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DO SUPERMARKETS REDUCE THE NUMBER OF TRADITIONAL BOOKSHOPS? AN EMPIRICAL APPLICATION TO THE TEXTBOOK MARKET IN SPAIN

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Do supermarkets reduce the number of traditional bookshops? An empirical application to the textbook market in Spain

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Abstract

Some countries, especially in Europe, regulate the textbook market due to its special characteristics. In 2000, the Spanish Government passed a law that relaxes resale price maintenance and lets retailers give discounts of up to 25% off the gross price. Traditional bookshops do not favour this policy. We construct a database for the Canary Islands (a Spanish Autonomous Community) on schools, bookshops, population and other control factors. Our empirical objectives are twofold: first, we explore whether malls force the exit (or encourage entry) of bookshops; second, we test whether these larger retailers decrease consumer welfare by increasing distance from schools to points of sale. The results show that malls are not as bad as bookshops claim.

Keywords: Textbooks, Competition, Regional economic activity

J.E.L. Classification: R11, Z11.

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1. Introduction

Textbooks are particularly relevant from an economic point of view for one main reason: students are a captive consumer group; thus, demand for textbooks tends to be more inelastic than that for other books[3]. Due to this characteristic, Canoy et al. (2006) state that the textbook market is demand-driven and related economic analysis should focus on each school.

In some European countries, various policies to regulate the textbook market have been applied. In Spain, since 2000 some deregulation policies have been implemented that pertain to the textbook market and broad retail competition. In 2000, the government passed a law that deregulated the resale price maintenance system for textbooks. This Law let retailers give discounts of up to 25% off the gross price.

Bookshops and traditional retailers claim that this law negatively affects their sales, which forces incumbent retailers to exit the market. In fact, the evidence and general data on the textbook market point toward a reduction in sales by traditional bookshops and an increase in sales by malls and supermarkets (see Section 3.1). But do malls and supermarkets actually reduce the number of bookshops?

To answer this question we also have to keep in mind other important characteristics of this market (Siegfried and Latta, 1998): it is geographically conditionated by their proximity to schools, product homogeneity allows meaningful price comparisons across geographic markets and textbooks are purchased in limited quantities by many different individuals (i.e., demand has a cut-off point).

All these characteristics lead to a dilemma for consumers: they face a trade-off between lower prices in supermarkets and a shorter walking distance from their schools to traditional retailers. Hence, the negative relationship between malls and bookshops is not clear.

This paper tries to explore this trade-off with an empirical analysis using Geographical Information Systems (GIS) and data on schools, bookshops and malls in a Spanish region. We analyse whether larger retailers reduce the number of bookshops around the schools and decrease consumer welfare due to the increase in walking distance to retailers.

After this introduction, section 2 summarises the existing academic literature regarding the textbook market. Section 3 develops our database and shows some descriptive statistics and the empirical strategy we have used. Results and conclusions are reported in sections 4 and 5. These

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[3] Some studies consider books (in general, not textbooks) luxury goods. For example, Ringstad and Loyland (2006) estimate the demand for books in Norway (excluding textbooks); they conclude that books are quite inelastic and they are close substitutes for other cultural goods. Hjorth-Andersen also finds that this income elasticity in the Danish book market is about 1.8.

results do not support bookshops' claims because malls actually increase the number of retailers around them.

2. Literature review

As far as we know, the retail college textbook market has not been rigorously studied in the academic literature. In fact, there are only a few studies on how this market operates, which are mostly focused on higher education.

Siegfried and Latta (1998) analyse whether retail textbook prices at different college and university campus bookstores are related to the number of sellers, barriers to entry or differences in marginal cost (retail service costs). These authors conclude that there is not a relationship between prices and any of these other market conditions. Hence, they suggest that the textbook market does not exhibit profit-maximising behaviour.

Krey et al. (2009) try to descriptively analyse where and why students (or their parents) buy their textbooks for some Midwestern universities in the USA. They conclude that the majority of students purchase their textbooks in shops near their campuses.

Jiménez and Campos (2010) try to theoretically model competition in the retail textbook market in Spain; specifically, they examine the introduction of the aforementioned Law in Spain which relaxes resale price maintenance for this market that let them apply a maximum discount up to 25% of the price. This policy generated a duopoly (supermarkets and malls *vs.* traditional bookshops). The authors concluded that price liberalisation changed the existing market structure, which negatively affected traditional bookshops in favour of large retail outlets (depending on some theoretical assumptions). They also state that editors (the market's wholesaler) should compensate bookshops by allowing major discounts if they want to prevent increasing the market power of large retailers.

