ARE BOOKS LUXURY GOODS IN RUSSIA OR NOT?

Nataliya Kochkina   Evgeniya Popova

Are books luxury goods in Russia or not?

Nataliya Kochkina[1], Evgeniya Popova[2]

National Research University Higher School of Economics

July 13, 2017

Abstract

In the times of Soviet Union books were a luxury good. This paper examines whether books are still a luxury good in Russia. For this purpose data from one of the Russian book retail chains is used to empirically estimate a general book demand and separate demand models for genres. We focus on estimating income elasticity. For this reason we construct a covariate on the basis of monthly wages of working individuals that reveals consumer income. Moreover, this paper is one of the few which addresses in detail the influence of books content quality on book demand. The main result is that books on average are not luxury goods anymore in Russia. However two genres: foreign prose and poetry are exceptions and can be called luxury goods. We also conclude that quality control covariates (book rating and number of people who rated the book) are important determinants of book demand as they influence significantly the general book demand and the demand models for different genres as well.

Key words: Russian book market, demand function, income elasticity, luxury goods, price elasticity

JEL code: L21, L23

[1] Research Group for Applied Markets and Enterprises Studies, junior research fellow
Lebedeva, 27, Perm, Russia
Email: nakochkina@hse.ru

[2] Research Group for Applied Markets and Enterprises Studies, junior research fellow
Lebedeva, 27, Perm, Russia
Email: epopova@hse.ru

1 Introduction

Books play an essential role in cultural life all over the world and in Russia as well. In times of Soviet Union many books which are wide spread now were in deficit. According to Zavisca (2005), although reading was a significant part of culture, an intellectual distance from the masses was provided not by reading, but by collecting books. Books were treated as luxury goods at that time. Many years passed and the reality Russian people live in now is completely another reality. Capitalism and democracy made all the books available. There is no deficit on the book market anymore and as a consequence the demand for books has changed. Are books still a luxury good for Russian people? That is the main question of the article.

To answer the question an empirical analysis of book demand is held. We built a log-log regression demand model for each book and estimate it on the data of one of the most popular books retail chains in Russia. As books are differentiated products, we estimate supplementary 8 models of book demand for different genres to see how these demands differ.

Moreover, Saint Petersburg is a unique city of Russia, which is known as a cultural capital of the country. Residents of Saint Petersburg are supposed to be more educated in general with a higher cultural level and, consequently, to consume cultural goods in the way that is different from the rest part of the country. That is why it is necessary to check whether there are crucial differences of the book demand in Saint Petersburg and other cities. For this reason we build and estimate both general model of the demand for Saint-Petersburg and for other cities of the North-West federal district separately.

The unique feature of the article is that we model book demand accounting not only for physical characteristics of goods. According to Canoy, Van Ours & Van der Ploeg (2006) books can be called "experienced good", quality of which can be found out only after consumption of the good. Consequently, book demand depends on quality signals, that retail chains provide. Price cannot serve as a quality signal for books and in the article we introduce the following quality signals: Internet book rating and the amount of people, who rated the book. To the best of our knowledge it is the first time these factors are introduced in the book demand model as explanatory variables.

The paper is organized as follows. A detailed literature analysis is represented in Section 2. Section 3 includes data description. In Section 4 model specification is introduced. Empirical results are represented in Section 5. Section 6 discusses and Section 7 concludes.

2 Literature review

All papers in which book demand is analyzed we divide into 3 large groups: (i) Price elasticity of the demand; (ii) Income elasticity of the demand; (iii) Other determinants of book demand. We consider each group separately.

Price elasticity of book demand

Price elasticity of book demand is of a special interest for book retail chains, publishers and government. Retain chains use it to form price policy for books. For publishers price elasticity allows to understand whether it is needed to increase a pressrun of a book or not. For government it is an indicator of market conditions based on which a decision to subsidize the market is made (Ringstad and Lyland , 2006). For this reason a large number of empirical works is focused on price elasticity estimation and the results are inconclusive. We group all articles into 3 sets united by the price elasticity.

The first set of papers reveal negative and inelastic price elasticity and can be presented by the following studies. Appelman and Canoy (2002) analyze Netherlands book market during 1977-1994 and get the estimation of elasticity equal to -0.9. Asai (2016) for bestseller paperback books gets the estimation of about -0.4184. Moreover, Schmidt-Stolting (2011) estimate price elasticity on the basis of book sales data in Germany for the period 2003-2006. The covariate turned out to be insignificant on a 10% significance level both for hardcover and paperback books. The author gives two reasons for this result. The first one is resale price maintenance system which was implemented in Germany due to which prices for books practically didn't change over time. The second one is that price of a book is determined accordingly to its physical characteristics: the more pages there is in a book, the higher the price the price for it. The correlation between the price and the amount of pages in his paper is 0.64 for hardcover books and 0.62 for paperback ones. So a consumer when pays more, gets more, which explains price insignificance.

The second group of papers conclude, that price elasticity is negative and elastic The theoretical explanation is provided by Ringstad and Lyland (2006). They suppose that book market (at least in Norway) has a monopolistic competition structure. For this reason the authors conclude that price elasticity should be less than -1, however they don't manage to prove it on Norwegian survey data of the period 1986-1999.

