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**Good taste tastes good.**

**Cultural capital as a determinant of organic food purchase by Italian consumers:  
Evidence and policy implications**

by

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**Abstract**

Policy actions in support of organic food chain productions have so far focused on the supply side, whereas poor attention has been paid to the demand side, despite the growing interest in consumers' attitudes toward organic food. With the prospect of a future slowing down of the demand for organic products, specific demand-side policy measures are called for. Building on interdisciplinary research on the determinants of organic food purchases, we argue that cultural capital is a relevant, so far overlooked driver of organic food purchase. We apply a Heckman two-step selection strategy approach to microdata from the latest sample annual survey by the Italian National Institute of Statistics. We find that participation in cultural activities has a positive impact on the inclination to purchase organic products, to an extent that depends on the social orientation of each cultural activity. Some policy implications are derived.

**JEL Classification:** A13; C3; Q18; Z1

**Keywords:** Organic food purchase; Cultural Capital; Cultural Participation; Heckman two-step selection strategy; Italy

## **1. Introduction**

The increasing attention paid by civil society to issues of environmental sustainability, healthiness and safety of food production and consumption (Annunziata and Vecchio, 2016; Arvola et al., 2008; Barlagne et al., 2015; Chen, 2007; Hsu and Chen, 2014; Laureati et al., 2013; Schifferstein and Oude Ophuis, 1998; Van Loo et al., 2013; Vermeir and Verbeke, 2008; Williams and Hammitt, 2001) has prompted governments to intensify their efforts in supporting organic agriculture. Policy measures include regulatory promotion of environmentally sustainable and low-toxicity farming techniques, certification of processes and products complying with organic standards, preservation of biodiversity, improved land protection, and control and reduction of environmental pollutants. A consequent effort to improve the awareness of consumers on all of the above issues has been made in most if not all socio-economically developed countries.

As a result, organic food market figures have been steadily growing worldwide. As of the end of 2014 (FIBL and IFOAM, 2016), the global sales of organic food and drinks have reached 80 billion USD. Organic food production takes place in 172 countries, where almost 2.3 million producers cultivate 43.7 million hectares of land (including in-conversion areas). Europe, and Italy in particular, are not exceptions. With its 23.9 billion Euro worth (approximately 38% of the global market), Europe represents the second largest organic market in the world (with the USA accounting for about 43% of the global market), extending over 11.6 million hectares of organic agricultural land, managed by almost 340,000 producers. Within Europe, Italy has the second largest organically cultivated agricultural areas in Europe (1.4 million hectares, following Spain with 1.7), and the fourth biggest domestic market (2,850 million USD, 8.2% of the European market) after Germany (10,501 million USD, 30.2%), France (6,298 million USD, 18.1%), and the United Kingdom (2,891 million USD, 8.3%). Moreover, Italy is the first exporter of organic produce in the world (1.42 billion Euros), with exports increasing by a 9.5% average annual growth rate in 2007-2013 (Mipaaf, 2016). However, according to Marketline Industry (2015), the momentum of the Italian domestic organic market is

forecast to tone down. The anticipated compound annual growth rate (CAGR) for the five-years period 2014-2019 is 5.8%, compared to 6.8% for 2010-2014, and to anticipated 2014-2019 figures of 6.7% and 6.6% for France and Germany, respectively.

Such an outlook, if confirmed, may cause possible excess supply, also considering that in the national rural development 2014-2020 programming, a specific measure to support the development of organic agriculture is contemplated, with substantial financial resources (1.69 billion Euros, compared to 1.59 billion Euros for 2007-2013). In turn, the export channel may not be able to absorb the possible excess production capacity, as competition in the sector at the global level is expected to sharpen in the coming years.

A point of special concern is that the consequences of a slowdown in the national market growth rate would penalize the less developed Italian regions (the ones with a per capita GDP below the EU average), where the largest number of organic farmers and the most relevant extensions of organically cultivated land are localized: Sicily (9,660 firms, 303,066 hectares), Calabria (8,787 firms, 160,164 hectares), and Apulia (6,599 firms, 176,998 hectares). Organically cultivated agricultural land in the former three regions accounts for the 46% of the national total. Organic farming, therefore, has a major impact on the economic performance of such regions (Annunziata and Vecchio, 2016).

To address this problem, the identification of the determinants of consumers' choice to purchase organic products is of key importance, in order to design effective policies targeting the demand side. Several studies have been focusing on the topic. An important common finding is the acknowledgment of consumers' growing environmental awareness and increasing concern for food safety (Çabuk et al., 2014; Gracia and De Magistris, 2007; Kareklas et al., 2014; Lee, 2016; Michaelidou and Hassan, 2008; Shafie and Rennie, 2012; Thorsøe, 2015; Torgler and García-Valiñas, 2007). A variety of approaches has been adopted in the literature to gain further insight on such attitudes, to shed light upon the connection between consumers' values, attitudes and intentions, as well as social and personal norms, and organic food purchasing behaviour. Results, however, are somewhat mixed and fragmented (for an early review, see Aertsens et al., 2009).