As Li (2010) states, there is a view that independent bookshops are in decline (in favour of shopping centres and supermarkets), particularly in the United Kingdom and the USA. However, this author shows how independent bookshops in Australia have found a niche by differentiating themselves from chains. He uses some general data on the number of bookshops in Sydney from 1977 to 2007 to show that there are proportionately fewer general independent booksellers and many more chain outlets. He also sends a small survey to 30 independent booksellers to conclude that differentiation can be achieved by four strategies: location, design, inventory and service. For example, in this particular market, 83% of independent bookshops are located away from shopping centres, e.g., on high streets.

It is known that supermarkets and shopping centres have changed the market structure in the retail markets around the world. In the UK, the Competition Commission (2008) analysed the effects of the entry of supermarkets on the number of small stores. The Commission provides an

econometric explanation of the net exit rate of a specific category of small or specialist store in the town centre or high street. They conclude that the opening of shopping centres increased the net exit rate of independent booksellers, among others.

Wrigley et al. (2009) improve upon this investigation with a broader analysis that separately considers three areas in the UK: London and prospering Southern England, prospering smaller towns and the rest of the UK. They found that competitive impacts associated with supermarket openings (15,000 ft^2 and above) on independent booksellers (among others) were positive in the case of the rest of UK (57.4% of total population), unclear in London and prospering Southern England (21% of total population) and negative on prospering smaller towns (21.6% of total population).

In summary, the academic literature recognises this market as a special one, due to various characteristics (captive demand, cultural goods, importance of location), but studies on the effects of changes in retailer competition (entry of supermarkets, chains and shopping centres) have not reached a common conclusion. We should take into account that textbook market is a special market within the broader book market and, at least in Spain, it is quite important in terms of revenues and household expenditures.

In the following section, we explore empirical data on the textbook market in Spain and try to determine whether supermarkets and large retailers have increased the number of independent bookshops. This analysis uses geographical data from the Canary Islands (Spain) on retailer location and other control variables that may influence the decision to establish a retailer.

3. Case study

3.1. A note on the Spanish textbook market

As we have mentioned, price regulation of textbooks is still common in Europe, although there are some differences across countries.[4] In Spain, the year 2000 was an inflexion point in the retail market regulation for textbooks. In this year, the government passed a law that deregulated the resale price maintenance system for textbooks in the compulsory education years in Spain (from 6 to 16 years old).[5] This law let retailers give discounts to consumers from 0 to 25% off the gross price, which is fixed by wholesaler.

The law was not well received by small and independent booksellers. They claimed that price liberalisation would increase opportunities for supermarkets and similar establishments that

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[4] For a more detailed explanation see Jiménez and Campos (2010).

[5] Real Decreto-Ley 6/2000, de 23 de junio, de Medidas Urgentes de Intensificación de la Competencia en Mercados de Bienes y Servicios.

could operate at lower marginal costs using cross-subsidies. Moreover, these policy changes could improve such stores' vertical integration with editors.[6]

Ten years later, bookshops in Spain are far from disappearing. Textbooks are still important for publishers; the revenues from textbooks were 20% of total revenues in 2000, and have increased to 27% in 2009.[7] Data on the publishing sector show a decline in share of textbooks sold by independent bookshops (from 53,4% in 2000 to 42,6% in 2009). However, the share sold in supermarkets and chains has also declined (from 24,2% in 2000 to 18,7% in 2009), whereas the share provided by public institutions has increased (from 21,3% in 2000 to 32,2% in 2009). This fact is due to some regional policies that allow schools to freely supply textbooks.

These regional policies are different for each of the Spanish Autonomous Communities. In the Canary Islands in 2007, the regional government established a discount system in which parents were delivered a credit card with 90€ (for children from 6 to 11 years old) or 135€ (for children from 12 to 16 years old) to purchase their books wherever they decide. Once parents had purchased the textbooks, the books had to remain at schools for at least 4 years or until they break.

This fixed subsidy has been widely approved by bookshops because somehow it reduces the incentive to buy in the malls or supermarket that are usually cheaper but often further away from the population than independent bookshops. Moreover, it contributes to an increase in consumer loyalty to independent bookshops.

