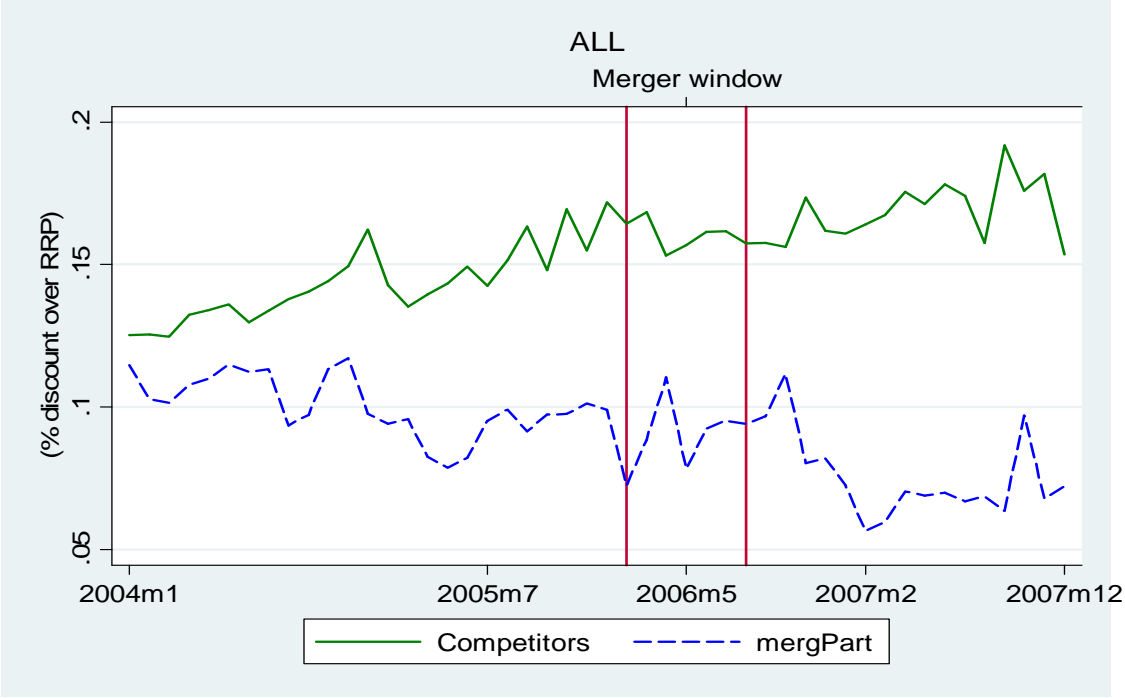


Table A5.1: DiD on local prices – time fixed effects

	All titles (1)	Best sellers (2)	Deep-range (3)	Evergreen (4)	Top-sellers (5)
overlap		0.127 (0.35)	0.147 (0.67)	0.130 (0.39)	0.408 (0.88)
TrEff	-0.190 (-0.87)	-0.011 (-0.02)	-0.244 (-1.10)	0.027 (0.07)	-0.054 (-0.07)
closed	0.093 (0.27)	-0.245 (-0.44)	-0.114 (-0.31)	0.119 (0.21)	-0.180 (-0.22)
TrEff_closed	0.080 (0.17)	0.997 (1.05)	0.354 (0.74)	0.331 (0.45)	-0.493 (-0.33)
constant	60.691*** (10.50)	38.061*** (15.22)	26.556*** (20.90)	15.257*** (7.15)	50.269*** (13.53)
observations	176,668	37,981	59,548	57,974	20,754
R-squared	0.074				
number of id	11,842	4,549	6,916	2,445	2,930
cluster	ISAN*ISBN ^{12,13}	ISAN*ISBN	ISAN*ISBN	ISAN*ISBN	ISAN*ISBN
Time FE	YES	YES	YES	YES	YES
FE	ISAN*ISBN				
Robust t-statistics in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

The dependent variable is the price discount. In all columns we control for a monthly time trend, trading_m1, trading_m2, trading_m3, a seasonal dummy, the price of wood pulp, the internet penetration rate, the housing price, gross value added, and the years elapsed since publication. In the random effects specifications (columns 2 to 5) we additionally control for waterstone, avgsales_area, population, pop_density, urban_area, universities, education, classD2, classD3, classD4, series, figure, pages, paperback (see Table 4 for the description of control variables). Robust t-statistics (columns 1) and z-statistic (columns 2 to 5) in parentheses, The symbols ***, **, and * represent significance at the 1%, 5%, and 10% level respectively.

¹² ISAN is the Nielsen's unique identifier of a store.