Empirical evidence of price elasticity of the demand can be found in the following papers. Prieto-Rodriguez, Romero-Jordan, Sanz-Sanz (2005) model the demand for 19 cultural goods estimated on Spanish consumer survey data in quartile dynamics. The elasticity for the group "books, magazines, newspapers" is found to be -1.65. Bittlingmayer (1992) carries out an analysis of professional book market in Germany covering the period 1984-1986 and suggests price elasticity between -2 and -3. Although it is

worth noticing that the sample which the author uses for estimation is introduced only with professional books. In such a case the results may not represent common patterns of a whole book market. On the sample of 1973-1991 Hjorth-Andersen (2000) estimates price elasticity for Danish book market equal to -1.4. So Hjorth-Andersens aggregate demand turns out to be less price elastic than the demand for each separate book of Bittlingmayer (1992). Jaen-Garci (2012, p.168) explains this phenomenon in the following manner: price increase for a separate book will decrease the demand for it, but at the same time will increase the demand for other books on the market, which results in a less effect on the aggregate demand. Barrot, Becker, Clement, Papies (2015) model the demand for a separate fiction book on German data. They find out that the demand is elastic and for papercover editions it is more elastic than for hardcover ones.

The last set of papers gets a positive price elasticity. Clerides(2002) gets a positive price elasticity on hardcover books on the US market and explains it by selection problem. However Van der Ploeg (2004) theoretically shows that for some book genres price can be increased, especially for intellectual-difficult books, poetry as an example of it. Books of this genres can be called Veblen goods (Veblen & Banta, 2009).

Brief review of studies in which price elasticity is analyzed shows that the estimates of price elasticity vary a lot from work to work. Differences can be explained with book types and specific features of book market common only for the country is analyzed.

In the article we analyze Russian sales data of fiction books, which include such book genres as prose, fantastic fiction, sentimental novel, poetry and detectives. Fiction books differ from domain-specific literature (for example, professional literature on engineering, architecture etc.) by two main reasons. The first one is the purpose of use. People usually read fiction books for entertainment whereas specific literature is used for other purposes (books in foreign languages - to upgrade language knowledge, professional and study books - to get necessary information and so on). The second one is that no preparation is needed to read fiction books. They can be read by a wide range of people in comparison with domain-specific literature. Consequently fiction books should be analyzed separately from all the other books. Following Hjorth-Andersen we formule the following hypothesis.

H1: Price elasticity of fiction books is negative and elastic in Russia.

Income elasticity of book demand

Income elasticity is a crucial element of the demand research literature as it helps to analyze whether a book is a luxury good or not. Canoy (2006) confirms that fiction books are not luxury goods, especially in comparison with another cultural good theatre. She explains it with the presence of libraries, although this outcome is not proved in empirical works. Hjorth-Andersen (2000) gets income elasticity about 1.97 using aggregate sales data of Danish market, which cover the period 1973-1991. Prieto-Rodriguez (2005)

finds income elastic demand for the group books, magazines, newspapers (the elasticity was equal to 1.37). Ringstad and Lyland (2006) get income elasticity equal to 1.3. One of the main outcomes of their article is that significance of income for consumers' choice together with their income growing are crucial factors which determine book market size. They conclude that the more income elasticity is the more the share the book market will take in gross national product. However, Jaen-Garcia (2012) gets an opposite results on Spain data. She estimates income elasticity to be equal to 0.8.

As all the previous researches show, income elasticity varies among countries. Consequently for some countries books are luxury goods, whereas for others they are not. In our work we formulate the following hypothesis:

H2: Income elasticity of book demand is more than 1 (or fiction books are luxury goods in Russia).

Other book demand determinants

Among physical factors influencing the demand the following are outlined in the existing literature: (i) the attractiveness of the book cover (D'Astous, Colbert, Mbarek, 2006; Bowers, 2015); (ii) the number of pages (Clerides, 2002; Barrot et al 2015); (iii) cover type. A number of authors suppose that books in different covers (hardcover or paperback) are bought for different purposes. For this reason in some studies (Clerides, 2002; Schmidt-Stlting, 2011; Barrot, 2015) separate models of demands are suggested for hardcover and paperback books.

Books are experience goods, which means that their quality can not be known without experiencing (reading) them. Consequently, demand is affected by factors, that are perceived by consumers as quality signals. For non-cultural goods price is an indicator of quality, but for cultural goods it is not so. Price of a book doesn't allow to understand whether the content of the book is interesting enough to buy it. Karpic (2010) suggests a classification of such quality indicators. She points out the following factors: (i) author's and publisher's reputation (D'Astous, 2006; Schmidt-Stlting, 2011; Barrot, 2015); (ii) experts' reviews for a book and literary awards (Ashworth, Heyndels, Werck, 2010; Schmidt-Stlting, 2011; Barrot, 2015); (iii) public opinion, that can be presented by list of best-seller books (Sorensen, 2007), word-of- mouth (Schmidt-Stlting, 2011), successful film release (Asai, 2016) or readers' ratings.

To our knowledge, empirical estimation of ratings as an indicator of book's content quality hasn't been done yet. We suppose that this factor should be strongly significant because books are the goods which are bought for their content first of all. A desire to find a book the content of which matches consumer's preferences will lead people to look out for ratings. For this reason the following factors are analyzed in our work:

1. The amount of people who rated a book on a website. The more people read the book and rated it (with average or low rating), the higher the demand. The fact of reading a book by a large number of

people regardless of its content can make people interested in it, which can lead to its purchase. Except pure interest people are driven by fashion. If many people read it, a possible reader may think that this book is fashionable and buy it.

2. Book rating. The higher the rating, the more probability of its purchase because of its high quality.

We formulate two hypothesizes about the way these two factors influence the demand.

H3: The more people rated a book, the higher the demand for it.

