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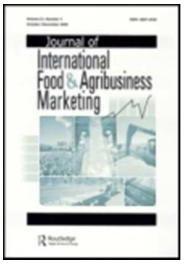

WHEN CONSUMERS AND PRODUCTS COME FROM THE SAME PLACE: PREFERENCES AND WTP FOR GEOGRAPHICAL INDICATION DIFFER ACROSS REGIONAL IDENTITY GROUPS

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Abstract

This article contributes to the existing literature on geographical indications by observing consumers' stated preference for extra-virgin olive oil in two groups differing in their regional identity. In particular, consumers from two groups were asked to rank products in a contingent ranking survey. One group (insiders, Sicilian consumers) shared origin with a good (Sicilian oil); the other group (outsiders Rome and Milan) presented no association consumers-product. Results indicate that insiders are willing to pay more for goods originating from the region they identify with compared to outsiders. Identity seems to give a bias by which a local product is not necessarily perceived as superior in absolute terms, but in relative terms: outside products are never considered better than inside options, but are either inferior or equal in perceived value.

Keywords: Regional Identity; Geographical Indication; Extra-virgin Olive Oil; Contingent Ranking; Rank-ordered probit.

EconLit code: D12; M31; Q13.

1. INTRODUCTION

Geographical Indications (GIs) are an important component of the agricultural and food economy in EU countries. The unique combination of human, biological, and historical resources that are embedded in traditional food products from specific locations makes these products unique and highly valuable to consumers (Rangnekar, 2004). To clearly identify the link with their place of origin, these products generally bear the name of the location (country, region, or even locality) where the good is produced (e.g. Bordeaux wines), and use regulated GI labels[1]. Earlier research has comprehensively explored the importance of GI labels (Caswell and Mojduszka, 1996), with a primary focus on adverse selection and the welfare consequences of the imposition of quality standards (e.g. Marette et al., 1999). From a policy perspective, the importance of GIs is reflected in the incentive they provide in the development of individual (Shapiro, 1983; Kreps and Wilson, 1982) as well as collective reputation systems (Tirole, 1996; Winfree and McCluskey, 2005). GIs are particularly important for food products, which require specific local knowledge of applied food technology, such as wine and fresh product (e.g. Stanziani, 2004; Scarpa et al., 2005; Scarpa et al., 2007).

An unexplored aspect of consumer behaviour is the current literature on GI is the relation between consumers and location of origin. In fact, consumers use the products they purchase to define and communicate their personal and social identity (Hogg and Williams, 2000; Tajfel, 1979), and being part of a defined social group plays an important role in the wellbeing of consumers. The products consumers choose then help them signal their group membership. Social identity can then conceivably be important in the consumption of GI-labelled products because these goods are sold with a geographical signal that can be linked to group membership. Specifically, a GI on the label of a product allows consumers to identify themselves as *insiders*, i.e. sharing origin with the good, or *outsiders*, i.e. sharing no origin with the good (see Akerlof and Kranton, 2000, for more general

[1] Currently, the European Union identifies 1,321 food products that are awarded a regulated geographical indication, ranking from more general Traditional Speciality Guaranteed (TSG), to Protected Geographical Indication (PGI), and to the highest level of Protected Designation of Origin (PDO).

definitions of insiders and outsiders). In this article, social identity is defined at regional level, and it corresponds to a broad correspondence between the origin of a consumer and a food product.

Because GIs clearly and specifically inform on the geographical origin of goods, they can activate feelings of self-identity in those consumers who share the same origin of the good[2]. The choice of a product originating from the same locality of the consumer can be seen as a social standard of choice: by giving priority to the local good, consumers do not only purchase something they surely like (Van de Lans *et al*., 2001; Loureiro and Umberger, 2007), but they also protect the socio-economic system they live in (Treagear, 2003). At the same time, insiders are likely to prefer "inside" options because of exposure to local food from early age (Birch and Marlin, 1982). This association can lead to an in-group bias (Ahmed, 2007; Giannakakis and Fritsche, 2011; Reynolds *et al*., 2000), particularly a home-country-of-origin bias (H-COO) (Schooler, 1965). The positive utility from both taste preference for an "inside" food and membership to a social group (Tajfel, 1974; Chen and Li, 2009; Klor and Shayo, 2010; Leonardelli et al., 2010) expectedly results in a high willingness to pay (WTP) for own GIs (Caswell and Mojduszka, 1996; van der Lans *et al*., 2001; Loureiro and Umberger, 2007).

Knowledge of the origin can also lead to meta-cognitive processes that negatively affect the choice of a local food. The result of this mental process would be an out-of-home country-of-origin bias (OOH-COO). For instance, consumers might associate better taste and/or reputation to a foreign good, or they might want to show a positive predisposition to origin different from their own (particularly if choices are simulated) to signal xenophilia (Perlmutter, 1954). More generally, consumers could perceive a higher level of affinity with the good "from outside" on grounds that differ from preference for the local food (Oberecker *et al.*, 2008). On the other hand, outsiders would be expected to be indifferent to the geographical origin of goods, which would be purely valued for its ability to satisfy taste preferences.

[2] Part of this process is likely to be automatic and driven by the presence of an identifiable geographical name, i.e. a priming process. In experimental exercises, individuals are primed with sentences containing selected keywords that relate to the targeted emotion (e.g. Epley and Gilovich, 1999). In the case of social identity, pronouns such as "We" or "They" can be sufficient to prime feelings of social identity (e.g. Perdue *et al*., 1990; Brewer and Gardner, 1996).

This article is a first attempt to explore explicitly differences in consumption of GI between outside and inside groups. In fact, while differences in behaviour in different broad geographical groups have been examined (Scarpa and Del Giudice, 2004), there is no clear intuition on how consumers decide when they can directly associate their origin to the origin of product. For instance, it is unclear whether H-COO bias dominates, is dominated, or coexists with OOH-COO bias. Hence, the main objective of this article is to extend the current understanding of consumer behaviour in the choice of food by assessing preferences for origin in food for insiders and outsiders separately. The empirical analysis consists of four groups of consumes ranking a set of nine olive oil products: two of these groups are insiders, and have access to products from their same region (Sicily); the other two groups are outsiders, and have no direct association with the geographical origin of products in the basket. The GI signal is expected to activate a sense of belonging to the regional group, causing differences in rankings to the advantage of own-regional products.

Earlier research supports the intuition that proximity to the origin of food can increase WTP for food (e.g. Hu *et al.*, 2011), also in the market for olive oil (Scarpa and Del Giudice, 2004). However, this literature did not allow consumers to directly identify with a specific GI. Previous research also highlights that consumers have positive WTP for GIs (see e.g. Rangnekar, 2004; Van der Lans *et al.*, 2001), without however considering whether and how WTP differs between inside and outside groups. The present article represents an attempt to close these gaps: in the empirical exercise, preferences for region of origin in the choice of olive oil are collected separately for two groups of insiders and two of outsiders. Respondents were not aware of the rationale of the data collection process, and insiders could identify products originating from their same region. Results support the intuition to the extent that own-regional products are those valued the most in both groups of insiders, and the same region is consistently the lowest in outsiders. Preferences for other attributes (PDO labels and Organic) are of comparable magnitude.