In particular, there is still a lack of understanding of the fine-grained mechanisms that play a crucial role in turning pro-environmental orientations into actual behaviours (Hynes and Wilson, 2016). For instance, Aschemann-Witzel and Niebuhr Aagaard (2014) report perceived affordability and a too weak perceived differentiation from non-organic food as major barriers for a small sample of young Danish consumers, suggesting policies to reduce the expensiveness stigma of organic products, as well as to make their distinctive characteristics more salient. In this context, Shashi et al (2015) provide a large meta-review of the literature on organic food supply chains, and propose a conceptual model that singles out five main macro-factors influencing consumers' attitudes toward organic food: sustainability, market deterrents, personal values, demographics, and the socioeconomic environment. As far as demographic and socioeconomic factors are concerned, in particular, education and income emerge as major predictors of organic product purchases. Moreover, building on the concept of "group norms" (Fielding et al., 2008a, 2008b), recent contributions have emphasized social identity attributes of consumers as key enhancers of the predictive capability of more traditional approaches to the issue (Johe and Bhullar, 2016).

Our paper moves in a somewhat complementary and original direction, investigating the role of another generally neglected dimension. To the best of our knowledge, we are the first to consider whether consumers' participation in cultural activities affects their propensity to purchase organic food. Our research question finds strong support in terms of plausibility in the significant, interdisciplinary stream of literature that highlights how cultural participation, in view of its significant cognitive, emotional and relational implications, substantially influences many different aspects of human choices, such as environmental responsibility, healthy conduct, elimination of prejudice, and so on (Sacco et al., 2012). As organic food consumption decisions are so subtly intertwined with social values, norms, and attitudes, it is legitimate to ask whether the effects of cultural participation that are found in other affine spheres of norms- and value-driven behaviours similarly occur in this domain as well.

## **2. Conceptual framework**

Personal determinants of organic food (purchase and) consumption have been extensively discussed in the literature. Most of the contributions take the Theory of Planned Behaviour (TPB) (Ajzen, 1991) as the reference framework (e.g. Chen, 2007; Dean et al., 2008; Thøgersen, 2007), highlighting the role of the intention to perform the behaviour, and of levels of perceived behavioural control. Few others rely on the Norm Activation Model (NAM) (Schwartz, 1977) approach (for instance Honkanen et al., 2006; Klöckner and Ohms, 2009), that stresses the role of personal norms.

We see two major problems with applying either of these models of consumer behaviour to organic food consumption (Hynes and Wilson, 2016). The first is that both models assume that consumers act in a rational, fully informed manner, keeping relevant norms and value orientations into account, and accurately evaluating their implications for the final choice. In the case of organic food, however, consumers often have to rely upon a limited information as to the impacts of their decisions on several dimensions, including environmental consequences, their own health, and even the actual process of production and distribution of the goods. The second problem is that, as already emphasized, there still is a limited understanding of how particular values, norms and attitudes might affect the relationship between stated intentions and actual behaviours. These limitations of the available theoretical backgrounds for the explanation of organic food consumption, together with the increased interest catered by the expanding market demand for such goods, paved the way to novel theoretical approaches, such as the Identity Based Motivation (IBM) Theory (Oyserman, 2009; Oyserman et al., 2007), that stresses the role of self-identity in organic consumerism (Johe and Bhullar, 2016). This recent stream of research aims at making sense, through the process of self-identification, of the “attitude-intention gap” by focusing on the role of pro-environmental identity as a predictor of organic consumerism (Bartels and Hoogendam, 2011; Hustvedt and Dickson, 2009; Michaelidou and Hassan, 2008; Sparks and Shepherd, 1992). In this paper, we single out two different, complementary channels for identity-based organic consumerism that are mediated by cultural capital: a cognitive

one, and a social one, whose corresponding approaches to cultural capital have drawn significant attention in the literature.

Recent literature has analysed the impact of cultural participation on several dimensions of human behaviour (Crociata et al., 2015, 2014, Grossi et al., 2012, 2011; Sacco et al., 2012). Sustained access to cultural activities causes the accumulation of cultural capital under the form of a stock of cultural capabilities shaped by the cognitive, emotional and relational dimensions of cultural experience. This notion of cultural capital presents significant differences with respect to sociologically inspired approaches, such as Pierre Bourdieu's (1986, 1980) characterization of cultural capital as an asset that certifies social status. In Bourdieu's perspective, which has become the pillar of a large stream of sociologically motivated research in the field, cultural capital can assume one of three different states: embodied, objectified, and institutionalized, and is mainly characterized by its role as a socio-cognitive marker of social stratification. However, cultural capital may also become a key enabler of individual and social empowerment, and especially so when access to cultural experiences aims at social inclusion rather than discrimination, such as, for example, in cases like *El Sistema*, the massive program of socialization of youth at risk through classical music training (Cuesta, 2011). Throsby (2005, 1999) provides a more economically focused classification of cultural capital, moving from the distinction between tangible (heritage, museums, artistic artefacts, books, etc.) and intangible (oral traditions, customs, performances, rituals, etc.) forms of cultural capital.

