

Vienna 2019 Abstract Submission

Title

Putting Consumer Valuation into Time Perspective: Evidence from a Large Non-Existing Market

I want to submit an abstract for:

Conference Presentation

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Keywords

consumer valuation, hedonic analysis, e-commerce, Russian market, sparkling wine, time-varying willingness to pay

Research Question

Is willingness to pay for a particular product attribute time-invariant?

Methods

Regression analysis, cross-sectional and panel econometrics

Results

Neglecting time-dimension results in quantification of an average effect only. Willingness to pay for product attributes varies considerably around the mean estimate. All included variables are relevant for price formation.

Abstract

Is willingness to pay for a particular product attribute time-invariant? While the factors that affect consumers' willingness to pay (WTP) for a certain product features and time variation of prices through a prism of seasons, holidays, sales or socio-demographic and macro factors are not scarce (e.g. Oczkowski & Doucouliagos 2015, Capitello et al. 2015), the combination of two – namely whether (and how) the willingness to pay for particular attribute changes with the time – has not yet been considered. This study aims at bridging this gap by adding a time dimension to a classic hedonic analysis. The empirical example builds on prices for sparkling wine collected in the largest Russian online grocery market around Christmas time. Sparkling wines are especially associated with holidays with popping up campaign corks being an integral part of meeting a new year. While wines are frequently in focus of hedonic price analysis studies (e.g. Schnabel and Storchmann 2010), sparkling wines, which currently benefit from increasing global demand (OIV 2015) - were under the researchers' scrutiny less frequently. The precious little information that exists can be summarized as follows. Demand for Champagne is inelastic since it is usually perceived as a luxury good which to a large extent is bought on special occasions (Bentzen and Smith 2008), while Prosecco consumers in Italy are price sensitive (Onofri et al. 2015). Consumers typically perform poorly in blind tastings but show significant preferences for Champagne when labels are shown (Lange et al. 2002). Consumers buying at large-scale retailers are willing to pay a higher price premium for quality signals than those buying in specialised shops, since the latter can reduce information asymmetry by sharing quality information (Boatto et al. 2011). While little is known about the factors that drive online prices in the grocery sector in general and in Russia in particular, the willingness to pay online might be higher for quality signals or not, with additional information available in the internet being simultaneously a help and a curse for the consumer (Fedoseeva et al.

2018). Marketing channels play a particularly important role in addressing consumers in emerging countries (Wine Intelligence 2012) and if predictions of the economics of information theory are correct, maturing online markets might have large consequences on the market, adding dynamics to prices by dropping price adjustment and search costs (Bakos 1997). If true, the online channel might make prices less rigid and introduce dynamics to price premia for individual attributes over time, the issue that haven't been addressed in the scientific discussion so far. If the opposite is true and an increased amount of information leads to an overload and an increased cognitive burden (Grover et al. 2006) it is even more important to understand which attributes are used as quality signals and how the attributes' pricing functions.

While a few studies shed first light on European online grocery sector (Berka et al. 2011), for Russia no such analysis exists, despite the fact that the Russian e-commerce steadily grows at double digits, even when classical retail stagnates (EWDN 2017). Even less is known about the market for sparkling wines, probably because Russia is rarely associated with a classic wine-drinking country. Yet, despite favouring beer and spirits in the alcohol consumption mix (WHO 2018), Russia is one of the most important consumer markets for sparkling wines. Only Germans love bubbles more (Wines of Germany 2016).

Which role do particular sparkling wine attributes play in generating its price in Russia? Does this willingness to pay for particular features change over time? And if yes, how? These questions are addressed with help of a data that comprise prices of sparkling wines and champagnes available at the Utkonos.ru, the largest online grocery portal of the country. Although the geographical coverage of the online-market only includes Moscow and its suburbs, this is also the region in which consumers are located: The internet coverage is the highest here as well as the income level. The product basket includes prices of 128 sparkling wines, of those 8 champagnes, collected over the period from December 1, 2017 to February 15, 2018. The data covers the period right before and after the New Year, the country's most important national holiday. While the data collection was initially planned to incorporate further holidays, including February, 23, the Men day, and March, 8, the Women day, it was terminated ahead of time following from a sudden decision of the retailer to remove all alcoholic products from its display in light of a public policy prohibiting online retailing of alcoholic beverages, making the market virtually "non-existing". The two and a half months of daily data, however, provide information needed to address the New Year's, impact on the dynamic structure of price paid for a bottle of a bubbly beverage, be it a French Champagne or its "Soviet" rival. A first look on the average price data suggest that prices are more volatile right before the New Year (throughout the month of December) and all the way to the end of the holidays (the so-called "Old New Year") and rather stable otherwise (Figure 1). The somewhat declining slope of the price curve before New Years is mostly driven by the fact that the mostly expensive wines were often out-of-stock in anticipation of holidays, driving the average prices (sample mean is at 886 roubles per bottle) and total value of the sparkling wine basket down. Some of the dynamics, however, is due to price-adjustments undergone by the retailer. In order to figure out how prices are formed and which role do particular product attributes play in a dynamic price adjustment, all the product-related data reported on the web-page was collected (Table 1).