The remainder of the paper is as follows. Section 2 presents the econometric model used in the article, while the data collection process is described in section 3. In summary, consumer preferences for different goods are collected using a Contingent Ranking exercise, and estimated

using rank-ordered probit and logit models. The analysis of rankings is particularly important because it can provide more information than a simple choice: respondents report different levels of utility for all products, including different preferences for those that do not rank first. Methodologically, this exercise is one of the first contextualisation of a rank-ordered probit to empirical research in consumer behaviour, with the useful advantage of allowing for the presence of unobservable tastes in the residuals of each consumer-product combination (see also Schechter, 2010). The analysis of stated preferences, done separately for insiders and outsiders, focuses on the olive oil market due to the relevance of GIs to consumers in this market (e.g. Menapace *et al.*, 2011; Espejel et al., 2008). This market also present a lower level of differentiation compared to other markets with GIs (e.g. cheese, wine), making the experimental fieldwork simpler to implement. Section 4 describes the results, while section 5 discusses the findings and concludes.

2. ECONOMETRIC MODEL

2.1. Contextualisation of the economic decision-making process

The study starts by defining a simple model of consumer behaviour. Imagine two markets g = I (for insiders), O (for outsiders) differing in their geographical location. Each market is composed by N goods i that differ in their unobservable (to the econometrician) tastes ξ_i, other observable attributes X_i and by their geographical indication GI_i. Goods originate from only two locations k = s, $-s$, both recognisable by consumers. Among the N goods, some are produced in the same location of one of two the markets, i.e. $g = s$, sharing the origin with insiders I, and information is communicated on the label. The market for outsiders O instead satisfies the condition $g = -s$, implying the absence of identification with any good in the market.

Utility is defined as a probabilistic utility model (see e.g. McFadden 1974), consisting of a determinist component $V(\cdot)$ and a random component ε:

$$U_i = V(\xi_i, X_i, GI_i) + \varepsilon_i \qquad (1)$$

Consumers maximising this utility function manifest a WTP for *GI* depending on whether $g = s$ or not. In particular, *GI* reflects preferences associated to a specific location (Tirole, 1996; Winfree and McCluskey, 2005), and WTP is

$$WTP^O(GI = s) \gtrless WTP^O(GI = -s) \quad (2a)$$

This is the condition for *outsiders*: with no regional identity, the difference in WTP between inside and outside products reflects pure preferences for *GI*, and is not predictable *a priori*. For *insiders*, *GI* activates feeling of shared regional identity, so that WTP equals

$$WTP^I(GI = -s) = WTP^O(GI = -s) \quad (2b)$$

$$WTP^I(GI = s) > WTP^O(GI = s) \quad (2c)$$

In other words, if insiders and outsiders hold identical preferences, both groups should have the same WTP for outside products, while insiders would be prepared to pay more for inside goods, *ceteris paribus*. The next section outlines the model used to estimate WTP.

2.2. Econometric analysis of rankings

Imagine a market where consumers j evaluate N options i differing in their price P, regional origin of the good *GI*, and other attributes X (PDO and Organic labels). For ease of reporting, attributes are grouped in a vector $Z_i = [P_i, GI_i, X_i]$. Utility may vary across individual following respondent-specific variables D_j. Preferences are estimated defining a utility function in the form

$$U_{ij} = Z_i\beta + D_j\gamma_i + \varepsilon_{ij} \quad (3)$$

where residuals $\varepsilon_{ij} = \delta\xi_i + u_{ij}$ contain unobservable tastes ξ_i and a purely random component u. As usual, true utility U^* is treated as a latent variable. This specification assumes consumers hold fixed preferences over attributes Z_i and ξ_i (the coefficients β and δ), while the impact of personal characteristics differs across options (the coefficient γ_i). Residuals $\varepsilon_j' = (\varepsilon_{j,1}', \ldots, \varepsilon_{j,N}') \sim MVN(0, \Sigma)$

are assumed multivariate normal with mean zero and variance-covariance matrix Σ specific to the ranking of each individual *j*. This matrix relaxes the Independence of Irrelevant Alternatives (IIA) assumption (e.g. Schechter, 2010; Dow and Endersby, 2004; Hausman and Ruud, 1987): the probability of a rank depends on common shocks ξ_i in the residual of all ranks, which correspond to subjective expected product quality at respondent level.

Because the market offers *N* products, consumers can rank them from the lowest to the highest utility expected upon consumption going from 1 (the least preferred option) to *N* (the most preferred option). The full ranking of products provides additional information on preferences compared to a single choice: a stated choice provides information on the item giving the highest utility, treating all remaining products as equal; a ranking instead allows consumers to state different levels of expected utility for all options, including those that are not chosen. As a result, a rank-ordered probit model uses an ordinal dependent variable, contrary to the binary nature of dependent variables in choice models. The probability of observing a specific ranking corresponds to the product of the probability of ranking each option first in a progressively shrinking choice set: the consumer sequentially allocates preferences by determining the best option in the full set of *N* options, then the best of the remaining *N-1* options, and so on (e.g. Fok *et al*., 2012).

In detail, the probability of the ranking provided by consumer *j* is the probability that[3] $U_{i,k+1} - U_{i,k} > 0$, for $k = 1,\ldots,N-1$ (given β and γ_i). This inequality leads to a differenced utility

$$\Delta_{jk} = U_{j,k+1} - U_{j,k} = (Z_{k+1} - Z_k)\beta + D_j(\gamma_{k+1} - \gamma_k) + \varepsilon_{j,k+1} - \varepsilon_{j,k} = W_k\beta + D_j\pi_k + \nu_{jk} \qquad (4)$$

where $\nu_{jk} \sim MVN(0, \Sigma_j)$ and $k = 1,\ldots,N-1$. If $\lambda_{ik} = W_k\beta + D_j\pi_k$ is the deterministic part of equation (4), the probability of the rank $U_{jN} > \ldots > U_{j2} > U_{j1}$ equals

$$\begin{aligned}\Pr(N, N-1,\ldots,1) &= \Pr(\Delta_{j,1} \le 0,\ldots,\Delta_{j,N-1} \le 0) = P(\nu_{j1} \le -\lambda_{j1},\ldots,\nu_{j,N-1} \le -\lambda_{j,N-1}) \\ &= (2\pi)^{-(N-1)/2} \cdot \left|\Sigma_j\right|^{-1/2} \int_{-\infty}^{-\lambda_{j1}} \ldots \int_{-\infty}^{-\lambda_{j,N-1}} \exp\left(-\frac{1}{2}W'\Sigma_j^{-1}W\right)\partial W \end{aligned} \qquad (5)$$

[3] While the rank-ordered logit allows for the presence of tied ranks, i.e. the utility of two ranks can be the same, the dataset used in the analysis contains no ties.

which is the function to integrate numerically (e.g. Dow and Endersby, 2004).

The same approach can use a logistic link function (Lareau and Rae, 1989), assuming i.i.d. extreme value distributed residuals ε. In this case, the probability of a rank follows the rank-ordered logit likelihood function (Beggs et al., 1981; Hausman and Ruud, 1987; Foster and Mourato, 2002)

$$\Pr(U_{jN} \geq \ldots \geq U_{j2} \geq U_{j1}) = \prod_{i=1}^{N-1}\left[\frac{\exp(Z_i\beta)}{\sum_i \exp(Z_i\beta)}\right] \quad (6)$$

Importantly, the rank-ordered logit relies on the validity of the IIA assumption. Results are presented also for this option to allow interested readers to compare estimates.