H4: The higher the book rating is, the higher the demand for it.

3 Data

The data for the research have been provided by one book retail chain of Russia. The chain covers the territory of North-West federal district of Russia with population of 13.55 million of people (which is 9.25% of the population of Russia). This book chain is one of the largest in Russia as in North-West federal district covers approximately 65% of the book market and approximately 10% of the whole Russian book market. In 2015 the book chain had 98 stores, 68 of which were located in Saint-Petersburg. Saint-Petersburg is an administrative center of the district, the 2nd biggest city in Russia and is called a cultural capital of Russia. The other 30 stores of the retail chain were distributed in the rest part of the district.

The database contains all sales of fiction books that were sold in the book chain in 2015 from July till December. Initial sample consisted of 23 830 book titles, that were written in Russian and other languages. Further, we denote languages other than Russian as foreign. We suppose that books written in foreign languages are bought with purposes different than books written in Russian. People in Russia buy books in foreign languages to improve knowledge of languages first of all, not to enjoy the content. Therefore all the books written in foreign languages were eliminated. So the final sample is formed by 17 316 book titles (further subsample). According to the classification of fiction books of the retail chain, each book belongs to one of eight genres Table 1). Foreign and Russian prose books amount to 48% of the whole sample.

The first part of the database includes the information, which was provided by the book chain. That is the number of book titles sold in 2015 in chain as a whole and in separate shops and prices of books which were converted into dollars.

Consumers' incomes don't vary among books. To estimate income effect we have to construct a variable, which has variation among books. Income variable is constructed according to data on average monthly wages of working population in each local region. There are 66 local regions in the district, among them 50 are located in Saint Petersburg. We gather average monthly wages $Wage_j$ in that local

regions j in 2015 from the site of Russian Federal State Statistics Service (www.gks.ru). After that for each book i we have calculated the total sales of book S_{ij} in the stores located in a local region j and in the whole retail chain (S_i) for the period from January till June 2015 (Whereas for the model estimation the second part of the year in sample is used). The proxy variable of income is calculated by the following formular: $Income_i = \sum_{i=1}^{66} \frac{S_{ij}}{Wage_j}$ for each book i.

Table 1: Descriptive statistics

	Genre	Mean Demand	Mean Price in $	Number of a title
1.	Russian prose	50.405 (2.487)	4.249 (0.052)	3522
2.	Foreign prose	79.913 (4.346)	4.330 (0.042)	4770
3.	Russian detectives, actions, thrillers	27.937 (3.089)	2.467 (0.043)	2292
4.	Foreign detectives, actions, thrillers	31.885 (1.979)	3.782 (0.067)	1245
5.	Russian fantastic fiction, mystics	18.524 (1.714)	3.582 (0.032)	3209
6.	Foreign fantastic fiction, mystics	82.758 (7.433)	5.587 (0.092)	1116
7.	Sentimental novel	17.052 (1.168)	2.147 (0.052)	555
8.	Poetry	46.862 (4.994)	5.135 (0.156)	607

Note: Standard errors are presented in parentheses.

The second part of the sample consists of physical and quality book characteristics which were collected with the help of an international book identification number ISBN. Physical characteristics include cover type (hardcover % of sample, paperback 35%), book format (big 1%, medium 75%, small 24%) and number of pages. These data were gathered from the sites of the largest online shops in Russia Bukvoed (www.bookvoed.ru), Ozon (www.ozon.ru), Labirint (www.labirint.ru).

We use two covariates to capture quality characteristics. The first one is an average book rating which is measured on the scale from 0 to 5. The second one is the number of people who rated a book on a website which were converted to the scale from 0 to 5. The data are gathered from the biggest Russian literature review site (Live Library, www.livelib.ru).

We also gather information about film versions for books, that were released in 2015. In Table 2 the number of such books is represented for different genres. Foreign fiction is the most popular genre for which films are released.

4 Methodology

To check the hypothesizes H1-H4 we specify a model of demand for fiction books and estimate it on different samples. First of all, the model is estimated on the whole sample of books, accounting for dummy variables for different genres. On the second step, it is estimated on a subsample for each genre separately, as we suppose that demand functions for books of different genres can differ a lot. Finally, as a robustness check, the model is estimated on reduced sample to analyze the effect of Saint Petersburg as a cultural capital of Russia. The generalized method of moments is used for estimation of the demand models.

Table 2: Film release among different genres

	Genre	Number of titles with film release	Per cent of the genre in subsample
1.	Russian prose	242	6.87%
2.	Foreign prose	445	9.33%
3.	Russian detectives, actions, thrillers	134	5.85%
4.	Foreign detectives, actions, thrillers	166	13.33%
5.	Russian fantastic fiction, mystics	157	4.89%
6.	Foreign fantastic fiction, mystics	186	16.67%
7.	Sentimental novel	49	8.83%
8.	Poetry	53	8.73%

Econometric model

The log-log model of the demand for each fiction book title is as follows:

$$ln(Q_i) = \beta_0 + \beta_1 ln(P_i) + \beta_2 \, ln(Income_i) + \eta \, X_i + \mu \, Film_i + \varepsilon_i, \tag{1}$$

where i denotes a book title. Demand for fiction books Q_i is a dependent variable and introduces the volume of sales of a book title i in the whole chain. Two main factors which influence book demand are book price and consumer income. The variable $Price\_i$ is an average price of a book title i in the chain in 2015. The variable $Income_i$ is a proxy variable for income (the way of calculation see in Section 3).