In the empirical part, a classic hedonic price function in a linear and log-linear form is estimated for each day of the sample separately to assess whether willingness to pay for attributes changes over time. Then all data is pulled together in a panel to benefit from uncertainty reduction due to a higher number of observations. For individual days of the sample the results suggest that only some factors have a statistically significant impact on prices. Here a country of origin as well as being nicely wrapped play the leading role supporting the assumption that sparkling wines are often used as presents. The attribute "Champagne" brings one of the highest price premiums and *ceteris paribus* implies a significant increase in price, about 260% of the price of an average bottle of sparkling wine in the sample. The magnitude of the price premia, however, does not remain constant over time, with a visible increase prior to the New Year holidays (up to over 400%) and a decline afterwards (down to about 150% of the average), followed by a relative stabilization after the holiday season is over (Figure 2).

Other variables also deviate from their sample mean that comes out when a panel regression is considered. Here, an increased number of observations significantly reduces standard errors for individual estimates and shows that all considered factors contribute to price formation (Fig 3).

Switzerland has the highest estimate (+390 %) confirming that swiss-made products are associated with high quality and luxury. All the other countries as well have a price premium in comparison with the average sparkling wine, with France clearly leading (+73%) among Chile (+52%), Italy (+49%), Spain (+42%) and Armenia (+9%), although the number of Swiss, Armenian and Chilean products is too small to allow for any sort of generalization. Having a label of geographical protection is also positively valued (+27%) in comparison to a product without geographical designation, a finding supported by Galati et al. (2017) for premium Italian red wines. The same is true for having a gift package (+60%) and including a product photo on the web page (+71%). Other consumer

opinions – ratings – have almost no effect on prices. Following the expectations, Russians are into sweet sparkling wines and ready to pay for those (+16%), while semi-measures (being semi-dry or semi-sweet) results in a lower price than for a dry wine (-3 and -16% respectively). When it comes to the wine colour and grape, the results are mixed, possibly suggesting that the unknown grape sorts as well as red sparkling wines are still foreign to the market and are harder to sell than a more approachable cuvees (+7%) or exotic roses (+8.5%). Not surprisingly, Champagne keeps its high price premia also in the panel model. Yet the estimate obtained here is rather a sample average and relying only on the panel estimate or a particular day of the sample could substantially influence results and bias resulting conclusions. Hedonic price function explain variation in prices quite well in both panel as well as individual cross-sectional models (about 74% in log-linear and over 86% in linear specification). The results suggest that while generally there seem to be no drastic differences in factors that shape willingness to pay on the Russian market in a comparison with rest of the world, when it comes to consumer valuation of different wine attributes, including reputation and observable traits, more attention should be paid to the dynamic side of prices of attributes which change, like prices do, over time.

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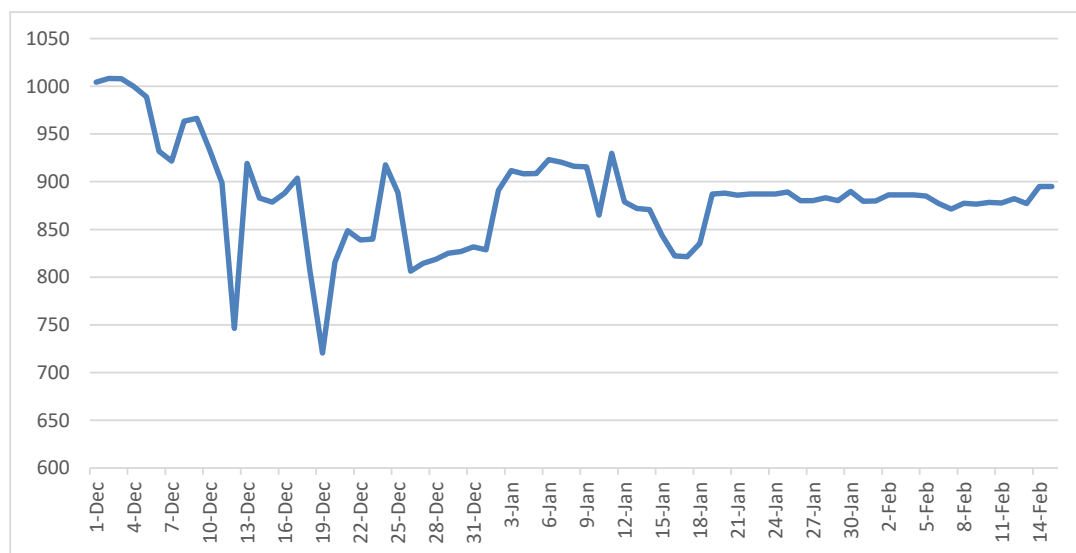
Svetlana Fedoseeva, University of Bonn