Extending equation (3), the estimated utility function in each group corresponds to

$$U_{ij} = \beta_1 P_i + \beta_2 GI_i + \beta_3 X_i + D_j\gamma_i + \varepsilon_{ij} \quad (3')$$

For both rank-ordered probit and logit, the WTP for the region of origin *GI* is derived from the parameters of equation (3') as the marginal rate of substitution between price and the characteristic (see Foster and Mourato, 2000; Lareau and Rae, 1989) as

$$WTP = \frac{\partial P_j}{\partial GI_j} = -\frac{\partial U_{ij} \big/ \partial GI_i}{\partial U_{ij} \big/ \partial P_i} = -\frac{\beta_2}{\beta_1} \quad (7)$$

Noticeably, WTP for Sicily is expected to vary according to group membership. While the questionnaire does not measure the perceived identity of the consumer, identity is captured by the design of the survey: it equals one for the two samples of insiders, and zero for the set of outsiders.

3. DATA

Data to test the empirical implications has been collected through a survey on extra-virgin olive oil consumption on a random sample of 1,000 Italian consumers. Data was collected through face-to-face interviews on four subsamples: two groups of insiders (250 Sicilian consumers each in Palermo and Catania) and two groups of outsiders from different regions (250 respondents each in

Rome and Milan). The choice of urban locations aimed at excluding consumers with direct connection with the production of extra-virgin olive oil. Questionnaires were administered to food shoppers in mall intercepts at a large retail store in each of the four study areas. The structure of the final questionnaire was developed using results and information derived from previous focus groups[4]. The survey collected information on motivations and attitudes for the purchase of olive oil in general and extra virgin olive oil in particular. The questionnaire also inquired about economic barriers and drivers to olive oil consumption, as well as the socio-economic characteristics of the respondent. The choice of a mall intercept was guided by the need to capture a random population of consumers (i.e. individuals responsible for household provisions) in a real shopping environment, obtaining a fairly varied sample of individuals[5]. Table 1 presents summary statistics for the respondents included in the final analysis.

The survey included a contingent ranking experiment (see e.g. Lareau and Rae, 1989; Foster and Mourato, 2000; Bateman *et al*., 2006). In this study, consumers were presented with nine different olive oil products, differing in terms of price, origin, organic label, and protected designation of origin (PDO). The choice set was obtained orthogonalizing the attributes to remove collinearity, and prices were randomly allocated. Each of the three regions considered has different PDO labels, but the experimental choice card (in table 2) refers to a generic PDO to ensure consumers could understand the choice task; estimated coefficients then capture the average value consumers assign to the label, while their standard errors account for the heterogeneity in consumer perception. Consumers were then asked to rank products according to their tastes, going from 1 (least preferred) to 9 (most preferred). Tied ranks were not allowed. The final choice set is presented in table 2.

[4] Two preliminary focus groups aimed at selecting the broad items to include in the final questionnaire. The first focus group interviewed producers, technical consultants (agronomists and agricultural economists), public officers of the Agricultural Regional Department, and a producers' association (PDO Committee of different geographic areas). In a second focus group, a group of consumers were invited to express their opinion with respect to their attitudes towards olive oil (its use, shopping places, and so on) and the most important attributes they consider when shopping (colour, transparency, price, method of production, and so on). Focus groups only discussed "Sicilian olive oil", in order to detect and identify main technical and economic attributes of Sicilian olive oil productions.

[5] www.stata.com/manuals13/rasroprobit.pdf.

4. RESULTS

This section presents the result of the contingent ranking experiment fitted on the four samples of consumers presented in the previous section. Specifically, table 3 reports estimated from a rank-ordered logit, while table 4 are 5 are estimates from a rank-ordered probit that relax the IIA assumption. Results in table 5 differ from those in table 4 by including stated personal preferences for PDO, Organic, and own-regional products (these are explained below). The rank-ordered probit was estimated using an unstructured variance-covariance matrix with $J \times (J-3)/2+1$ correlation parameters Estimation uses the GHK algorithm to approximate the multivariate distribution function, using option 1 as the utility-normalising option (setting its standard deviation to one, and its correlations with other errors to zero), and option 2 as the utility-scale-normalising option. WTP values have been estimated according to equation (7), using Tuscany as the baseline regional dummy. As results are fairly consistent across model specification, the analysis follows primarily the rank-ordered probit.

Before proceeding, some insight could be gathered from observing the average rankings per sample. The ranking of each of the 9 options in the four samples (figure 1) indicates that Sicilian oils (3, 7, and 8) occupy relatively high ranks in Sicilian samples, where option 7 (the cheapest) is always ranked at the top. The sample of outsiders instead preferred Tuscan options, leaving Sicilian products in third or fourth position at the most. Both Rome and Milan also present a Sicilian option (number 8, the most expensive) as the least preferred option in the list. Figure A1 in appendix 1 shows that Sicilian consumers tend to be more likely to rank top a Sicilian option, while the link region-top rank is less clear in the groups of outsiders. These first figures seem to support the intuition that the "Sicily" brand is a more important quality signal to insiders than outsiders. Furthermore, it suggests that insiders do not necessarily rank a Sicilian option as first, whilst ranking down options from other regions, i.e. a negative OOH-COO bias. However, these initial considerations are only speculative, and only the *ceteris paribus* analysis that follows can lead to more accurate considerations on consumer behaviour.

4.1. WTP for regional oils in inside and outside groups

Results from the estimated rank-ordered logit and probit are presented in tables 3 and 4 respectively, while table 5 reports estimated parameters for the rank-ordered probit with demographics included (discussed more specifically in the subsection 4.2). Results indicate that preferences for regions vary across regional identity groups, albeit presenting some common features: both Sicilian samples rank highest Sicilian oils (in Palermo jointly with Tuscan oils), and Apulian oils always feature last (in Catania jointly with Tuscan oils). The specific rank of WTP by region can be found in Appendix 2. The same pattern, expectedly, characterise the WTP for different regions (table 6 and figure 2). The sample for Catania appears to be the one with the highest interest in Sicilian oils, also registering the highest WTP for the region (relative to Tuscany). The different pattern of WTP in insiders could accounts for two items: firstly, the Sicilian capital Palermo could have higher exposure to continental products compared to Catania, which is a smaller city and a smaller port; secondly, Western Sicily (where Palermo is located), which can count on a larger olive-growing area, has easier access to olive oil in local farmer markets or in farms, hence having a stronger provincial identity rather than regional identity.

In terms of the remaining covariates, price is negatively related to utility, with outsiders presenting higher price sensitivity for oil. This result reflects the fact that olive oil is less than a commodity in urban areas, especially in those regions with much weaker links to olive growing, making consumers more sensitive to changes in price. Expectedly, organic and PDO certification represent important quality signals and strongly influence the ranking given to products. WTP for a PDO label is slightly higher for insiders compared to outsiders: the limited interface insiders have with producers in large retail stores compared to other sources (e.g. at farm) could lead to problems of imperfect information, and a WTP for PDO labels could help guarantee the truthfulness of the unobservable origin of the product *ex-ante* thus preventing *ex-post* dissatisfaction. Conversely, WTP for Organic labelling appears close across the four samples. The difference in estimated coefficients between probit and logit (i.e. after relaxing the IIA assumption) supports the notion that unobservable preferences for taste matter in the determination of consumer preferences (see Petrin

and Train, 2010): the upward bias in the coefficient of price in outsiders before adjusting for ξ suggest unobservable characteristics are valued positively, and consumers use price to infer unobservable quality (e.g. Wolinsky, 1983; Panzone, 2012).

4.2. Inclusion of consumer preferences for Own-region, Organic, and PDO

The results of the rank-ordered probit in table 4 have been extended to incorporate personal stated preferences for own-region olive oil, PDO, and organic products (table 5), which were recorded in the questionnaire. In particular, consumers were asked the following questions:

"Are you interested to quality certifications in the olive oil you purchase? [Yes/No question]

If yes, which ones?"