3.2. Database and methodology

Our analysis will focus on the regional level, and we concentrate on the Canarian market. Data from this region let us simplify some assumptions on geographical competition due to the dispersed population of each island.

The database has been compiled from three different sources of information. Bookshop data are provided by the Regional Government of Canary Islands. School characteristics, level of education, and type of ownership (private or public) are provided by Council for Education of the Regional Government. Further socioeconomic information about the geographical area where bookshops and schools are located comes from the Annual Economic Yearbook Information of La Caixa, which is a complete database at the municipality level.

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[6] In fact, editors in Spain give greater discounts to supermarkets than to traditional bookshops and small retailers (Comercio Interior del Libro).

[7] Data on this sector have been obtained from Comercio Interior del Libro (several years), an annual publication of publishers in Spain (acronymous, ANELE). Those documents are available at: http://www.federacioneditores.org/SectorEdit/Documentos.asp

In our paper, we combine this information with the use of GIS, which allows us to match the exact location of each bookshop (including supermarket and mall departments) and the schools with the characteristics of the nearby population and area.

Given that we are interested in knowing how traditional bookshops relate to the number of schools, malls and other characteristics, we draw concentric circles of different radii (0.5, 1 and 2 km) around each school. Then, we obtain the number of bookshops, malls and other schools within those circles centred on a given school.

Table 1 provides descriptive statistics of the variables of our database. *Population 4 to 16* refers to the number of people between these ages who live at different municipalities. The *activity index* is a variable collected from La Caixa database, which is based on the taxes collected on the total business activities (industrial, commercial and service); Number of bookshops at X meters, Number of malls a X meters, etc are the set of variables that represents the number of bookshops and malls close to schools at different distances; and *public school* represents the number of public schools per municipality. To avoid some endogeneity problems in the following estimations, we also include the number of schools located near to the analysed school.

Table 1. Descriptive Statistics

Variable	Average	Standard deviation	Minimum	Maximum
Population 4 to 16	6557.51	11124.04	0	37838
Activity index	193.79	261.20	0	796
Number of bookshops (near to schools 0.5 kms)	0.9	2.1	0	18
Number of bookshops (near to schools 1 km.)	2.3	5.1	0	39
Number of malls (near to schools 0.5 kms.)	0.02	0.13	0	2
Number of malls (near to schools 1 km.)	0.07	0.31	0	3
Public school	0.84	0.37	0	1
Number of schools (near to school 0.5 kms.)	1.44	1.87	0	10
Number of schools (near to school 1 km.)	4.54	5.37	0	28
Number of schools (near to school 2 kms.)	13.6	15.5	0	70

Source: Own elaboration.

The variable population 4 to 16 has an average of 6,557.51 inhabitants and a maximum of 37,838. It is interesting to compare the average values of the number of bookshops inside the circle with a radius 0.5 km and the circle with a radius of 1 km. We observe, as expected, that the number of bookshops increase with the size of the circle; when the circle doubles in radius, the number of bookshops more than doubles.

The average school has a small number of malls close to it. In fact, 0.07 malls on average are located within 1 km of a school. The maximum value is 3 malls within 1 km, and 2 malls within 0.5 km. Only 16% of schools are private schools. Finally, each school has an average of 1.4 schools within 0.5 km, and 13.6 within 2 km.

Table 2 provides information about the correlations between variables of interest.

<p style="text-align: center;">**Table 2. Correlation Matrix**</p>

Variable	Population 4 to 16	Number of bookshops	Number of malls	Public school	Schools at 2 kms	Activity index
Population 4 to 16	1.00					
Number of bookshops	0.39	1.00				
Number of malls	0.41	0.48	1.00			
Public school	-0.20	-0.13	-0.07	1.00		
Schools at 2 kms	0.64	0.41	0.29	-0.25	1.00	
Activity index	0.75	0.28	0.32	-0.27	0.58	1.00

Source: Own elaboration.

For the most part, there is no high correlation between any pair of variables that could have generated a multicolinearity problem and a bias in the estimator from our econometric estimations. The exception is the correlation between population in school age and activity index (0.75). However, it is due to an endogenous relationship; there is more activity because there is more population and vice-versa.