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Figure 1. Development of the average sparkling price, roubles



Source: Own presentation. Data from Utkonos.ru.

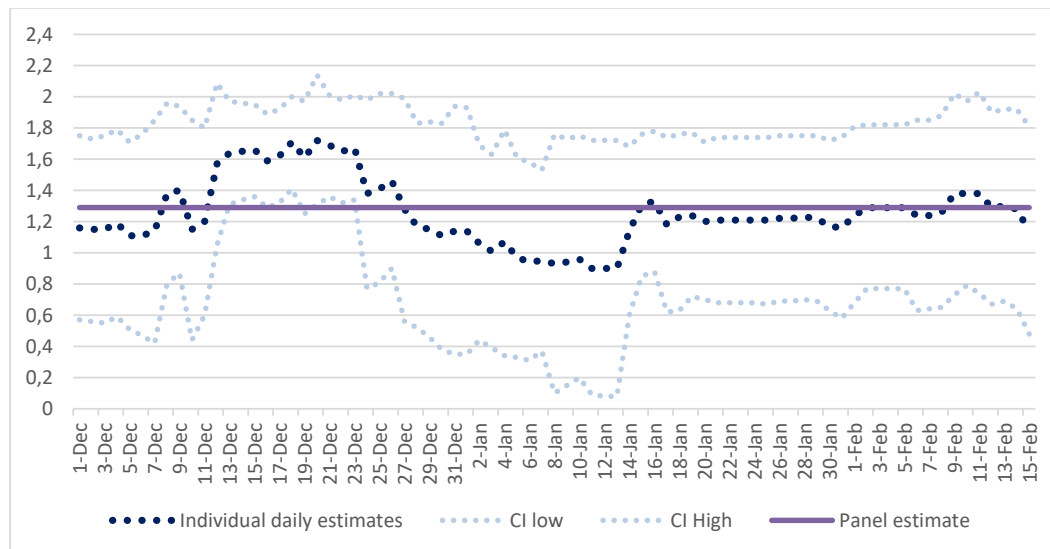
In order to figure out how prices are formed and which role do particular product attributes play in a dynamic price adjustment, all the product-related data reported on the web-page was collected. This includes the following information:

Table 1. Assessed product attributes and brief sample description

Variable	Description
Country of origin	Armenia (1), Chile (2), France (17), Italy (62), Spain (14), Switzerland (2), Russia (30) – reference
Champagne	Yes (8), No (120) – reference
Type	White (87) - reference, Red (9), Rose (32)
Sugar content	Sweet (25), semi-sweet (33), semi-dry (11), dry/brut (59) – reference
Geographical designation	Yes (73), No (55) – reference
Grape sort	Single grape (62), cuvee (52), not indicated (14) – reference
Rating	Number of stars (max - 5, mean - 4.75)
Feedback	Number of responses (max - 45, mean - 5.89)
Photo	Yes (124), No (4) – reference
Gift package	Yes (36), No (92) – reference
Alcohol content	Measured in % (max - 13%, mean - 10%)

In the empirical part, a classic hedonic price function in a linear and log-linear form is estimated for each day of the sample separately to assess whether willingness to pay for attributes changes over time. Then all data is pulled together in a panel to benefit from uncertainty reduction due to a higher number of observations. For individual days of the sample the results suggest that only some factors have a statistically significant impact on prices. Here a country of origin as well as being nicely wrapped play the leading role supporting the assumption that sparkling wines are often used as presents. The attribute “Champagne” brings one of the highest price premiums and ceteris paribus implies a significant increase in price, about 260% of the price of an average bottle of sparkling wine in the sample. The magnitude of the price premia, however, does not remain constant over time, with a visible increase prior to the New Year holidays (up to over 400%) and a decline afterwards (down to about 150% of the average), followed by a relative stabilization after the holiday season is over (Figure 2).