Consumers could choose one or more of PDO label, PGI label, and Organic label. Preferences for **PDO** and **Organic** were then coded as binary variables for those consumers indicating the interest in these two labels. Consumers were also asked the following question:

"Where does the olive oil you habitually buy come from?"

and could choose only one option from "Local", "Regional", "National", or "Outside the EU". Preferences for own-regional olive oil were coded as a binary variable equal to one if consumers answered "Regional" or "Local". Noticeably, "Local" differs from "Regional" in spatial terms, as it refers to a stronger link with land and its rural economy (e.g. Hinrichs, 2000); however, "Local" is a "subset" of the region where the individual resides, and they are considered jointly. Appendix 3 observes that consumers the show different interest in own-region, PDO and Organic, supporting the need for this further analysis.

Consumers selectively use their stated interests to determine the rank associated to some of their choices, relative to the baseline option 1 (table 5). However, Sicilian consumers do not always use preferences for own-regional products: only in Catania products are purchased based on stated preferences for own-regional olive oil, but favouring a Tuscan option (option 2). Coefficients can be positive and large in magnitude for Sicilian products both in Catania and Palermo, but they are not

significant. In Milan, an interest in Lombard oils favours Tuscan option 9, while in Rome they give a significant advantage to Apulian option 4 and a disadvantage to Tuscan option 9. These results suggest that consumers who reported to habitually look for own-regional products can be more likely to manifest an intention to try products from a different region. Consumers instead use their stated interest for PDO against both PDO and non-PDO options: consumers expect lower quality from PDOs compared to the baseline (a highly-priced Tuscan PDO). Conversely, preferences for Organic labels tend to favour organic products in Rome, and discourage non-organic options in other samples. There also seem to be a synergy between organic and PDO labels: preferences for organic oils lead to low rankings for organic labels whenever it has no PDO label as well.

5. DISCUSSION: I LIKE IT MORE IF IT COMES FROM THE SAME PLACE AS ME

GIs are an important tool to provide information to consumers on the origin of the food they purchase. The general model of consumer behaviour in the analysis of GIs considers consumers as interested to the label purely on the basis of the information it provides. This article advances the current understanding of GI by exploring preferences for origin in consumers with different regional identities. In particular, the objective of the article was to explore the WTP for the Sicily label on olive oil in two samples of Sicilian consumers (insiders), and two samples of consumers from Rome and Milan (outsiders). GIs are an important element where regional identity can be observed because consumers from a production area can identify with goods that bear the same name as the location they come from. The utility they derive then stems not only from knowledge of and familiarity with the taste of the final good, but also from a broader preference set that includes local identity and social objectives. Results indicate that both groups of outsiders and both groups of insiders present fairly similar preferences, whilst differing across identity groups. Preferences for other characteristics are fairly stable across identity group.

Identity theory predicts that a link between origin of the consumer and origin of the good leads to an additional positive contribution to the utility insiders estimate for a good. This component adds to pure preference for a region, favouring the evaluation of products that originate in the same location of the consumer. Results support the intuition: regional preferences for Sicily

are higher in insiders than outsiders. Part of the difference in preferences is influenced by the perception the consumer has of the region (e.g. Van der Lans et al., 2001; Winfree and McCluskey, 2005), but insiders also value the social group (Ahmed, 2007; Chen and Li, 2009), and the economic well-being of local communities (Tregear et al., 2007). This preference is activated from feelings of affinity between product and consumer (Oberecker et al., 2008). Taste preferences can undoubtedly influence the ranking decisions: exposure is known to increase liking (Harris, 2008; Birch and Marlin, 1982) through product familiarity (Wansink, 2002) and affect (Van der Lans *et al*., 2001), and the priority given to an "inside" product is going to increase taste preferences in the long run. However, the modelling allows for the presence of unobservable product-specific characteristics using a rank-ordered probit, supporting the notion that these variables affect the estimated coefficient for region of origin in the rank-ordered logit.

Results highlight that in some cases regional identity might act as a signal for xenophilic preferences (Perlmutter, 1954), to the extent that identification does not always lead to a dominant role of the own-regional product. Instead, some insiders prefer the taste or the reputation of products originating from outside (i.e. Tuscany is not significantly different from Sicily in Palermo). On the other hand, it seems that identity leads to feeling of dislike of outside products: estimates for products originating outside the region always generate a negative utility in consumers. As a result, an H-COO bias might work asymmetrically: it does not act by increasing the value of inside products, but reduces the value of outside products. This asymmetry is consistent with research on the critical judgment of over controversial inside matters: insiders value an opinion asymmetrically, whereby the same statement is considered neutral if coming from insiders, and negative if from outsiders (Hornsey et al., 2002). From a marketing perspective, results indicate that the nature of GI labelling differ across identify group, and consumers are more interested in own-regional products that outsiders. As a result, retail should consider the supply of inside goods, with only a smaller amount of outside options. Different markets may differ in their reaction towards outside options, and retailers should limit the presence of those GI with negative WTP, or design appropriate strategies for supply (e.g. advertise their real value).

Results might not fully hold in different distribution systems. In fact, for consumers shopping in large retail stores would be expected to rely on heuristics that allow them to detect the unobservable quality of a product. In this context, the information on the label plays an important role in the definition of quality (Broniarczyk and Alba, 1994), while different cues might apply if the product was sourced elsewhere, e.g. directly from a supplier. In fact, several studies observe that the different environment in different retail channels can influence consumer' choices and price acceptability (Degeratu et al., 2000; Baker et al., 1994; Grewal and Baker, 1994), While the identity of the consumer would be expected to be relevant in all segments of the market, it would be taken as given in certain channel (local market) and less so in more impersonal marketplaces. Moreover, in large retail stores regional identity might be a less prominent factor of choice, as consumers might use these channels for specific objectives (e.g. saving money, see e.g. Di Vita et al., 2013). As the current dataset does not compare consumer choices in different retail channels, this is a testable implication left for future research.

From a research perspective, the implications of the findings of this paper indicate that choices are not only a dry representation of consumer preferences, but are intertwined with the personality of respondents (see Akerlof and Kranton, 2000). Consequently, the presence of a label (like a GI) can activate emotions and feelings that effectively influence choices beyond the pure information they convey. Moreover, choices are not only aimed at maximising personal utility, but incorporate social utility, to the extent that consumers choose on the basis of a socially agreed standard (real or perceived). These choices inevitably contribute to the personal development of the consumer, reinforcing preferences for the label over time. The immediate consequence of this social utility is that GIs are not just an additional piece of information, but they influence choices beyond pure preferences. For some insiders, GIs activate a sense of identification with the product and represent the socially responsible choice every insider should make, i.e. the choice that can maintain standards of living and welfare in the area. However, while sharing regional identity is not sufficient to increase the value assigned to a GI, it can devalue products from outside the area.

Finally, the results presented in the paper also have implications for policy-making. In particular, results indicate that GIs are valued more by insiders than outsiders. While information is important in both segments, consumers view the label as a more important feature when they perceive extra benefits from their choices to fall within the remit of their own locality. To this extent, regions play a prominent role in the Italian socio-economic context, and consumers expect the benefits from purchasing an inside products to stay within the economy. The PDO is instead valued similarly across samples, implying limited differences in terms of the value associated to a guaranteed origin. The direct implication is that current labels are not neutral to the eye of a consumer, but are valued differently across identity groups. As a result, a better regulation of GIs would require an increased role of insiders, allowing for the use of revenues to benefit local economies in terms of employment and innovation. Importantly, there is a general lack in research evaluating current GI policies in terms of their long term impact on local governance, consumer welfare, and behavioural change.