The empirically motivated literature focuses on the effects of attendance or participation in cultural activities such as visiting museums, exhibits, or historic sites, as well as attending live music or theatre performances, cinema shows, etcetera (DiMaggio and Mukhtar, 2004; DiMaggio and Ostrower, 1990; Lizardo, 2006; López-Sintas and Katz-Gerro, 2005). Even if cultural capital, like social or human capital, is a highly heterogeneous asset, embedded in different levels and forms in society, cultural participation is considered as an activity that affects both the formation of tangible cultural capital (by encouraging the creation of new cultural artefacts), as well as of intangible cultural capital (through the reinforcement of social activities and practices with cultural significance). Cultural

participation, moreover, has a demonstrable impact on a variety of different spheres such as, for instance, education and lifelong learning, social regeneration, networking and cohesion, and well-being, with benefits extending beyond the circle of the involved subjects (e.g. Everingham, 2003; Sacco et al., 2012). More generally, cultural participation fosters cognitive and emotional articulation in individuals, enabling them to maintain an open minded, curious, critically aware attitude toward a multitude of socially relevant issues, and to seek engagement in a wide array of pro-social activities and practices (Crocata et al., 2014). As organic food production turns out to be perceived as more environmentally-friendly than more traditional food production processes (Hoefkens et al., 2009; Mondelaers et al., 2009), one can expect a positive relation between (culturally prompted) individual pro-social dispositions and organic food consumption.

It is important to stress that cultural access is not a mere act of consumption, but has an extremely complex social significance, while being at the same time very sensitive to social incentives (Tavano Blessi et al., 2016). For instance, Hutter (1996) argues how culture plays an important role in shaping collective identity, strengthening community ties and contributing to the enforcement of social norms. According to the definition of social norms given by Ajzen (2006), social conformity could explain a preference for organic food, even in presence of weak personal motivations. In the context of food choice, Vermeir and Verbeke (2006) reported a significant positive relation between consumers' intention to purchase organic food and their social norms of reference. More recently, socially-situated theories of cognition (Schwarz, 2007; Smith and Semin, 2007, 2004) have conceptualized identity as adaptive and embedded within social contexts. Specifically, Johe and Bhullar (2016) find that an identity priming that focuses upon organic orientation is associated with significant increases in intentions to purchase organic products.

Beyond its commodity dimension, cultural experience therefore works as a cognitive and affective cue for different kinds of consumption. Connatural to cultural experience is the questioning of existing conventions and meanings, inquiring about one's place in the world and in the society, and re-framing one's knowledge and belief systems into new, richer contexts (e.g. Boyd, 2009). This



transformational dimension of culture is related to the notion of “Exploratory Buying Behaviour Tendency” (EBBT). Fotopoulos and Krystallis (2002a; 2002b) revealed the existence of a consumer cluster exhibiting strong EBBT as the main motive of organic preference. Chinnici et al. (2002) reported that for 23.1 percent of Sicilian consumers, the main reason for choosing organic products was curiosity. The open-mindedness and curiosity that comes with sustained cultural participation might provide the motivational basis to regard the purchase of organic food as a stimulating experimentation of new forms of consumerism, laden with relevant consequences in terms of the shaping of individual and collective (pro-)social identity.

The relationship between cultural experience and interest in organic food purchase also extends to the nature of the cognitive barriers to be overcome for consumption to take place. With reference to cultural consumption, Trimarchi (1993) highlights how it is practically impossible for individuals to access the information needed to evaluate their preference for certain cultural experiences before they can actually experiment with them – analogously to what happens for trust goods. In the same way, uncertainty (Thøgersen, 2007), lack of information (McEachern and McClean, 2002), limited knowledge (Makatouni, 2002) and lack of trust in organic certification (Aarset et al., 2004) all conjure in establishing a perceived cognitive barrier to the purchase of organic food which can only be overcome through direct personal experience. Experiential testing also regards an evaluation of the peculiar combination of monetary and cognitive costs that characterize a specific form of cultural consumption (Purhonen et al., 2011). Likewise, the cognitive component of organic food consumption experience suggests that people’s capacity to evaluate such experience also depends on the development of specific (cognitive) skills.

