



How much trustworthy and salubrious an organic jam should be? The impact of organic logo on the Italian jam market [☆]



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ABSTRACT

This paper studies the impact of organic logo in the Italian jam market. Using data on true sales in Italian supermarkets in the 2002–2004 period we estimate the structural demand model developed by Berry (1994). This approach allows us to solve potential endogeneity problem in the estimation of the price coefficient in the demand equation, as well as other aspects related to multiple sources of differentiation. In a market where 62 percent of organic jams are diet this approach allows us to identify separately the market power induced by the organic logo and by the low content of sugar. The estimation results from various specifications of GEV class of models show that the organic attribute guarantees a degree of market power greater than the diet attribute. However, the protection from competition entailed by the organic logo is not particularly strong, and the diet attribute does not guarantee additional protection to organic jams. Most importantly, our findings show that consumers trust more big organic producers thus suggesting important policy implications on the supply and marketing side of the jam market.

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Introduction

The increased consumption of organic produce has been considerably supported by public interventions and by developments in the supply and retailing chains. On the demand side of the market, Council regulations as well as national programs have promoted consumers' awareness of the characteristics of organic farming.¹ On the supply side, economies of scale in the distribution together with harmonization and standardization of organic produce have favored their expansion from small specialized shops to mainstream retailer channels (Torjusen et al., 2004). This phenomenon has raised new challenges for organic producers, since it has exposed them to competition from cheaper conventional products in markets that are often characterized by a high degree of differentiation.

This paper analyzes the impact of the organic logo and the competition between organic and conventional jams in the Italian market in 2002–2004 using real transaction data from supermarkets.

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¹ See Council Regulation (EC, 1991) No 2092/91 of 24 June 1991, Council Regulation (EC, 1999) No 1804/99 of 19 July 1999, Council Regulation (EC, 2007) No 834/2007 of 28 June 2007 and the European Action Plan for Organic Food and Farming in 2004 (EC-COM, 2004).

First, the Italian jam market represents an interesting case to be analyzed with a structural model for the demand for organic products. Although in the nineties the Italian market could not be considered as mature as, for example, the Danish or British one, the demand for organic products during 1990–1999 experienced a boom (Cremonini, 2007; Compagnoni, 2001; Torjusen et al., 2004).² By the end of 2000, the market share of organic products sold by supermarkets exceeded the share sold in specialized organic shops (Pinton, 2001; Torjusen et al., 2004). All organic products experienced a reduction in demand between 2003 and 2004 due to the general crisis (ISMEA, 2005, 2007), a stagnation that lasted until the end of 2007 (Cremonini, 2007; ISMEA, 2012). After 2008 consumption of organic production has been rising continuously until 2012. During 2009–2012 the annual variations in the consumption of organic jams have been 14, 6.7, 8.6 and 14.6 percent respectively.³ According to Rete Rurale Nazionale (2012) organic jams represented 8.2 percent of total organic sales in 2011. The recent growth in the consumption of organic jams and organic produce in general seems to be driven by the increasing importance of private labels. The first Italian supermarket started to offer organic products under its private labels in 1999, and all the other larger retailers started a few years later (Cremonini, 2007; Santucci and Pignataro, 2002). Private

² See De Magistris and Gracia (2008) for a recent article on the demand for organic food in the South of Italy. De Magistris and Gracia (2008) and Torjusen et al. (2004) provide a review of the empirical analyses on the demand for organic food in Italy.

³ See ISMEA (2007, 2012) for information on the recovery and growth in the demand of organic products after 2004. We thank Enrico De Ruvo, ISMEA, for information on the recent trends in consumption of organic jams.

label jams, organic and non-organic, gained a larger market share, particularly in the latest 2000s.

Second, Italian jam market is highly differentiated: in addition to the organic nature of the product, jams are also characterized by the diet feature, i.e. the low content of sugar. 62 percent of organic jams in our sample are also diet, and are provided almost exclusively by the organic producers. This is an interesting phenomenon, since it might be a result of differentiation strategies implemented by Italian manufacturers. Given the increased level of competition, such an analysis of differentiation strategies becomes even more crucial. These differentiation strategies attempt to make organic product more attractive, since consumers of organic products might be more concerned about diet and weight.⁴ To the extent that additional information on nutritional characteristics increases the willingness to buy organic food, there are economies of scope in the labeling of such information, and there might be room for further regulatory interventions aiming at promoting the demand for organic products and sustaining organic farming.⁵

Our findings from real market data indicate that the organic logo ensures a low level of market power which is, nevertheless, higher than the market power induced by the diet attribute. The latter attribute thus seems to be an ancillary characteristic which, when combined with the organic one, does not provide additional protection from competition.