Matrix X is a matrix of book characteristics:

$X = \{MedSize, Big \, Size, H \, Cover, MedSize \times HCover, BigSize \times HCover, Rate, N, Film\}.$

All the characteristics we divide into two parts: physical and quality characteristics. Physical characteristics are the ones, which allow to differ one book from another without reading it. They include number of pages, type of book cover, book size.

We propose quadratic functional form of dependence between demand and number of pages, due to decreasing marginal utility from each additional page. The second physical book characteristic is a book size, as people often take into account book size while making a decision about the purchase. The

covariates $MediumSize$ and $BigSize$ are dummy variables, which take the value of one in case the book is of medium or big size respectively and zero otherwise. Small size is taken as a base level.

The next physical characteristic is a book cover type. The variable $HCover$ is a dummy variable which is equal to one in case the book is published in a hardcover and zero in case of paperback.

The combination of book size and cover type can play a crucial role in consumer choice. For example, people who are going to travel with a book prefer medium or small sized paperback books. In other cases (for example, when choosing gifts), people may prefer to choose big sized hardcover editions. To account for such effects the variable $MedSize \times HCover$ and $BigSize \times HCover$ are introduced in the model. They represent the joint effects of book size and book cover.

Quality characteristics reflect consumer preferences for book's content. Among them we consider internet books rating $(Rate),$ the amount of people who rated the book on a website (N).If we fix the average rating $Rate,$ than the more people rated the book, the more qualitative the book content is. And conversely, if we fix N, the more average rating is, the more qualitative the book content is.

The only variable that accounts for promotions of the book is a film release. The covariate $Film$ is equal to one in case there was a film release for a book in 2015 and is equal to zero otherwise.

Endogeneity problem

In the model specifications (1) the problem of endogeneity of price variable arises. There are factors which may influence both book price and the quantity sold and which are not included in the specification explicitly. For example, author's reputation, which definitely serves as a brand and can lead to price and quantity changes. To solve the problem of endogeneity it is needed to find instruments, which are correlated with price and are not correlated with the quantity sold. There are just a few researches, that account for an endogenous price. Cleredis (2002) suggested physical characteristics (the amount of pages, book length and book width) of books as instruments, later Asai (2016) followed the same approach. We assume, that physical characteristics of a book influence the quantity sold and therefore can't be used as instruments.

Following Berry, Levinsohn, Pakes (1995) we use instruments for the endogeneous book price, constructed from prices of other books. The first one is an average book price of book i'th publisher, which is calculated over all the books of this publisher excluding book i'th price. This instrument is relevant as it captures the general mechanism of price formation of the book publisher and therefore can explain a significant part of book i price variation. Validity is implied by lack of correlation between shocks of book i price with prices of other books of the same publisher. The second instrument variable, which is suggested, is the average book price of all the publishers except book i'th publisher. The variable is valid

and relevant as it reflects that the pricing policy of the publisher is defined with consideration for pricing policies of other publishers, what reflects strategic interaction in the Russian book market.

5 Empirical results

Estimation results of general demand function

Two models with content quality variables *(Rate$_i$, N$_i$)* and without them are estimated with the help of GMM. The estimates for these specifications are introduced in columns (1) and (2) of Table 3 respectively. Price elasticity in both models is positive and equal to 0.783 and 0.668 for models (1) and (2) respectively. This allows to conclude that books in Russia are Veblen goods. Fashion and conspicuous consumption are the main driving factors of such consumer behavior. Income elasticity is equal to 0.267 for specification (1) and 0.457 for (2). People buy more books, when their income increases. It means that books are normal goods and the hypothesis that books in Russia are luxury goods can't be confirmed.

All other estimates in both models have expected signs and are statistically significant. The most interesting result is the difference between the estimators of film coefficient. Film release produced in 2015 increases the demand for a book on 60% foe model(1) and 32% for model (2). In the first model the estimator of film coefficient is higher than in the second model. One of the possible explanations is that film is percieved by consumers as an indicator of content quality of the book. The differences between other estimators of the coefficients of these two models are insignificant. Consequently, all the further detailed analysis is held for the second model.

Table 3: Estimates of the book demand for the whole sample

	(1) base model	(2) model with quality factors
Ln(Price)	0.783***	0.739***
	(0.050)	(0.043)
Ln(Income)	0.267***	0.436***
	(0.089)	(0.088)
Number of pages	0.042***	-0.004
	(0.012)	(0.011)
(Number of pages)^2	-0.003***	-0.002***
	(0.001)	(0.000)
Median size	-0.885***	-0.768***
	(0.046)	(0.044)
Big size	-2.653***	-2.424***
	(0.702)	(0.750)
Hardcover	-1.045***	-0.899***
	(0.094)	(0.089)
Median sizex Hardcover	0.587***	0.493***
	(0.096)	(0.092)
Big size x Hardcover	1.609**	1.245
	(0.711)	(0.760)
Film Release	0.597***	0.326***
	(0.045)	(0.044)
Rating		0.204***
		(0.021)
Number of ratings		0.454***
		(0.016)
Controls	Genre, Intercept	Genre, Intercept
R^2	0.156	0.229
Observations	17316	17316

Note: Standard errors are presented in parentheses. *, **, * * * denotes to $p\_value < 0.1$, $p\_value < 0.05$, $p\_value < 0.01$ respectively.

All quality characteristics of books are significant and have positive influence on demand. One star rating growth leads to 21.5% demand increase, whereas an increase of *N* on 1 point of scale (1 point is approximately 2000 people that rated a book on the website) leads to 75.2% demand increase. Introduction of variables of rating and the number of people, who rated the book, in the model increases explanation power of the model as R^2 increases. Moreover, these quality control variales are statistically significant in specification (2). This confirms the hypothesizes H3,H4.