The relationship between cultural capital acquisition and organic food consumption seems therefore to find a solid ground, from the cognition and empowerment side, in the many analogies between the two processes in terms of capability building through experience. Moreover, according to Pine and Gilmore (2011), culture as an experience good is potentially a powerful catalyst of social attention and self-confidence for those who engage in it. However, also from the point of view of social

differentiation we find interesting parallels that suggest a summing up of the two kind of effects rather than a trade-of between them. In a sociological perspective, social status organizes the social stratification of cultural access (Notten et al., 2015). In this perspective, as already noted, cultural participation is a way of socially demonstrating one's own status by the very capacity of appropriately accessing certain kinds of experiences (e.g. knowing, and successfully abiding by, the implicit norms of conduct of complex, strongly socially connoted cultural events such as opera premieres, museum openings, and so on; Bourdieu, 1986). In this way, cultural access becomes an instance of conspicuous consumption in the sense of Veblen (1912). The social salience of cultural access seems to be confirmed by the relational dimension that is intrinsic to many forms of cultural consumption (see Crociata, 2009), also in light of the literature on relational goods (see for instance Becchetti et al., 2011). In an analogous fashion, organic food consumption can also be meant as a vehicle of social differentiation, as well as an affirmational commodity that protects the self from the psychological wounds of positional competition for status (Sivanathan and Pettit, 2010), aimed at improving self-image and identity. For instance, Chryssohoidis and Krystallis (2005) found a significant relation between the importance Greek consumers attached to "self-respect" and the consumption of organic fresh fruits and vegetables.

From both the economically-inspired, cognitively oriented perspective and the sociologically-inspired, status-oriented perspective, the relationship between cultural capital and organic food consumption seems to be conceptually corroborated, at least in principle. On the other hand, to our knowledge no significant association between cultural capital and organic food consumption has been made in the existing literature so far. We feel therefore encouraged to proceed with an exploratory empirical analysis in this direction.

### **3. Empirical strategy**

The choice to purchase organic products is dichotomous (one can either purchase or not purchase them). Since we are interested in the relationship between the intentional, systematic purchase of

organic products and participation in cultural activities, self-selection problems may arise. In particular, there is substantial scientific evidence that different levels of consumers' awareness of environmental issues significantly affect their purchase attitude toward organic food (Basha et al., 2015; Çabuk et al., 2014; Shafie and Rennie, 2012; Smith and Paladino, 2010; Tsakiridou et al., 2008; Yadav and Pathak, 2016). In other words, the intentional choice of consuming organic products is linked to consumers' environmental concerns, and this causes the self-selection problem.

Since different individual levels of concern for environmental issues reflect into the propensity to consume organic food products, in order to overcome the self-selection problem we implement a Heckman two-step selection strategy (Heckman, 1979), a methodology that helps us assessing the impact of cultural participation on organic products consumption, after accounting for the possibility of selection of individuals due to the respondents' sensitivity to environmental issues.

A model that is suitable to treat binary variables such as organic food purchase decisions is the Probit model, which can be specified as follows:

$$Pr(Y_j = 1|X_j, L_j) = \alpha + \beta X_j + \delta L_j + \varepsilon_j \quad (1)$$

where  $Y_j$  is the dependent variable, which is equal to 1 if the respondent consumes organic products, and zero otherwise, for each respondent  $j$ ;  $X_j$  is a set of socio-demographic, economic and cultural variables, and  $L_j$  is a set of variables related to different forms of cultural consumption. This model, however, fails to differentiate respondents who show little concern for environmental issues while deciding to purchase organic products (or vice versa). Consequently, it is not possible, on the basis of this specification, to control for the quota of respondents that are highly concerned for environmental issues, and the estimates will be distorted. Thus, it is necessary to tackle this problem by adopting a two-step Probit model à la Heckman, which estimates two equations simultaneously: an "environmental concern" equation and an "organic food purchase" equation, to differentiate the

various types of respondents. The proposed model then becomes a bivariate Probit taking the following form:

$$\text{selection equation: } Pr(D_j = 1|Z_j) = \alpha + \mu Z_j + \varepsilon_j \quad (2)$$

$$\text{regression or observation equation: } Pr(Y_j = 1|X_j, L_j) = \alpha + \beta X_j + \delta L_j + \lambda_j + u_j \quad (3)$$

$$\begin{pmatrix} \varepsilon_j \\ u_j \end{pmatrix} \sim i.i.d. \left( \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} \sigma_\varepsilon^2 & \rho_{\varepsilon u} \\ \rho_{u\varepsilon} & \sigma_u^2 \end{pmatrix} \right)$$

where  $D_j$  is the dichotomous variable of the selection equation, which equals 1 if the individual is very sensitive to environmental concerns, and 0 otherwise;  $Z_j$  is the set of covariates;  $Y_j$  is the dichotomous variable of the regression or observation equation defined as above;  $X_j$  and  $L_j$  are identically defined as above;  $\lambda_j$  is the inverse Mills ratio, obtained by first-stage regression, which allows the self-selection problem to be taken into account. Both equations are estimated by maximum likelihood as two independent Probit models.

The procedure à la Heckman assumes that the errors of the two equations are normally distributed with zero mean and variance, and are correlated among themselves. It is possible to test the null hypothesis that the two errors are not correlated: ( $H_0: \rho = 0$ ) with a specific Wald test. Rejecting the hypothesis  $H_0$  of zero correlation, it can be stated that in the model there is no problem of self-selection and the estimators are not biased. Finally, for the goodness of the estimates, as suggested by Heckman (1979), it is necessary that in the selection equation there is at least one variable included in  $X_j$  or  $L_j$  and not present in  $Z_j$  of the first-stage equation.