6. CONCLUSIONS

This article highlights the importance of regional identity in the behaviour of consumers, particularly with respect to their WTP for GIs. Results indicate that preferences for a specific GI depend on the ability of consumers to associate with that same location. As a result, the relation between choices and the perceived standard of the social group where the consumer belongs should be explored further in the future. Social identity is rarely considered in an applied model of consumer behaviour, and previous research focused primarily on the implications on labour markets (see Akerlof and Kranton, 2000, and 2005). Nevertheless, social utility appears to have an influence on different areas of personal choice and consumer behaviour and the potential for research in this area is vast. For instance, further research should develop a more accurate model of consumer behaviour consistent with economic theory that incorporate social identity, in order to improve the predictive power of existing models and to provide more powerful insights for policymaking and research.

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TABLES

Table 1: Demographic characteristics of the sample

		Catania	Palermo	Milan	Rome
Category	**Variable**	**%**	**%**	**%**	**%**
Gender	Female	52.1	52.5	69.1	57.4
	Male	47.9	47.5	30.9	42.6
Age	18-30	14.4	7.2	12.4	10.0
	31-45	40.7	46.2	41.6	50.6
	46-60	34.7	36.7	34.3	22.1
	> 60	10.2	10.0	11.8	17.3
Education	Primary	22.4	14.1	24.2	31.3
	Secondary	42.4	48.9	51.7	41.8
	Graduate/Postgraduate	35.2	37.1	24.2	26.9
Income	- < 10,000 Euros	8.0	5.0	2.2	4.0
	- 10-20,000 Euros	44.1	36.2	27.0	36.5
	- 20-40,000 Euros	35.2	44.3	48.3	48.2
	- > 40,000 Euros	12.7	14.5	22.5	11.2
Respondents		234	221	178	249

Table 2: Description of the choice set

Option	Price (€)	Origin	Organic	PDO
1	10.5	Tuscany	Yes	Yes
2	10.5	Apulia	Yes	No
3	8.5	Sicily	Yes	No
4	8.5	Apulia	No	Yes
5	8.5	Tuscany	Yes	Yes
6	6.5	Apulia	Yes	Yes
7	6.5	Sicily	Yes	Yes
8	10.5	Sicily	No	Yes
9	6.5	Tuscany	No	No

Table 3: Estimated parameters of rank-ordered logit

	Catania		Palermo		Milano		Roma	
	Coefficient	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**
Price	-0.3052***	0.0178	-0.3083***	0.0190	-0.0996***	0.0188	-0.1294***	0.0161
Organic	0.7048***	0.0584	0.8356***	0.0601	0.8205***	0.0675	0.8053***	0.0565
PDO	0.9818***	0.0598	1.4581***	0.0688	0.7298***	0.0657	0.8793***	0.0569
Apulia	0.1227*	0.0628	-0.1253*	0.0659	0.3010***	0.0730	0.2864***	0.0612
Sicily	0.8462***	0.0642	0.2754***	0.0658	-0.0154	0.0740	-0.1060**	0.0622
WTP Organic	2.3096		2.7101		8.2372		6.2248	
WTP PDO	3.2173		4.7289		7.3268		6.7972	
WTP Apulia	0.4019		-0.4065		3.0216		2.2136	
WTP Sicily	2.7728		0.8932		-0.1542		-0.8192	
Observations	2124		1989		1584		2223	
Respondents	236		221		176		247	
Options	9		9		9		9	
LR chi2(5)	747.45***		878.15***		340.34***		553.23***	
Log likelihood	-2647.51		-2390.13		-2082.95		-2885.43	

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01.

Table 4: Estimated parameters of rank-ordered probit

	Catania		Palermo		Milano		Roma	
	Coefficient	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**
Price	-0.2881***	0.0343	-0.2223***	0.0332	-0.9988***	0.1273	-0.7922***	0.0831
Organic	0.5709***	0.0885	0.7399***	0.0706	1.7336***	0.2296	1.5156***	0.1580
PDO	0.9108***	0.0875	1.1991***	0.0927	1.5675***	0.2239	1.6289***	0.1545
Apulia	-0.0409	0.0582	-0.2877***	0.0592	0.9222***	0.2176	0.6468***	0.1411
Sicily	0.8057***	0.0912	0.0964	0.0602	0.7779***	0.2483	0.1063	0.1542
WTP Organic	1.9814		3.3275		1.7356		1.9130	
WTP PDO	3.1613		5.3929		1.5693		2.0561	
WTP Apulia	-0.1420		-1.2940		0.9233		0.8164	
WTP Sicily	2.7964		0.4334		0.7788		0.1342	
Observations	2124		1989		1584		2223	
Respondents	236		221		176		247	
Options	9		9		9		9	
Wald chi2(5)	193.83***		202.84***		85.49***		166.19***	
Log likelihood	-2388.5438		-2036.43		-1528.64		-2228.82	

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01. Note: option 1 is the alternative normalizing location; option 2 is the alternative normalizing scale.

Table 5: Estimated parameters of rank-ordered probit with interest for Region, PDO, and Organic

		Palermo		Catania		Milano		Roma	
		Coefficient	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**	**Coefficient**	**S.E.**
	Price	-0.2473***	0.0447	-0.3575***	0.0556	-1.3155***	0.1676	-0.6336***	0.0998
	Organic	0.6782***	0.0843	0.4133***	0.1349	2.0585***	0.2737	1.4280***	0.1864
	PDO	1.1888***	0.1094	0.8973***	0.1351	1.7924***	0.2652	1.4520***	0.1804
	Apulia	-0.3764***	0.0824	-0.1294	0.0986	1.0363***	0.2546	0.5503***	0.1838
	Sicily	-0.0073	0.0825	0.7812***	0.1356	0.8191***	0.2776	0.0619	0.2015
	WTP Organic	2.7426		1.1561		1.5648		2.2538	
	WTP PDO	4.8071		2.5097		1.3625		2.2918	
	WTP Apulia	-1.5220		-0.3618		0.7878		0.8686	
	WTP Sicily	-0.0294		2.1850		0.6226		0.0977	
Option 1	Region	Baseline		Baseline		Baseline		Baseline	
	PDO								
	Organic								
Option 2	Region	0.2431	0.2595	0.4146**	0.2080	-0.2332	0.5150	-0.1824	0.2151
	PDO	-0.5405**	0.2366	-0.1958	0.2077	-0.6384**	0.2884	0.1056	0.2435
	Organic	0.5763*	0.3068	-0.2761	0.2311	0.7730**	0.3465	-0.4686*	0.2532
Option 3	Region	0.2284	0.3274	0.4573	0.2797	-0.3099	0.8846	0.3722	0.3509
	PDO	-0.5791**	0.2950	-0.6574**	0.2730	-2.7217***	0.5507	-0.1244	0.3950
	Organic	0.5927	0.3891	-0.6400**	0.3006	1.0478	0.6535	0.1353	0.3913
Option 4	Region	0.0584	0.2777	0.0923	0.2356	-0.4138	0.8071	0.5346*	0.3008
	PDO	-0.2158	0.2471	-0.0771	0.2312	-0.8950*	0.4920	-0.3433	0.3364
	Organic	-0.0139	0.3292	-0.6860***	0.2606	-0.5815	0.5906	0.7681**	0.3390
Option 5	Region	0.0896	0.2164	0.0005	0.1790	0.7155	0.7757	0.0970	0.2456
	PDO	-0.2293	0.1876	-0.3326*	0.1837	-1.3710***	0.4066	-0.2471	0.2710
	Organic	-0.0686	0.2627	-0.0105	0.2113	0.1071	0.4910	0.9941***	0.2850
Option 6	Region	0.4350	0.3790	-0.1780	0.2763	0.1973	1.8568	-0.8495	0.5981