All physical characteristics in model (2) are significant. Such characteristics of books as medium and big size lead to demand decline by 27.5% and 118% respectively comparing to small size books given other factors fixed. Hardcover increases the demand by 84% in comparison with papercover. Number of pages and (number of pages)^2 are jointly statistically significant. So, an influence between the demand and number of pages can be presented as an inverted U-form. Point of inflexion in this quadratic form is in the situation, where number of pages is equal to 1. Consequently, the more pages are there in the book, the

less demand is. And for small books demand changes slightly, however for big sized books demand changes dramatically.

Estimation results of demand models for different genres

The demand functions for books of different genres can differ a lot. For this reason the whole sample was divided into eight sub-samples by the genre the book belongs to. The model is estimated on each sub-sample with the help of GMM. Estimation results are introduced in Table 4.

Price elasticity estimates are statistically significant for all genres except poetry. For all other genres price elasticity estimates are positive and significant. This confirms the results that books or any genre are Veblen goods as in the model estimated on the whole sample. Poetry books are classics, always in fashion and price is not the main factor influencing the fact of purchase. That is why price elasticity estimate for it turns out to be insignificant.

For foreign and Russian detectives, foreign and Russian fantastic fiction and sentimental novel price elasticity is more than 1. This means that slight increase in price leads to dramatic increase in demand. The highest price elasticity, equal to 1.671, is for sentimental novel. Second highest price elasticity is calculated for foreign fantastic fiction and detectives. The explanation of great elasticity level is that these genres can be referred to the most fashionable ones. We suppose that for the most popular genres the largest amount of films is produced. In the whole sample of films produced these two genres take 16.67 % and 13.33 % respectively.

Income elasticity is statistically significant for all genres except foreign detectives and sentimental novel. Foreign prose and poetry are luxury goods as income elasticity for them is more than 1 and books are very expensive (see Table 1). Russian prose, Russian and foreign fantastic fiction are normal goods as income elasticity for them is positive and less than 1. Books of Russian detective are referred to inferior goods as income elasticity for them is negative. It means that the growth of income will decrease the demand. These books are not very valuable and people will reduce the consumption in case their budget allows them to buy more expensive books.

Table 4: Estimates of the book demand for different genres

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Genre 1	Genre 2	Genre 3	Genre 4	Genre 5	Genre 6	Genre 7	Genre 8
Ln(Price)	0.721***	0.464***	1.334***	1.045***	1 247***	1.310***	1.671***	-0.205
	(0.085)	(0.069)	(0.099)	(0.124)	(0.056)	(0.114)	(0.179)	(0.156)
Ln(Income)	0.532**	1.338***	-0.806***	0.320	-0.320**	0.848**	-0.415	1.826***
	(0.213)	(0.168)	(0.261)	(0.348)	(0.148)	(0.380)	(0.402)	(0.523)
Film Release	0.338***	0.436***	0.456***	0.116		0.361***	-0.064	0.437*
	(0.099)	(0.089)	(0.105)	(0.117)		(0.130)	(0.188)	(0.241)
Rating	0.288***	0.302***	-0.008	0.219**	0.113***	0.714***	-0.043	0.362***
	(0.048)	(0.059)	(0.042)	(0.088)	(0.034)	(0.118)	(0.072)	(0.120)
Number of ratings	0.362***	0.489***	0.397***	0.391***	0.424***	0.432***	0.598	0.250**
	(0.031)	(0.023)	(0.085)	(0.074)	(0.073)	(0.044)	(0.377)	(0.097)
Controls	Book size, type cover, pages	Book size, type cover, pages	Book size, type cover, pages	Book size, type cover, pages	Book size, type cover, pages	Book size, type cover, pages	Book size, type cover, pages	Book size, type cover, pages
R^2	0.186	0.241	0.184	0.219	0.222	0.378	0.284	0.135
Observations	3522	4770	2292	1245	3209	1116	555.000	607.000

Note: Standard errors are presented in parentheses. *,**,* * * denotes to $p\text{-}value < 0.1$, $p\text{-}value < 0.05$, $p\text{-}value < 0.01$ respectively. Each model (l)-(8) is calculated on a subsample of one genre. Genre (1), (2), (3), (4), (5), (6), (7), (8) are Russian prose, Foreign prose, Russian detectives, Foreign detectives, Russian fantastic fiction, Foreign fantastic fiction, Sentimental novel and Poetry respectively.

Film release is statistically significant and has a positive influence for all the genres except foreign detective and sentimental novel. The largest effect of film release can be seen for Russian detective, foreign prose and poetry. It increases the demand on more than 40%. For prose and foreign fantastic film release increases the demand on 34% and 36% respectively. As we took only releases of 2015 year, their influence is strong enough, because people still remember the film. Film releases of the previous years also can influence, but we don't have such data for analysis.

Content quality variables: book rating and the amount of people, who rated the book, positively influence the demand of each genre except sentimental novel. The highest influence on the demand of Internet rating can be seen for foreign prose. One star increase of rating will cause 71% increase of the demand. The amount of people who rated a book on a website has the largest influence on foreign prose and the smallest effect for poetry. Foreign prose is very popular in Russia and ratings allow to estimate quickly whether to buy the book or not. At the same time poetry is perceived by people as classics and is always in fashion and perceived as a high quality genre so the amount of people who rated a book has the smallest effect on it. The coefficients of the physical characteristics are as one would expect.