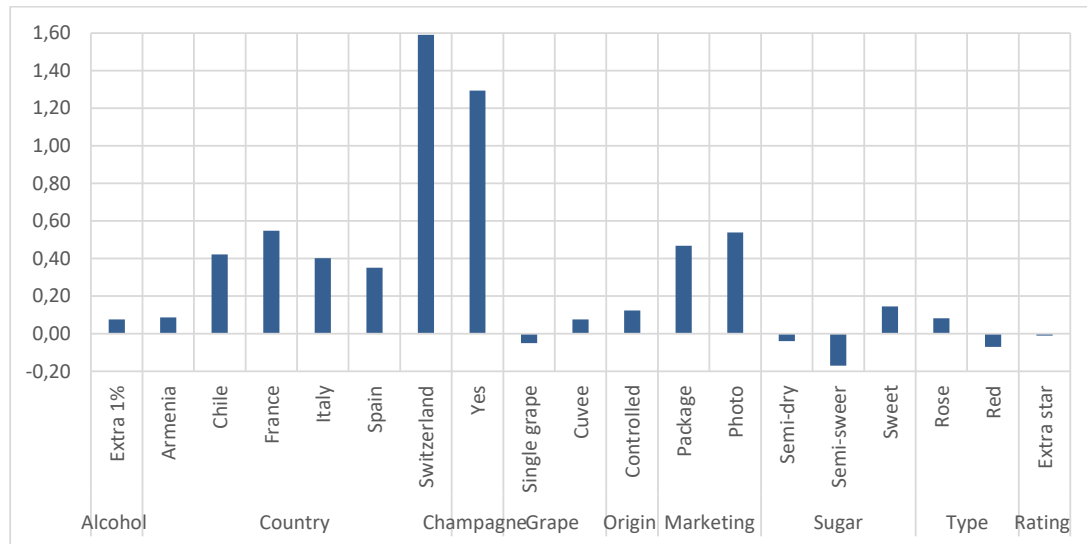
Figure 2. Estimated willingness-to-pay coefficients for “Champagne” from individual cross-sectional models and their confidence intervals (log-linear form)



Source: Own computation.

Other variables also deviate from their sample mean that comes out when a panel regression is considered. Here, an increased number of observations significantly reduces standard errors for individual estimates and shows that all considered factors contribute to price formation (Fig 3).

Figure 3. An overview of results from a panel model, log-linear form.



Source: Own computation. Note: all numbers are ceteris paribus effects in comparison to a reference group (see table 1).

Switzerland has the highest estimate (+390 %) confirming that swiss-made products are associated with high quality and luxury. All the other countries as well have a price premium in comparison with the average sparkling wine, with France clearly leading (+73%) among Chile (+52%), Italy (+49%), Spain (+42%) and Armenia (+9%), although the number of Swiss, Armenian and Chilean products is too small to allow for any sort of generalization. Having a label of geographical protection is also positively valued (+27%) in comparison to a product without geographical designation, a finding supported by Galati et al. (2017) for premium Italian red wines. The same is true for having a gift package (+60%) and including a product photo on the web page (+71%). Other consumer opinions – ratings – have almost no effect on prices. Following the expectations, Russians are into sweet sparkling wines and ready to pay for those (+16%), while semi-measures (being semi-dry or semi-sweet) results in a lower price than for a dry wine (-3 and -16% respectively). When it comes to the wine colour and grape, the results are mixed, possibly suggesting that the unknown grape sorts as well as red sparkling wines are still foreign to the market and are harder to sell that a more approachable cuvees (+7%) or exotic roses (+8.5%). Not surprisingly, Champagne keeps its high price premia also in the panel model. Yet the estimate obtained here is rather a sample average and relying only on the panel estimate or a particular day of the sample could substantially influence results and bias resulting conclusions. Hedonic price function explain variation in prices quite well in both panel as well as individual cross-sectional models (about 74% in log-linear and over 86% in linear specification). The results suggest that while generally there seem to be no drastic differences in factors that shape willingness to pay on the Russian market in a comparison with rest of the world, when it comes to consumer valuation of different wine attributes, including reputation and observable traits, more attention should be paid to the dynamic side of prices of attributes which change, like prices do, over time.

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