	PDO	-0.4365	0.3319	-0.3918	0.2691	-6.7825***	1.1544	-1.7092**	0.7049
	Organic	0.0500	0.4456	0.3147	0.2942	-0.5340	1.3318	1.1353	0.7163
Option 7	Region	0.6695	0.4376	0.2747	0.3649	0.1794	1.8928	-0.5873	0.5942
	PDO	-0.3822	0.3768	-0.8132**	0.3530	-6.6403***	1.1518	-1.6022**	0.6997
	Organic	0.2447	0.5174	0.3905	0.3951	-0.7229	1.3552	0.8801	0.7107
Option 8	Region	-0.0348	0.2273	0.2789	0.2480	-0.2844	0.7507	0.1319	0.2636
	PDO	0.0081	0.2030	-0.2444	0.2484	0.4374	0.3884	-0.1402	0.3046
	Organic	-0.0629	0.2754	-0.7969***	0.2834	-1.8005***	0.5458	-1.0169***	0.3238
Option 9	Region	0.1613	0.4577	0.2348	0.4004	6.7859***	2.4191	-1.8549**	0.7550
	PDO	-0.7031*	0.4067	-0.5231	0.3881	-7.0286***	1.5072	-1.5766*	0.8723
	Organic	-0.0994	0.5467	-1.1374***	0.4237	-2.6403	1.7809	0.9946	0.8712
	Observations	1989		2124		1584		2223	
	Respondents	221		236		176		247	
	Options	9		9		9		9	
	LR chi2(29)	206.32***		195.71***		124.50***		205.41***	
	Log likelihood	-2009.10		-2353.99		-1436.16		-2181.3308	

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01. Note: option 1 is the alternative normalizing location; option 2 is the alternative normalizing scale.

Table 6: Estimated WTP for Sicily and Apulia

a) WTP Sicily

			95% Confidence Interval		
			Minimum	Maximum	Mean
Insiders	Catania	Logit	€ 2.22	€ 3.32	€ 2.77***
		Probit 1	€ 1.93	€ 3.66	€ 2.80***
		Probit 2	€ 1.02	€ 3.35	€ 2.19***
	Palermo	Logit	€ 0.36	€ 1.43	€ 0.89 ***
		Probit 1	-€ 0.08	€ 0.95	€ 0.43
		Probit 2	-€ 0.74	€ 0.68	-€ 0.03
Outsiders	Milan	Logit	-€ 1.99	€ 1.68	-€ 0.15
		Probit 1	€ 0.19	€ 1.37	€ 0.78***
		Probit 2	€ 0.04	€ 1.20	€ 0.62**
	Rome	Logit	-€ 1.82	€ 0.18	-€ 0.82
		Probit 1	-€ 0.29	€ 0.56	€ 0.13
		Probit 2	-€ 0.74	€ 0.94	€ 0.10

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01. Logit refers to Rank-ordered logit; Probit 1 refers to Rank-ordered probit without demographics; and Probit 2 refers to Rank-ordered probit with demographics. Confidence intervals have been estimated using 100 bootstrap replications.

b) WTP Apulia

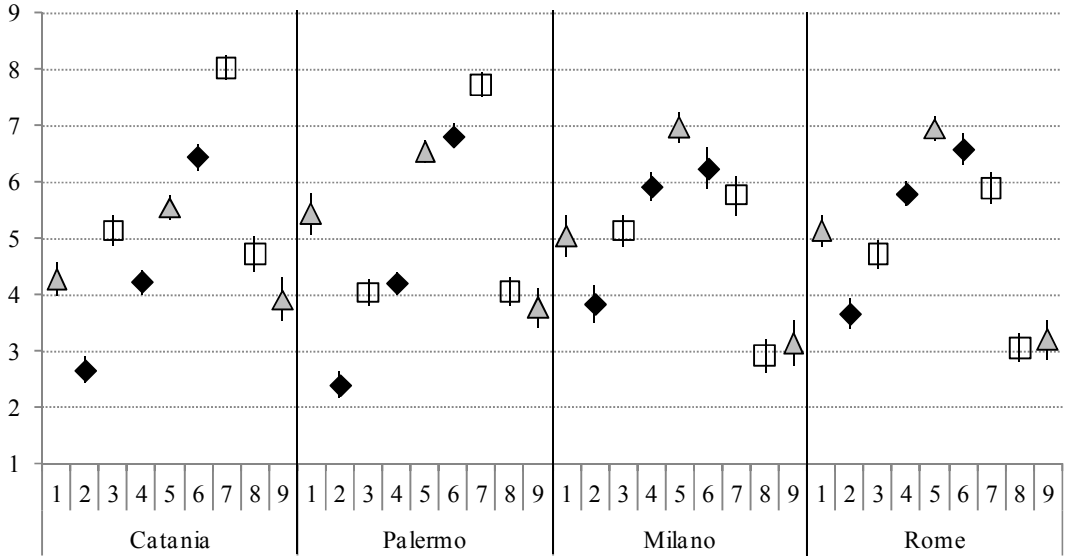
			95% Confidence Interval		
			Minimum	Maximum	Mean
Insiders	Catania	Logit	-€ 0.08	€ 0.89	€ 0.40
		Probit 1	-€ 0.61	€ 0.33	-€ 0.14
		Probit 2	-€ 0.98	€ 0.25	-€ 0.36
	Palermo	Logit	-€ 0.88	€ 0.07	-€ 0.41*
		Probit 1	-€ 1.92	-€ 0.67	-€ 1.29***
		Probit 2	-€ 2.42	-€ 0.62	-€ 1.52***
Outsiders	Milan	Logit	€ 1.21	€ 4.84	€ 3.02***
		Probit 1	€ 0.24	€ 1.61	€ 0.92***

		Probit 2	€ 0.17	€ 1.40	€ 0.79**
	Rome	Logit	€ 1.00	€ 3.43	€ 2.21***
		Probit 1	€ 0.37	€ 1.26	€ 0.82***
		Probit 2	€ 0.02	€ 1.72	€ 0.87**

Significance is as follows: * = 0.10; ** = 0.05; *** = 0.01. Logit refers to Rank-ordered logit; Probit 1 refers to Rank-ordered probit without demographics; and Probit 2 refers to Rank-ordered probit with demographics. Confidence intervals have been estimated using 100 bootstrap replications.