Sentimental novel stands apart from all other genres. The only factor which influences the demand in the model is price. In such a case price is the only quality indicator for a consumer. The higher price signify the higher content quality and lead to demand increase. The fact that the majority of all other factors dont influence the demand is explained by low quality of this literature, a special purpose of purchase of such books (to spend time in road in the majority of cases) and place of purchase (newsstands on railways stations and bus stops). There is no need for people to check ratings of such books.

Robustness check

As a robustness check we analyze the effect of Saint Petersburg as a North-West district (NW district) center and a cultural capital of Russia. The reason for conducting such an analysis is to check whether status of Saint Petersburg as a cultural capital of Russia leads to substantial differences in the capital and non-capital demand functions.

To estimate the effect the sample is reduced, as not all the books, which were sold in St. Petersburg, were also sold on the rest part of the district and vice versa. The final sample includes only the books, which were sold both in the capital and the rest part of the district. It includes 9429 book titles.

Income, the quantity of books sold, instrumental variables are recalculated separately for two areas under interest: St. Petersburg and the rest part of the district, according to the methodology in sector 4. The model is estimated by GMM separately for each of 2 areas and for each of 8 genres. The results are presented in Appendix 1.

The estimates of price and income elasticity correspond to the estimation results for the whole sample. Price elasticity are positive and statistically significant for all the genres except poetry. The only genre where

there is a difference for Saint Petersburg and the region is foreign prose. In the region price elasticity turned out to be insignificant. Positive price elasticity allows to conclude that books of all the genres (except those for which price elasticity is insignificant) are Veblen goods (as in case of a general model) both in Saint Petersburg and the rest part of the district.

It is interesting that for sentimental novel, Russian detective and fantastic fiction the demand price elasticity is more than 1 both in Saint Petersburg and the rest part of the district. For these genres price serves as a content quality indicator as these books are often bought on the railway stations or press stands on the street to spend time in the road. That is why price often is the only content quality signal. It is worth noting that for all the genres the price elasticity in Saint Petersburg is more than in the surrounding regions, which can be explained by higher competition on the book market in the capital comparing with the rest part of the district.

It is interesting to analyze income elasticity as it reveals the way a status of Saint Petersburg as a cultural center influences the differences in the demands for many genres. Income elasticity is positive and statistically significant only for Saint Petersburg for Russian and foreign prose and poetry. For the rest part of the district income doesn't influence the demand on these genres. Moreover it is interesting that in Saint Petersburg these books are luxury goods. Estimates of income elasticity are huge and all are more than 2.5, which means that 1% increase in income will result in more than 250% increase of these genres. An outstanding effect of 1% income growth can be seen for poetry and results in 377% increase of demand.

One more interesting feature which shows the way cultural level of Saint Petersburg differs from the cultural level of the rest district is the estimates of income elasticity for sentimental novel. In the district center these books are inferior goods and people will sharply reduce their consumption with the growth of the demand as income elasticity is negative and equal to -5.97. In other areas of the district sentimental novel is a luxury good as price elasticity estimate is equal to 1.171. For foreign detectives income elasticity is positive and statistically significant only for the district areas excluding Petersburg. For all the other genres income is not statistically significant.

The analysis of price and especially income elasticity allows to conclude that people in Saint Petersburg are more focused on consumption of high cultural literature and will significantly increase their consumption with income growth. Among all the factors driving the demand both in the region and Saint Petersburg fashion and conspicuous consumption can be outlined.

6 Discussion

Revealing demand determinants, shaping demand specification and its estimation have practical implications. Knowledge of the way the book size and cover type affect consumer demand allows retail chains to reconstruct their assortments in order to represent each genre books of the sizes and in the covers,

which are of the highest demand among consumers. For publishers these results give information on which genres of which sizes and in which covers (hardcover or paperback) to print. Estimation results of model (2) allow to conclude that any size of the book except small one leads to the decline in the demand. The general recommendation for the publishers in such a case is to choose a small size of a book for publishing.

One more interesting result is that large amount of pages in a book leads to a sharp decrease of the demand, therefore it is not beneficial for retail chains to sell bundles of books. It is better to sell books separately.

The estimation results for the general model and models for different genres allows to draw the following conclusions. Firstly, in all the models estimated film release has a positive influence on the demand. Stores can provide more beneficial shelf space for such books as it will increase the turnover of these books. -

Secondly, content quality indicators (the average book rating and the amount of people who rated a book on a website) influence the estimated demand models positively. Retailers can use this information to increase the demand. For example, they can post books ratings on the book shelves. In the same way publishers can print this information on the book covers.

Thirdly, the analysis of price elasticity of all the models for different genres allows to conclude that prices for all the books can be increased. Still the amount on which prices should be increased is a separate question and beyond the scope of this paper. However for the genres Russian and Foreign detective, Russian and Foreign fantastic, Sentimental novel prices can be raised more than for all other genres.

The analysis for different genres (Table 4) allows to find out unique features of that genres what can be taken into account by retailers and stores. This concerns mostly following genres: foreign prose, poetry, sentimental novel.

It is beneficial to increase the share of foreign prose in the assortment. Firstly, price elasticity for this genre is less than 1. It means that consumers are not very price sensitive. Secondly, foreign prose is a luxury good, which means that with the income growth the consumption rate of growth will outstrip the rate of income growth. This genre provides stable high demand.

Poetry is a luxury good and it's price does not influence the demand. Therefore, the retail chain can widen their assortment or increase the shelf space for these books in case the chain knows that consumers' incomes increased.