It is also important to remark that the correlation between the number of bookshops and the number of malls and the activity index is positive, which suggests that bookshops locate where the economic activity and the concentration of population are higher. At the same time, we observe that the number of bookshops is negatively correlated with the number of public schools. Although it is a smaller coefficient, it shows that bookshops could prefer to locate close to private schools because they are associated with high-income families who may be less worried about the economic benefits of buying in malls and more aware of the personal attention provided by small bookshops.

4. Results

In this section, we report the results of our estimation and the econometric approach that we follow in order to capture the effect that the number of supermarkets and malls has on the number of bookshops around the schools within a circle of a given radius. A priori, the academic literature expects that malls and supermarkets have reduced the number of bookshops and independent retailers.

The econometric estimation considers the number of bookshops around the school as the dependent variable, whereas the number of supermarkets or malls, the size of the student population (4 to 16 year-olds), the activity index, the number of schools near the school analysed, the type of school (public or private) and island fixed effects are the independent variables.

$$Bookshops_i = \beta_0 + \beta_1 Schoolpopulation_j + \beta_2 Malls_i + \beta_3 ActivityIndex_j +$$

$$+\beta_4 NumberofschoolsinXmetres_i + \beta_5 D\_Public_i + \sum_{h=6}^{11} \beta_h Island + \varepsilon_{ij}$$

where *Schoolpopulation$_j$* is the number of children in school (from 4 to 16 years old) in the municipality *j* where the school *i* is located, *Malls$_i$* is the number of shopping centres and supermarkets within the radius *r* considered (0.5, 1 or 2 km) of school *i*, *Activity index$_j$* is a variable derived from tax collection corresponding to total economic activities (industrial, commercial and service) of the municipality *j*, *NumberofschoolsinXmeters$_i$* is the number of schools within the radius r of school *i* (without counting the school of reference) and *D_Public* is a binary variable that takes value 1 if school *i* is public and 0 otherwise. We also include fixed effects by island to control some potential differences not included in previous variables.

We estimate an ordinary least squares model that allows us to capture the effect that the number of malls and supermarkets has on our other variables of interest. The main advantage of this approach is the simplicity and easy interpretation of the results. Our estimation is robust to heteroskedasticity. Results are shown in Table 3.

Table 3. OLS estimations. Dependent variable number of bookshops

Explanatory variables	Number of bookshops (0.5 kms. radius)	Number of bookshops (1 km. radius)	Number of bookshops (2 km. radius)
Population 4 to 16	0.00001 (8.6e-6)*	0.00005 (0.00001)**	0.0003 (0.00003)***
Number of malls in X kms.	1.34 (0.65)**	3.33 (1.11)***	3.26 (0.78)***
Activity index	-0.0005 (0.0003)	-0.00004	-0.004 (0.001)**
Number of schools in X kms.	0.36 (0.04)***	0.25 (0.03)***	0.21 (0.02)***
Dummy Public school	-0.036 (0.172)	-0.50 (0.42)	-0.70 (0.72)
Constant	0.53 (0.47)	1.24 (0.59)**	1.66 (0.88)**
Observations	1350	1345	1320
F test	F (11,1338)=12.22***	F (11, 1333)=21.6***	F (11, 1308)=59.9***
R2	0.19	0.25	0.48

Note 1: *** 1%, ** 5%, *10% significance test.
Note 2: Standard errors among brackets.
Note 3: Fixed effects not showed (but included in the estimation).

We include more than 1,300 schools in the Canary Islands in our estimations. All estimations show R^2 between 0.19 and 0.48, and all parameters are jointly significant (F-test).

The variables of interest presented in table 3 have the expected sign. The existence of higher levels of population and number of schools have a positive influence on the number of bookshops, whereas the ownership of the school does not affect the number of bookshops (this variable is not statistically significant).

The most important variable for our analysis is the number of malls close to the school considered. In all estimations, the coefficient on this variable is significant and positive, which indicates a positive relationship between the number of malls and the number of bookshops. This result implies that malls create synergies with bookshops; perhaps bookshops get profits from being located close to malls or supermarkets because they can specialise and attract consumers that would go to malls anyway.

We can directly interpret the coefficient. The existence of an additional mall within a radius of 0.5 km leads to an increase of 1.34 in the number of bookshops. The existence of a school within the same radius increases the number of bookshops by 0.36.