#### 4. Data

The analysis is based on data from the latest annual 2014 survey<sup>1</sup> “Aspects of daily life”, conducted by the Italian National Institute of Statistics (ISTAT, 2016).

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<sup>1</sup> It is a Multipurpose Survey of 18,864 households and 44,984 individuals, aimed at collecting fundamental information on the habits of everyday life and related issues. Several dimensions are considered – such as level of satisfaction for living conditions, economic situation, quality of the environment and of available public utility services, education,

As our paper deals with the study of organic food purchase choices, we restrict the analysis to adult individuals (aged 18 or more), as minors generally have a comparatively minor role in this regard. The choice to purchase organic food requires in general greater awareness, greater independence in the choice of the personal lifestyle (including eating habits) and spending autonomy (organic products are typically more expensive than non-organic ones).

Table 1 and 2 report, respectively, the definition and the descriptive statistics of the variables used in the econometric analysis.

[TABLE 1 AND 2 HERE]

As for the observation equation, the dichotomous dependent variable (*bio\_prod*) equals 1 when the respondent purchases (habitually, sometimes or rarely) organic products, and 0 otherwise. Our explanatory variables include controls for the socio-demographic characteristics of the respondents (gender, age, education level, economic situation, health conditions, type of settlement, geographic area), their participation in various cultural and social activities, as well as other relevant attitudes. Table 2 shows that males represent about 48% of the sample, more than 27% of the respondents are over 64, and nearly 50% have attained at least a high school degree. Interestingly, more than one third of the respondents habitually read the information on food labels. Regarding participation in cultural activities, the most common forms are newspapers and books reading (53.5% and 40.6%, respectively), as well as going to cinema (43.1%). Forms of cultural consumption that carry a highbrow stigma and/or are relatively more expensive are less accessed – the most extreme example being classical music concerts, chosen by less than 10% of the sample. One or more sports are regularly practiced by less than 20% of respondents, whereas slightly more than 10% have engaged in voluntary social activities over the previous 12 months.

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lifestyle, participation to cultural and social activities – i.e. a broad range of factors that affect perceived and actual quality of life.

As for the selection equation, the dependent variable is the respondents' environmental concern (*env\_concern2*), which is measured as follows. The ISTAT questionnaire split up the same question ("Are you concerned about the following environmental issue?") into 15 different environmental issues that could affect the respondents (namely: global warming, extinction of some animal and plant species, climate change, production and disposal of waste, noise, air pollution, soil pollution, pollution of seas and rivers, earthquakes and floods, man-made disasters, forest destruction, electromagnetic pollution, landscape destruction, excessive construction of buildings, depletion of natural resources, other environmental problems). Each question is accompanied by a binary response (which equals 1 when the respondent reports to be concerned, and zero otherwise), and at most 5 issues can be ticked by the respondent. To establish the level of concern over environmental issues, we associate to respondents with 5 ticked issues (the highest possible level) the value 1, and 0 to all other respondents who ticked strictly less than 5 issues. This procedure allows to split the sample in two: 56% of the respondents (21,011 people) who report maximum concern about environmental issues (5 issues ticked), and the remaining 44% (16,533) who show less concern (0 to 4 issues ticked). In Appendix A, we report a statistical summary of the single components of the environmental concern variable.

Interestingly, although more than 25% of respondents reported concern about the environmental quality of the area where they live, less than 2% decided to take part in meetings promoted by pro-environmental associations over the previous year. Finally, 3 respondents out of 4 stated that they trust their neighbours.

## **5. Econometric results**

Individual decisions to purchase organic food products are the outcome of a complex choice process that is influenced by many competing motivations, reflecting socio-demographic characteristics but also other factors such as, as argued above, levels and types of cultural consumption.

In the Appendix B, Table B, we report the estimates obtained for the uncorrected model (1). Tables 3 and 4 illustrate the results obtained for the Heckman's (1979) two-step estimation model. The results of the first-stage equation (2) are shown in Table 3. In particular, we regress the dichotomous variable  $D_j$ , which assumes the value 1 if the individual reports high environmental concern and 0 otherwise, on a set of regressors. We include marginal effects that are useful for a more immediate interpretation of the estimated coefficients.