Sentimental novel is the only genre for which price is the only factor influencing the fact of purchase. It plays the role of quality indicator for consumers. Retail chains can use this result to increase price which won't result in demand reduction.

7 Conclusion

The purpose of this work is to check whether fiction books in Russia are luxury goods. For the analysis we take only printed books. To the best of our knowledge this article is the first in which such an anaysis is made for post-soviet territory.

To answer this question a log-log regression model function is built and estimated on the whole sample. To check whether demand functions differ for different genres, demand model is estimated for each of eight genres separately. As a robustness check the effect of Saint Petersburg as a cultural capital of Russia is analyzed. The demand models of different genres are estimated for Saint Petersburg and for other cities of the district.

The main result of the article is that books in Russia are not luxury goods on average. Consequently, book consumption has significantly changed since soviet reality. However, among all the genres we reveal that foreign prose and poetry can be called luxury goods. These genres are the most expensive ones and are considered in Russia as heavy-intellectual books.

One more important result is that books in Russia are Veblen goods which means that fashion and conspicuous consumption are one of the factors driving the demand. The estimation results of the demand models for different genres and robustness check confirm the estimation results of the general model. The practical recommendation that arises from the results is that retail chain can increase prices for all genres.

The peculiarity of the model built is that we introduce factors which introduce content quality of the books. We suppose that book content quality is one the most significant factor driving the demand for books, but it can't be calculated. For this reason we suggest book rating and number of people who rated the book as proxy variables for book content quality variables. However, these variables don't reflect the whole quality of a book, and this issue can be addressed to in further researches.

The estimation results show that book content quality variables influence the demand positively and are statistically significant practically for all the models. The same result can be found for film release. Models with these factors has more explanation power, than the model without them. This result is important both for publishers and retail chains. For publishers to change the pressrun or reprint highly rated books. For book stores to change their layout of goods.

From this point of view sentimental novel stands apart from other genres. It is the only genre for which price is the only factor influencing the fact of purchase. It plays the role of quality indicator for consumers. However, when the sample is split into two parts: Saint Petersburg and the rest region sales, the results of the estimation for this genre changes. For non-capital districts sentimental novels are luxury goods whereas in Petersburg it is an inferior good. This result proves significantly different behavior of book consumers in "cultural capital" of Russia in comparison with other cities of the North-West federal district.

For estimation of the model we lack individual consumer data, consumer's income in particular. This variable is essential to an answer our research question. Consequently, we suggest a way, how to construct a proxy variable for income given aggregated data on sales. This is the main limitation of our research as the results of estimation are sensitive to the way income variable is constructed. One more limitation of our work is that we analyze only printed books. More rich data on sales of electronic books (which we didn't manage to get) can help to build a model which will allow to get more precise elasticity estimates. It is also worth noting that the results of the model estimation can be enriched if the estimation of the model is held on less aggregate income data, which authors didn't have an opportunity to get.

References

Appelman M.D., Canoy M.F.M. (2002) Horses for Courses: Why Europe should not harmonise its book policies. *De Economist,* 150 (5), 583-600.

Asai S. (2016). Determinants of demand and price for best-selling novels in paperback in Japan. *Journal of Cultural Economics,* 40 (4), 1-18.

Ashworth J., Heyndels B. & Werck K. (2010). Expert judgments and the demand for novels in Flanders. *Journal of Cultural Economics,* 34 (3), 197-218.

Barrot C., Becker J. U., Clement M. & Papies D. (2015). Price Elasticities for Hardcover and Paperback Fiction Book. Schmalenbach business review, 67 (1), 73-91.

Berry, S., Levinsohn, J.,& Pakes, A. (1995). Automobile prices in market equilibrium. *Econo- metrica: Journal of the Econometric Society,* 841-890.

Bittlingmayer G. (1992). The Elasticity of Demand for Books, Resale Price Maintenance and the Lerner Index. *Journal of Institutional and Theoretical Economics,* 148 (4), 588-606.

Bowers S. D. (2015). Judge a Book by its Cover: an Exploration of Book Marketing in the Young Adult. *WP University of Arizona,* 55 p.

Canoy M., Van Ours J. C. & Van der Ploeg F. (2006). The Economics of Books. *Handbook of the Economics of Art and Culture,* 721-761.

Clerides S. K. (2002). Book value: Intertemporal Pricing and Quality Discrimination in the US Market for Books. *International Journal of Industrial Organization,* 20 (10), 1385-1408.

D'Astous A., Colbert F. & Mbarek I. (2006). Factors Influencing Readers' Interest in New Books Release: An Experimental Study. *Poetics,* 34 (2), 134-147.

Hjorth-Andersen C. (2000). A Model of the Danish Book Market. *Journal of Cultural Economics,* 24 (1), 27-43.

Jaen-Garcia M. (2012). The Demand for Books and Other Periodic Publications in Spain. *Revista Nacional de Administracin,* 3 (1), 167-182.

Karpik, L., & Scott, N. (2010). Valuing the unique: The economics of singularities. Princeton: Princeton University Press, 288 p.

Prieto-Rodriguez J, Romero-Jordan D. & Sanz-Sanz J. (2005). Is a Tax Cut on Cultural Goods Consumption Actually Desirable? A Microsimulation Analysis applied to Spain. *Fiscal Studies,* 26 (4), 549-575.

Ringstad V., Lyland K. (2006). The Demand for Books Estimated by Means of Consumer Survey Data. *Journal of Cultural Economics,* 30 (2), 141-155.