The impact of the number of malls is larger when we increase the radius of the circle around the bookshops, but the effect of the number of schools is smaller as the radius grows. It is interesting that we observe different dynamic effects from these two variables.

However, it is important to consider the policy implications and impact on consumer welfare of our results.

5. Policy implications

Based on our estimations, the existence of shopping centres under the influence area of a school attracts other bookshops; this is a robust finding for all of the distances we consider. This result could seem counterintuitive, considering the tendency of small establishments to claim that they are struggling because of the proximity of shopping centres.

However, shopping centres are a point of attraction of economic activity, and people enjoy visiting them because of the possibilities that they offer. Thus, it is quite plausible to think of a world similar to that described by Hoteling, in which the equilibrium is the concentration of bookshops around shopping centres.

To understand the impact that the existence of shopping centres has on the economic welfare of the nearby population, let us assume that population and bookshops, independent of characteristics, are distributed uniformly around the perimeter of the circle drawn with GIS. Thus, the more bookshops that exist on the circle, the shorter the distance between them and the shorter the distance one consumer has to walk to buy textbooks.

Following the seminal argument of Becker (1965), consumers invest money and time to purchase goods that give them utility. We would need to know how prices, time invested and consumers' book acquisition behaviour change if we are interested in perfectly computing the changes in the consumer surplus.

Given the lack of price data, we concentrate on the value of time savings to approximate the benefit to consumers when a new shopping centre locates closer to his/her ideal preferences. To compute this value, we have used the value of time reported by HEATCO (2006) for the case of Spain and the time savings. They are obtained as the difference between the average time invested given the lack of a shopping centre minus the average time invested given the existence of a shopping centre, assuming that the walking speed is 5 km per hour.

Table 4 represents the value of time savings for the two distances used in our estimations. We assume that the bookshops for a given radius are located with a proportional distance between them as in the circular city of Salop (1979).

Table 4. Value of Time Savings Given the Existence of Shopping Centers (€2010).

Distance	Individual Time Savings	Individual Value of Time Savings
500 m.	12.53 minutes	2.6 €
1 km.	9.69 minutes	2.01 €

Considering that the value of time is 12,4 €/hour (2010), the improvement of consumer welfare given the time savings is 2.6 € in the case of a 0.5 km radius and 2.01 € for a 1 km radius. These results are just a simple approximation to show that consumers are better off under the existence of a shopping centre, even in the case that these sell books at the same price as a smaller shop.

With respect to prices, the lack of real data precludes careful analysis of the implications of the introduction of shopping centres. In the case of the Canary Islands, small bookshops have claimed to the regional government that the discount that shopping centres give to their consumers, not only monetary discounts, but also offers in other related products such as clothes or shoes damage their businesses results.

The response from the regional government was the creation of a card that provides discounts to those who buy books in small establishments. This practice could have important economic consequences because the subsidised card incurs a cost in terms of collected taxes for society to reap the benefits of small establishments.

Thus, there are two sources of inefficiency associated with the existence of this card: the consequences in terms of collected taxes and the potential inefficiency stemming from subsidised competition between agents. This last effect could be compensated if the additional

transport cost derived from the potential decrease of small establishments was significant enough to decrease the previous waste of resources.

6. Conclusions

The article sheds some light on the discussion of traditional bookshops and the conditions of the market in which they operate. The change in the regulation of textbooks has affected the way in which malls and traditional retailers compete. The former get benefits from a discount off the gross price, whereas the latter have usually made claims about the tough conditions of the market.

Our article focuses on the impact that the entrance of the malls has had on the bookshops and how the presence of schools affects the locations of bookshops. According to our estimates, both effects are positive and significant, especially the first one. This finding leads us to state that there is a complementary relationship between malls and bookshops that allows them both to benefit from the interaction.

Our analysis concentrates on the characteristics of the supply and the location aspects of the firms, but a better knowledge of agents' preferences and the prices are required for a more complex analysis of the market.

Finally, our article clarifies the implications of the policy of the regional government of the Canary Islands and performs a simple exercise to highlight the importance of supermarkets and malls in terms of time savings when we consider the walking distance and HEATCO's values of time. The existence of a card which provides a discount to consumers could have an ambiguous effect; therefore, further research of optimal public policies should be explored. This last line of research is particularly interesting from a cultural and educational perspective.

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