[TABLE 3 HERE]

The results show that concern about environmental issues among people aged 45-54 is 4% higher than for people aged 18-34. However, the elderly show significantly less concern: an about 12% drop among people aged more than 64. In addition, differences emerge with respect to the macro-area of residence. Respondents living in Southern (Central) Italy are less concerned about environmental issues by about 8% (3%) with respect to residents of Northern Italy. Education promotes environmental awareness and concern. Respondents with high school diploma or bachelor's degree are 18% and 13% more concerned, respectively, compared to respondents with lower educational attainment (compulsory education level only). In addition, a good economic situation has a positive effect on sensitivity for environmental issues (a 4% differential). Abundance of financial resources curbs anxiety related to daily living (e.g., eating, paying bills, etc.) and allows to focus on other issues, such as environmental ones. In addition, a higher disposable income allows better access to environmentally friendly products, which tend to be more expensive than less environmentally conscious ones. Even dissatisfaction with environmental conditions is conducive to more environmental concerns. In this case, concern about environmental issues by unsatisfied respondents is 8% higher than by satisfied ones. Social capital, moreover, is an important factor in fostering environmental concern. Participation in political meetings and ecological associations increases the propensity to worry about environmental issues by 11% and 16%, respectively. Finally, trust in neighbours has a positive effect on the propensity to worry about environmental issues (a differential of about 6%).

Table 4 shows the results for the second-stage equation (3) – the so-called regression or observation equation. The Wald test is reported at the bottom of Table 4 to verify the correlation of errors, as specified in Heckman’s hypothesis. As it may be observed, the null hypothesis is rejected with a 1% significance. It may thus be concluded that the errors are significantly correlated among themselves, as required by the Heckman’s hypothesis.

Results show that the propensity to purchase organic products decreases among men (-5.2%) and among older people. In detail, we observe that people aged more than 64 have a lower propensity to purchase organic products (3.4%) than people aged 35-44 (4.8%). In addition, residents in Southern Italy are the ones who most likely purchase organic products: residing in southern Italy increases the propensity to consume organic products by 2.6%, against the 0.9% for people who reside in Central Italian regions.

People living in less populated cities (municipalities up to 10,000 inhabitants) have a higher propensity to purchase organic products (4.2%). A good economic situation is related to a more likely purchase of organic products as well (a 3% differential). Moreover, the propensity to purchase organic products is positively related to education: more educated people are more likely to purchase organic products (3.4%, for respondents with bachelor’s degree; 2.4%, for respondents with high school diploma with respect to ones with compulsory education only). Household size plays a (moderate) role as well (0.6%). Presence of chronic diseases *reduces* the propensity to consume organic products (-1.7%), whereas practising a sport has a positive effect (1.3%).

Finally, regarding participation in cultural activities, a positive impact on the consumption of organic products is found. In particular, increased likelihood of organic food purchase is associated with attending museums and exhibitions (6.1%), visiting archaeological sites (4.2%), reading books and newspapers (4.8% and 4.4% respectively), listening to music and going to the movies (3.1% and 3.85 respectively).

[TABLE 4 HERE]



The coefficients estimated with the two-step Probit model à la Heckman turn out to be smaller than the ones in the uncorrected model (see Appendix B, Table B). This confirms the presence of an upward bias caused by the already mentioned self-selection problem. Furthermore, the Mills ratio coefficient is negative and significant at 1%. This means that there would be an overestimation in the choice to consume organic products, were we not considering the selection problem of people who are sensitive to environmental concerns.

Finally, by comparing equation (3) (Table 4) with equation (1) (Appendix B, Table B), we observe that equation (3) minimizes the AIC and BIC criteria and maximizes the log-likelihood criteria. Consequently, the model that best estimates data is the one that corrects for the self-selection problem (as described by equation (3)).

We can therefore conclude that, once self-selection problems have properly been dealt with, cultural capital has a relevant influence on organic food purchase decisions. In particular, it is worth noticing that whereas such effect synergizes with that of educational attainment, the two are however separate, complementary ones – an aspect that is often overlooked by the cursory identification between educational and cultural access levels. On the other hand, whereas in general Northern Italian regions are characterized by higher levels of cultural access than Southern and Central ones, we notice that organic food choices by Northern Italy residents are generally mediated by higher levels of environmental concern, so that, once the self-selection issue is accounted for, Southern Italy residents manifest a higher *specific* propensity to purchase organic food products. This means that the role of cultural capital is unambiguously positive in stimulating organic food consumption, but also interacts in complex ways with other concurrent factors. In particular, since Southern Italy is generally a low cultural participation social environment, high levels of cultural access in this context reflect a particularly strong cognitive (and/or social) orientation toward highly identitarian forms of consumption. Therefore, they impact organic food consumption decisions relatively more than for Northern Italy residents, where cultural access is more widespread and less associated with relatively sophisticated consumption orientations, and where interest in organic food is more generally mediated

by specific environmental concerns. Thus, in a nutshell, although Northern Italy is more strongly characterized in terms of cultural access than the South, it is in the South where, as far as organic food purchase is concerned, cultural access functions as a marker of organic food purchase inclinations, in that high levels of cultural consumption are conducive to socio-cognitively articulate consumption orientations. On the cognitive side, the extra level of articulation of the consumption orientation is driven by an improved capacity to attach value and meaning to organic food consumption as a pro-social lifestyle. On the social side, articulation is due to the advantage in terms of social image and status that is associated to a relatively expensive and non-traditional form of consumption. The two effects may have different relative strengths for different individuals, of course. In particular, the social channel requires that consumption choices are easily observable or at least easily communicated, for instance through social exchange, in order to bring about effects in terms of social recognition and stratification.