Schmidt-Stlting C., Blmeke E. & Clement M. (2011). Success Drivers of Fiction Books: An Empirical Analysis of Hardcover and Paperback Editions in Germany. *Journal of Media Economics,* 24 (1), 24-47.

Shehu E., Prostka T., Schmidt-Stlting C., Clement M. & Blmeke E. (2013). The Influence of Book Advertising on Sales in the German Fiction Book Market. *Journal of Cultural Economics,* 38 (2), 109-130.

Sorensen A. T. (2007). Bestseller Lists and Product Variety. *Journal of Industrial Economics,* 55 (4), 715-738.

Van der Ploeg, F. (2004). Beyond the dogma of the fixed book price agreement. Journal of Cultural Economics, 28(1), 1-20.

Veblen, T., & Banta, M. (2009). The theory of the leisure class. Oxford University Press. 262 p.

Zavisca, J. (2005). The status of cultural omnivorism: A case study of reading in Russia. *Social Forces*, 84(2), 1233-1255

Appendix 1. The estimates of the book demand for Saint Petersburg and the other cities

	Genre 1		Genre 2		Genre 3		Genre 4	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
Ln(Price)	0.280***	0.492***	-0.033	0.235**	1.270***	1.276***	0.559***	0.848***
	(0.096)	(0.097)	(0.090)	(0.100)	(0.119)	(0.146)	(0.144)	(0.155)
Ln(Income)	-0.209	2.721***	0.114	2.585***	0.116	-1.189	0.563*	0.064
	(0.164)	(0.626)	(0.156)	(0.684)	(0.248)	(0.814)	(0.293)	(1.039)
Rating	0.169***	0.220***	0.266***	0.361***	0.035	0.041	0.213**	0.045
	(0.056)	(0.064)	(0.069)	(0.079)	(0.059)	(0.064)	(0.093)	(0.101)
Number	0.272***	0.276***	0.416***	0.388***	0.312***	0.371***	0.331***	0.314***
of ratings	(0.028)	(0.030)	(0.020)	(0.023)	(0.060)	(0.074)	(0.072)	(0.078)
Controls	Size, Cover type, Number of pages, Film Release		Size, Cover type, Number of pages, Film Release		Size, Cover type, Number of pages, Film Release		Size, Cover type, Number of pages, Film Release	
R2	0.149	0.181	0.245	0.214	0.214	0.188	0.191	0.191
Observ.	1943	1943	2650	2650	1145	1145	704	704

Note: Standard errors are presented in parentheses. * $p < .1$, ** $p < .05$, *** $p < .01$. Each model (l)-(9) is calculated on a subsample of one genre. Genre (1), (2), (3), (4), (5), (6), (7) ,(8) are Russian prose, Foreign prose, Russian detectives, Foreign detectives, Russian fantastic fiction, Foreign fantastic fiction, Sentimental novel and Poetry respectively. Models (1a), (2a), (3a), (4a), (5a), (6a), (7a), (8a) are calculated on a subsample of region book sales. Models (1b), (2b), (3b), (4b), (5b), (6b), (7b),(8b) are calculated on a subsample of Saint Petersburg book sales.

Appendix 1. The estimates of the book demand for Saint Petersburg and the other cities (continuation)

	Genre 5		Genre 6		Genre 7		Genre 8	
	(5a)	(5b)	(6a)	(6b)	(7a)	(7b)	(8a)	(8b)
Ln(Price)	0.879***	1.117***	0.470***	0.857***	1.470***	1.848***	-0.321	-0.123
	(0.067)	(0.082)	(0.118)	(0.132)	(0.292)	(0.344)	(0.197)	(0.225)
Ln(Income)	0.142	-0.037	0.545	-0.797	1.171**	-5.979***	-0.561	3.777**
	(0.179)	(0.448)	(0.435)	(1.155)	(0.509)	(1.276)	(0.431)	(1.563)
Rating	0.064	0.079	0.697***	0.633***	0.074	0.081	0.562***	0.486***
	(0.044)	(0.049)	(0.116)	(0.131)	(0.097)	(0.092)	(0.134)	(0.163)
Number	0.349***	0.319***	0.421***	0.388***	0.591**	0.582***	0.231***	0.224**
of ratings	(0.054)	(0.071)	(0.036)	(0.040)	(0.239)	(0.160)	(0.087)	(0.112)
Controls	Size, Cover type, Number of pages, Film Release		Size, Cover type, Number of pages, Film Release		Size, Cover type, Number of pages, Film Release		Size, Cover type, Number of pages, Film Release	
R2	0.203	0.209	0.350	0.337	0.386	0.391	0.136	0.150
Observ.	1604	1604	769	769	250	250	364	364

Note: Standard errors are presented in parentheses. * $p < .1$, ** $p < .05$, *** $p < .01$. Each model (l)-(9) is calculated on a subsample of one genre. Genre (1), (2), (3), (4), (5), (6), (7) ,(8) are Russian prose, Foreign prose, Russian detectives, Foreign detectives, Russian fantastic fiction, Foreign fantastic fiction, Sentimental novel and Poetry respectively. Models (1a), (2a), (3a), (4a), (5a), (6a), (7a), (8a) are calculated on a subsample of region book sales. Models (1b), (2b), (3b), (4b), (5b), (6b), (7b),(8b) are calculated on a subsample of Saint Petersburg book sales.

[1] Research Group for Applied Markets and Enterprises Studies, junior research fellow Lebedeva, 27, Perm, Russia Email: nakochkina@hse.ru