¹³ ISBN is the Nielsen's unique identifier of a title.

Table A5.2: DiD on national prices (top-selling titles as control group) with time fixed effects

VARIABLES	(1) BS per_DIS_m	(2) DR per_DIS_m	(3) EG per_DIS_m
titlecategory	-9.848*** (-4.41)	-18.126*** (-8.41)	-5.522** (-2.54)
TrEFF₂	2.298 (0.66)	6.390* (1.84)	5.407 (1.62)
pages	-0.003 (-1.08)	-0.002 (-1.23)	0.006 (0.93)
series	1.261 (0.69)	2.853** (2.20)	2.037 (1.01)
figure	-2.386 (-0.86)	-2.612 (-1.40)	2.071 (0.77)
paperback	4.518** (2.00)	3.924** (2.53)	2.069 (0.67)
classD2	1.984 (0.53)	2.233 (1.01)	-8.149* (-1.72)
classD3	0.538 (0.18)	0.892 (0.40)	-5.078** (-2.01)
classD4	-3.916 (-1.35)	-2.992* (-1.71)	-4.878 (-1.44)
elapsed_year	-1.179*** (-2.73)	-0.057 (-0.43)	-1.694*** (-3.84)
just_pub	4.845*** (3.55)	2.214* (1.88)	5.454*** (3.45)
constant	26.965*** (6.69)	25.386*** (9.08)	22.277*** (4.09)
observations	1,792	4,186	2,034
number of id	127	184	90
cluster	ISBN	ISBN	ISBN
Time FE	YES	YES	YES
RE	YES	YES	YES
Robust z-statistics in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

Table A5.3: Before-and-after analysis on national prices – the merging parties

VARIABLES	(1)	(2)	(3)	(4)	(5)
	BA All per_DIS_m	BA BS per_DIS_m	BA DR per_DIS_m	BA EG Per_DIS_m	BA TP per_DIS_m
month_t	-0.0979* (-1.861)	-0.299** (-2.335)	-0.119** (-2.495)	0.0717 (0.468)	-0.505* (-1.785)
post_merger	-0.814 (-0.807)	-5.075 (-1.416)	-0.0201 (-0.0229)	-1.850 (-0.896)	-7.047 (-0.845)
woodpulp	0.000282 (0.562)	0.000724 (0.512)	0.000135 (0.250)	0.00182 (1.367)	-0.00189 (-0.611)
pages		-0.00476* (-1.858)	-0.00353** (-2.202)	0.00752 (1.003)	0.0106 (1.066)
series		0.358 (0.163)	3.040** (2.407)	1.075 (0.509)	4.282 (1.169)
figure		-3.135 (-0.877)	-3.696* (-1.882)	1.636 (0.464)	0.872 (0.203)
paperback		4.336* (1.695)	4.416*** (4.737)	-1.260 (-0.491)	2.322 (0.599)
classD2		3.593 (0.909)	3.959* (1.851)	-7.112 (-1.128)	-2.810 (-0.540)
classD3		0.297 (0.0726)	2.553 (1.168)	-9.828*** (-3.590)	0.0888 (0.0221)
classD4		-2.991 (-0.860)	-1.377 (-0.752)	-4.143 (-1.019)	-7.118 (-1.066)
house_price	1.17e-05 (0.0710)	0.000500 (0.762)	0.000154 (0.727)	0.000133 (0.428)	0.00102 (0.803)
internet	-0.330 (-0.655)	2.022*** (3.360)	0.572*** (3.022)	0.424 (1.621)	0.187 (0.103)
GVA	-14,701** (-2.541)	-12,059 (-1.232)	-4,416 (-1.356)	-5,070 (-0.949)	-5,813 (-0.286)
just_pub	6,349*** (5.859)	5,888*** (3.352)	-1,446 (-1.478)	3,900** (2.344)	2,874 (1.215)
elapsed_year	14.07** (2.201)	-0.605 (-1.513)	0.0783 (0.676)	-1.224*** (-2.825)	-2.850*** (-4.459)
season	0.515* (1.904)	2.236*** (3.261)	-0.459** (-2.368)	0.627 (0.786)	3.082*** (3.020)
constant	277.5** (2.511)	53.66 (0.776)	34.59 (1.254)	61.40 (1.184)	-48.17 (-0.333)
observations	6,571	1,208	3,489	1,456	404
R-squared	0.120				
number of id	200	78	135	41	49
cluster	ISBN	ISBN	ISBN	ISBN	ISBN
Time Trend	YES	YES	YES	YES	YES
Fixed-effects	ISBN	NO	NO	NO	NO

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1