In conclusion, the fact that a clear, properly qualified relationship between cultural capital and organic food consumption can be established, represents a novel result in the literature, and calls for further research in this vein to better understand the fine-grained relationships among the various factors that drive organic food consumption, and to design policies accordingly.

## **6. Policy implications and directions for future research**

The results from our research provide some basis for preliminary policy considerations. Tavano Blessi et al. (2016) found that, by comparing two Italian urban settings, a Northern and a Southern one, as far as psychological well-being is concerned, a same level of cultural participation reflected into a higher level of well-being for Northern residents than for Southern ones. In the present paper, we found that, on the contrary, the impact of cultural participation on organic food consumption choices is more significant in the South than in the North. This is due to the different nature of the social incentives at work. In the case of well-being, generalized cultural participation acts as a reinforcement mechanism that leverages upon conformism: if most other people enjoy cultural

experiences as much as I do, this further boosts my well-being from cultural participation as the effect of feeling part of a cohesive community. In the case of organic food consumption, which currently entails a prevalently anti-conformist, minority consumption orientation, culture works best as a promoting factor where it is a minority orientation itself, that is, in low-participation contexts such as in the South of Italy.

The consequences in terms of policy design are complex and multifaceted. As discussed in the introduction, the Italian organic food production sector might be facing a crisis in the next few years, and adequate policy support could be advisable as a preventive measure. A counter-intuitive implication of our analysis is that a focus on increased cultural participation might be useful to sustain consumers' motivation for organic food consumption, and especially so in the Southern part of Italy. This line of action is possibly more effective in the short-medium term with respect to alternative ones pursuing improvements on other facilitating factors such as educational attainment, which require more time and more structural measures. However, still other factors such as voluntary participation and physical exercise are, like cultural participation, equally amenable to short term-oriented interventions and, especially in the Northern part of Italy where participation figures in all such dimensions are significant, they could inspire policies aimed at eudaimonic lifestyle promotion which could have a beneficial impact on organic food consumption as well.

The relevance of cultural capital as a determinant of organic food consumption suggests several possible ways in which carefully profiled cultural policy interventions may support organic food chains. A first fundamental point is whether culture can be of help in deconstructing the social stigma of organic food products as too expensive and linked to high-end lifestyles. Where, as noted above, many types of cultural experiences suffer in principle from an analogous stigma, some other types, such as for instance new digitally mediated forms of cultural participation, are much more inclusive and reach out to different subjects than the ones who are culturally engaged on a regular basis. A typical example in this regard is gaming, which could prove useful in raising the interest of new constituencies, and in particular of the younger generations, in cultural venues such as museums and

heritage sites, and in gradually developing a sense of belonging and familiarity that makes cultural access natural and habitual (Mortara et al., 2014). One could likewise develop gamified approaches to the organic food sphere to help prospective consumers familiarize with the distinctive features of organic food chains, with their social, environmental and economic implications, and with their characteristic value orientations, to promote new social categorizations of the 'organic' as an individual and social identity marker, and to favour the association with different, less elitarian lifestyles.

Likewise, on the cognitive side, also cultural narratives deployed in more traditional forms, such as health-and-environment focused literature, movies, or music could enable consumers to better understand the rationale and motivation behind general or specific aspects of organic food chains (such as for instance organic farming), and to increase the salience of narratives that shift their consumer preferences toward more environmentally friendly food production methods (Hards, 2012). If the organic food industry properly understands and interiorizes on a strategic level the as yet poorly explored connection between cultural capital and organic food purchases, developing strong, broad spectrum strategic partnerships with the cultural and creative field may be a direct, effective way to tackle the basic problem of (individual and social) value-for-money perception that constitutes the major cognitive barrier to a further diffusion of organic food culture, and of the growth of its demand base. However, rather than merely using cultural narratives as a communication vehicle, what our analysis seems to suggest is that fostering cultural participation in the first place, moving beyond a narrow, instrumental pursuit of marketing and promotion goals, may create the best cognitive environment for a thoughtful, sympathetic reception of organic food culture itself.

Another interesting policy implication comes from our result that consumers suffering from chronic diseases tend to show *less* propensity to purchase organic food. In principle, we should expect the contrary, as chronic diseases call for increased intake of antioxidants and for control and reduction of pollutants – and organic food obtained from sustainable farming techniques offers better guarantees in both respects compared to industrially produced food (Faller and Fialho, 2010; Ferrari and Torres,

2003; Horrigan et al., 2002; Lairon, 2011). This paradox clearly signals a serious, systematic misperception of the qualities and health benefits of organic food which is, and should be, amenable to policy action. As people with one or more chronic diseases can improve their well-being through cultural participation (Grossi et al., 2012), there is some ground for further synergies, by developing cultural welfare projects that make use of cultural engagement to nudge chronic patients, and more generally subjects at risk, into better food habits and a more conscious understanding of the relationships between nutrition and diseases (Bungay and Vella-Burrows, 2013; Jackson et al., 2010). However fascinating, cultural welfare policies are still at an early stage and poorly studied, but they are a very promising area of future experimentation, and their nutritional implications are no exception in either sense.