FIGURES

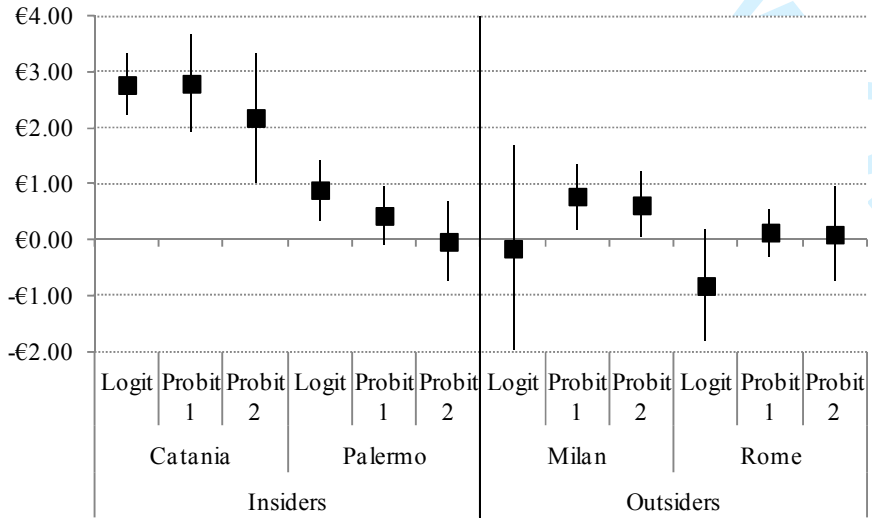
Figure 1: Average rank of options, by sample



Note: Square = Sicilian options; Triangle = Tuscan options; Rhombus = Apulian options. Bars represent bootstrapped standard errors (1,000 replications).

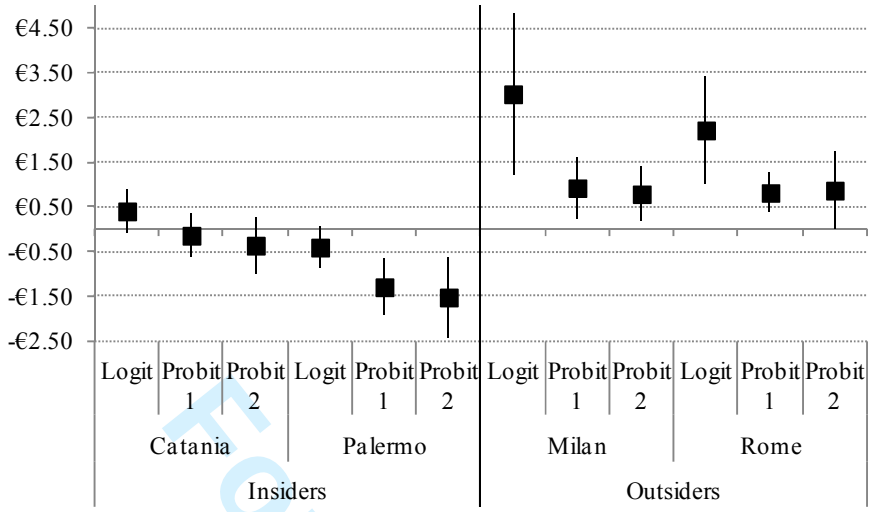
Figure 2: Average WTP by sample and model used

a) Sicily



Bars represent bootstrapped standard errors (100 replications).

b) Apulia



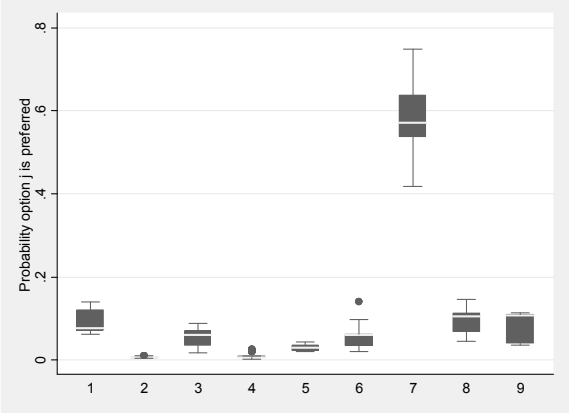
Bars represent bootstrapped standard errors (100 replications).

Appendix 1: The probability of ranking each option first by sample

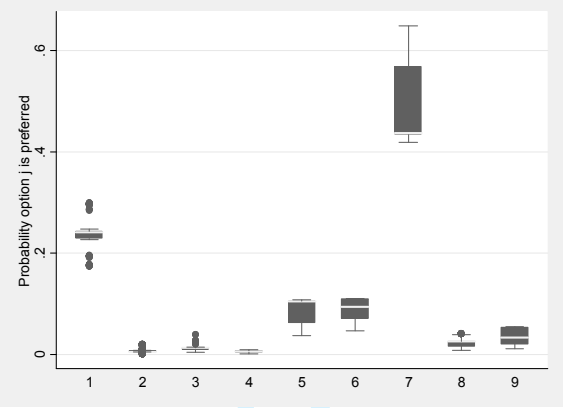
This first appendix shows the estimated probability of ranking highest a specific option. Overall, Sicilian samples seem to show a strong preference for one Sicilian option, while outsiders manifest less clear preferences for origin. Specifically, the fitted probability that each option is ranked first (figure A1) indicates that Sicilian samples have a single Sicilian favourite (option 7), while for outsiders one option in each region have similar probability of being ranked first (options 5, 6, and 7).

Figure A1: Fitted probability that each option is preferred, by sample

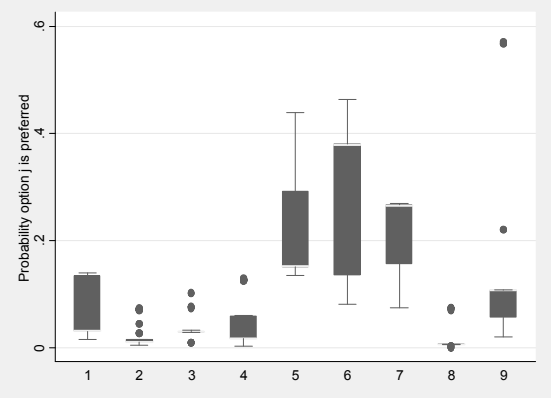
a) Catania



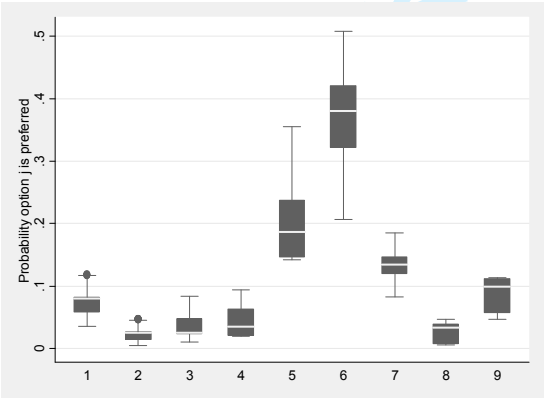
b) Palermo



c) Milan



d) Rome



Appendix 2: Rank of WTP for different regions in the sample

Table A1 ranks different regions within each identity group through a series of Wald tests. The table reports the probability to reject the null hypothesis of equality of the marginal utility of two regions, with pairings reported in column 1. Specifically, outsiders like Sicilian products equally or more than the baseline Tuscany (except the rank-ordered logit in Milan), with $\frac{\partial U^O}{\partial GI}(GI = s) \geq \frac{\partial U^O}{\partial GI}(GI = -s)$; and less than Apulian ones, with $\frac{\partial U^O}{\partial GI}(GI = s) < \frac{\partial U^O}{\partial GI}(GI = -s)$. These inequalities reflect preferences specific to this exercise, and cannot be fully generalised. On the other hand, insiders value the own *GI* no less than any other option on display: Apulian options are always preferred less than Sicilian ones; while Tuscan options differ significantly only in Catania. As a result, Sicilian options are always first, either alone or jointly with Tuscan options, and $\frac{\partial U^I}{\partial GI}(GI = s) \geq \frac{\partial U^I}{\partial GI}(GI = -s)$. Because rank-ordered probit estimates accounts for unobservable (expected) product characteristics, these equalities are corrected for pure taste expectations. In terms of the relations in equations 2a-2c, figure A1 indicates that Catania has a significantly higher WTP for Sicily than outsiders; and Palermo a significantly lower WTP for Apulia than outsiders: $WTP^I(GI = s) \geq WTP^O(GI = s)$ and $WTP^I(GI = -s) \leq WTP^O(GI = -s)$.