Most importantly, our estimates identify a relevant effect of the number of products sold by each manufacturer on consumers demand and suggest that buyers trust more manufacturers with a wider variety of organic jams. In a market characterized by an imbalance between small manufacturers/farmers and large retailers, this result indicates strong disadvantages for small suppliers and sheds light on the role of large retailers in the future development of organic farming. On the one hand, larger scales in the distribution have lowered the costs and thus reduced the price differential between organic and conventional goods, which is considered as one of the major factors discouraging the consumption of organic produce. On the other hand, these findings contribute to the debate on whether retailer-led interests may contrast with the original organic values and on who is going to benefit from the success of organic produce (Vogl et al., 2005). The alignment of process of production to the needs of mainstream distribution, combined with the importance of brand familiarity (Krystallis and Chrysosoidis, 2005) in this segment of the market may transform historical limits in the supply of organic produce, such as poor availability and poor reliability in delivery, in an insurmountable barrier for its diffusion among small scales of production.

The empirical analysis in this paper employs a structural demand model developed by Berry (1994) to provide a more detailed analysis of the supply side of the market and in particular of the structure of competition, the role of marketing, promotional discounts and the strategies of differentiation of the products.⁶ Although Berry's (1994) approach has been successfully employed in the analyses of non-durable goods since the work of Nevo (2001), to our knowledge this is the first study to use this methodology in the analysis of organic products employing *real* market data. As recently discussed by Millock et al. (2002) and Wier et al. (2008), true market data are in principle to be preferred to information

elicited from postulated behaviors.⁷ However, as noted by Grunert (2005), analysis with real data may also lead to estimating a willingness to pay which is "a great deal lower than those derived from hypothetical methods".⁸ This result is most probably due to two facts. First, respondents to surveys may overstate their willingness to pay (Hansen and Sorensen, 1993). Second, when using true aggregate market data researchers are not able to observe many factors, such as perceived quality and attitudes that are instead available in survey data. This creates an endogeneity problem, explained in Section 'Identification and estimation procedure', which is well known in the field of new empirical industrial organization and due to which the estimated price coefficient may be biased towards zero.

The main advantage of the empirical methodology employed in this paper is its ability to address the endogeneity issue. In particular, we use the relevant variation in the number of jams offered in the market during the period under analysis as our identification strategy. At the same time, this approach, conditional on a correct choice of the demand specification model, allows us to take into account unobserved consumers' heterogeneity due to differences in attitudes towards organic and diet goods that cannot be measured with aggregate sales data. The unobserved attitudes towards multiple sources of differentiation and their implications for competition are taken into account by choosing the best specification from the broad Generalize Extreme Value (GEV) class of models.

Finally, estimating a structural demand model for the specific case of organic jam market has additional advantages. First, problems due to the unobserved quality or visual aspects are less relevant.⁹ These visual aspects, typically unobserved in aggregates sales data, might, in principle, create additional problems of endogeneity, as they are likely to be correlated with price. Since jams are a processed and labeled product, there exists no trade-off between sensory defects and willingness to pay for the organic nature of the product. Second, the problem of seasonality in consumption is less important, since jams represent a natural way of preserving fruits over time.

The remainder of the paper is organized as follows. The next section provides background information of the Italian jam market and a description of the dataset. Section 'Demand model' describes the different model specifications used to construct unobserved individual probabilities and links the observed aggregate market shares to the discrete choice probabilities. Section 'Identification and estimation procedure' illustrates the identification strategy and the estimation procedure. Estimation results are discussed in Sections 'Empirical results and Conclusion' concludes and suggests policy implications.

Data description

The national aggregate data employed in this study are kindly provided by the Information Resources Inc. (IRI). The data set contains monthly scanner information on values, quantities and prices (before and after promotional discount) sold by the top five

⁴ See for instance Chen (2009), Gil et al. (2000) and Schifferstein and Oude Ophuis (1998). Hughner et al. (2007) and Yiridoe et al. (2005) review the concerns about health issues as well as the differences in lifestyles affecting the demand for organic products.

⁵ The performance of small organic manufacturers certainly affects the welfare of farmers since jams can be easily and directly processed by the farmers themselves. See Santucci and Pignataro (2002) for information on the percentages of producers with processing activities on the farms in Italy.

⁶ As noted by Padel and Foster (2005) the effect of promotional discounts by retailers needs to be investigated.

⁷ Carson et al. (1996), Cummings et al. (1995), Frykblom (1997) find relevant differences between the estimates from revealed and stated preferences. See also Train (2009) for a discussion on the differences between revealed and stated preferences in the context of random utility models. Verhoef and Franses (2002) find that, for forecasting purposes, stated preference variables have poor predictive power compared to models using revealed preferences.

⁸ Bähr et al. (2004), Bellows et al. (2008), Makatouni (2002), Onyango et al. (2007), and Padel and Foster (2005) investigate the difference between actual and postulated behaviors in the demand of organic produce.

⁹ Thompson and Kidwell (1998), Huang (1996) and Yue et al. (2009) analyse the impact of cosmetic damage on consumers' demand. Kuhar and Juvančič (2010) argue that visual attractiveness is one of the factors explaining the purchasing of organic products.

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