Table A1: Preferences for region of origin within each identity group

	Catania	**Palermo**	**Milano**	**Roma**
	Rank-ordered logit			
	Apulia>Tuscany	Apulia<Tuscany	Apulia>Tuscany	Apulia>Tuscany
Prob. Region 1 = Region 2	0.0508	0.0570	0.0000	0.0000
	Sicily>Tuscany	Sicily>Tuscany	Sicily=Tuscany	Sicily<Tuscany
Prob. Region 1 = Region 2	0.0000	0.0000	0.8356	0.0882
	Sicily>Apulia	Sicily>Apulia	Sicily<Apulia	Sicily<Apulia
Prob. Region 1 = Region 2	0.0000	0.0000	0.0000	0.0000
	Rank-ordered probit (demographics excluded)			
	Apulia=Tuscany	Apulia<Tuscany	Apulia>Tuscany	Apulia>Tuscany
Prob. Region 1 = Region 2	0.4818	0.0000	0.0000	0.0000
	Sicily>Tuscany	Sicily=Tuscany	Sicily>Tuscany	Sicily=Tuscany

Prob. Region 1 = Region 2	0.0000 Sicily>Apulia	0.1095 Sicily>Apulia	0.0017 Sicily<Apulia	0.4905 Sicily<Apulia
Prob. Region 1 = Region 2	0.0000	0.0000	0.0811	0.0000
	Rank-ordered probit (demographics included)			
	Apulia=Tuscany	Apulia<Tuscany	Apulia>Tuscany	Apulia>Tuscany
Prob. Region 1 = Region 2	0.1895 Sicily>Tuscany	0.0000 Sicily=Tuscany	0.0000 Sicily>Tuscany	0.0028 Sicily=Tuscany
Prob. Region 1 = Region 2	0.0000 Sicily>Apulia	0.9298 Sicily>Apulia	0.0032 Sicily<Apulia	0.7588 Sicily<Apulia
Prob. Region 1 = Region 2	0.0000	0.0000	0.0176	0.0000

Note: Probabilities refer to the probability to reject the null hypothesis of equality of the estimated coefficient of two regions through a Wald test.

Appendix 3: Determinants of the interest in own-region, PDO and Organic Olive Oil

Probit regressions on the determinant of the interest in own-region, PDO and Organic products are presented in table A2. Covariates include: the logarithm of income and age; gender; education (equal to one if the individual holds a high school diploma or university degree); household size; and geography: for PDO and region, a dummy equal to one if respondents indicate origin as one of the two most important criteria (out of six) of choice; and a dummy equal to one if the person stated a previous purchase of organic products. Table A2 indicates that an interest in the origin of oils is a key determinant for preference for own-regional products and PDO in both Sicilian samples, for PDO in the Milan sample and for region in the Rome sample. Similarly, a previous organic purchase is an important predictor of stated interests for organic labels in all samples. Consumers appear to perceive PDO and organic as non-necessities: a reported interest for organic labels increases in income in Catania, and decreases with household size in Catania and Rome; while income matters for PDO among outsiders. Household size is also negatively associated to region in outsiders. In terms of age, younger consumers in Rome state higher preferences for organic labels and PDO, while older respondents in Milan pay more attention to the PDO label. Finally, education favours preferences for PDO oils in Catania, Milan and Rome; and gender favours preferences for region in Palermo and for PDO labels in Rome.

Table A2: Determinants of stated preferences for Regional, DOP, and Organic products
a) Region

	Catania		**Palermo**		**Milan**		**Rome**	
	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.
Intercept	0.2518***	1.1342	-0.7756	1.5134	-0.8901	2.1709	-1.4492	1.3752
ln(Income)	0.1796	0.1650	0.1722	0.2150	-0.1962	0.2821	-0.0753	0.2070
Male	0.2120	0.1753	0.5003***	0.1935	0.0418	0.3463	0.0861	0.1782
ln(Age)	-0.2390	0.2677	-0.4092	0.3655	0.4036	0.5553	0.5164	0.3309
Education	-0.3205	0.2355	0.4291	0.3702	-0.6515	0.4124	-0.4075*	0.2236
Household size	-0.0284	0.0784	0.0137	0.0838	-0.3277*	0.1742	-0.2030**	0.0919
Geography	0.8047***	0.1989	1.0002***	0.2177	-0.4448	0.3423	0.5307***	0.1720
Observations	234		221		176		247	
LR chi2(6)	22.62***		44.00***		9.47		37.09***	

Log likelihood	-146.73	-118.90	-36.41	-144.54
Pseudo R2	0.0716	0.1561	0.1150	0.1137

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01.

b) PDO

	Catania		**Palermo**		**Milan**		**Rome**	
	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.
Intercept	-1.4906	1.1433	-1.4501	1.4817	-8.2787***	1.7033	-1.6398	1.4396
ln(Income)	0.1146	0.1724	0.1555	0.2082	0.4704*	0.2428	0.8889***	0.2675
Male	0.0705	0.1795	-0.0895	0.1876	0.2075	0.2353	0.7824***	0.1998
ln(Age)	-0.0960	0.2671	0.0271	0.3578	1.4899***	0.4316	-0.7541**	0.3851
Education	1.1402***	0.2934	0.3037	0.3325	0.4973*	0.2991	0.7351***	0.2808
Household size	-0.0421	0.0797	-0.1076	0.0810	-0.0354	0.1137	0.0640	0.1029
Geography	0.3807***	0.2172	0.7370***	0.2042	0.6760***	0.2162	-0.1032	0.1898
Observations	234		221		176		247	
LR chi2(6)	30.92***		20.80 ***		39.41***		58.19***	
Log likelihood	-137.3009		-126.8102		-95.6587		-121.7062	
Pseudo R2	0.1012		0.0758		0.1708		0.1929	

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01.

c) Organic

	Catania		**Palermo**		**Milan**		**Rome**	
	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.	Coefficient	S. E.
Intercept	-0.9509	1.2544	-5.0534*	2.7800	-1.4503	1.8057	8.5238***	2.1277
ln(Income)	0.6027***	0.2020	0.2958	0.3517	0.0801	0.2601	0.2250	0.2693
Male	-0.0528	0.1974	-0.1122	0.3072	-0.3794	0.2809	-0.1655	0.2360
ln(Age)	-0.3274	0.3042	0.3843	0.6437	-0.1202	0.4754	-2.3355***	0.5297
Education	-0.1037	0.2667	0.6284	0.6101	0.4464	0.3677	0.0451	0.3102
Household size	-0.1645*	0.0889	0.0943	0.1425	0.0220	0.1215	-0.5197***	0.1333
Purchaser	1.4601***	0.2034	3.0377***	0.3798	1.3418***	0.2526	2.5747***	0.3482
Observations	234		221		176		247	
LR chi2(6)	78.58***		127.35***		38.62***		114.97***	
Log likelihood	-108.9537		-42.3301		-69.8588		-88.8229	
Pseudo R2	0.2650		0.6007		0.2166		0.3929	

Significance is as follows: * =0.10; ** = 0.05; *** = 0.01.