Although our findings may be encouraging to some extent, research in this field has just begun, and caution is mandatory as to the generalizability of our results beyond the Italian case under study. As already emphasized, this is to our knowledge the first contribution that establishes a clear link between cultural capital and organic food consumption, but more research is needed to check whether such results apply to other geographical and socio-economic contexts, to better understand the actual motivational and behavioural mechanisms through which cultural capital promotes organic food consumption, and to gain deeper insights into the complementarity effects among cultural participation and all the other factors that play a similar role in this vein, and in particular social and human capital. In this regard, some data limitations must be overcome in order to gather more accurate evidence: cross-sectional data do not enable to observe phenomena over time, while the frequency and the time pattern of cultural consumptions might be relevant in affecting individuals' behaviour. A tailor-made, longitudinal database would allow a more robust and detailed analysis, with obvious benefits also in terms of generalizability of the results. However, it is important that policy makers begin to focus their attention on the role of such factors in the support of consumption orientations that may improve healthy habits and environmental sustainability, and to accordingly broaden the scope of their policy design and action beyond the conventional practice of agricultural and food

policy measures. We feel therefore that there are good reasons to look forward to more research on the topic with interest and anticipation.

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**Table 1. Data and variables definitions**

Variables	Definition
<i>Dependent variables</i>	
bio_prod	Purchase frequency of organic products. 1 = rare, occasional or habitual. Reference group: none.
env_concern2	See Section 3 for its construction. See Table A, in Appendix A, for the descriptive statistics of its components.
<i>Sociodemographic variables</i>	
Male	
age35_44	Age of the respondent. 1 = age between 35 and 44. Reference group age 18-34.
age45_54	Age of the respondent. 1 = age between 45 and 54.
age55_64	Age of the respondent. 1 = age between 55 and 64.
age64_	Age of the respondent. 1 = age > 64.
ncomp	Number of family components.
high_school	Education level of the respondent. 1 = High school qualification attained. Reference group: no education, primary school qualification attained and lower secondary school qualification attained.
bachelor_degree	Education level of the respondent. 1 = University degree or postgraduate education
sit_econ_good	Availability of economic resources for the needs of the family. 1 = Excellent or adequate. Reference group: scarce or totally inadequate.
ill	Presence of chronic illnesses or long-term health problems.
munic_low	Municipalities with less than 10,000 inhabitants. Reference group: metropolitan areas.
munic_high	Municipalities with more than 10,000 inhabitants.
area_center	Central Italy. Reference group: Northern Italy.
area_south	Southern Italy and Islands.
<i>Participation in cultural activities</i>	
archo	Archaeological sites attendance over the last 12 months. 1 = At least one time. Reference group: never.
books	Having read books over the last 12 months. 1 = Yes. Reference group: no.
cinema	Cinema attendance over the last 12 months. 1 = At least one time. Reference group: never.
museums_exhib	Museums attendance over the last 12 months. 1 = At least one time. Reference group: never.
newspaper	Frequency of reading daily newspapers during the week. 1 = At least one time. Reference group: never.
opera_classic	Classic music concerts attendance over the last 12 months. 1 = At least one time. Reference group: never.
other_music	Other music concerts attendance over the last 12 months. 1 = At least one time. Reference group: never.
theater	Theatres attendance over the last 12 months. 1 = At least one time. Reference group: never.
<i>Participation in social activities and other attitudes</i>	
ecological	Participation in the meetings held by ecological associations.
env_unsat	Satisfaction for the environmental state of the area where the respondent lives.
labels	Frequency of reading ingredients on food labels. 1 = Habitual. Reference group: Occasional, rare or none.

neighbour_trust	Trust in people living in the neighbourhood. 1 = Very or pretty confident. Reference group: not very confident or not confident at all.
politics	Participation in meetings with political parties over the last 12 months. 1 = Yes. Reference group: no.
sport	Practising one or more sports with continuity. 1 = Yes. Reference group: no.
volon	Voluntary activities taken on over the last 12 months. 1 = Yes. Reference group: no.

Note: all the variables are dichotomous (min: 0; max: 1), except ncomp (min: 1; max: 10).



**Table 2. Descriptive statistics**

Variables	Obs	Mean	Std. Dev.
<i>Dependent variables</i>			
bio_prod	36498	0.6487	0.4774
env_concern2	37544	0.5596	0.4964
<i>Sociodemographic variables</i>			
gender	37544	0.4782	0.4995
age35_44	37544	0.1739	0.3790
age45_54	37544	0.1902	0.3925
age55_64	37544	0.1584	0.3651
age64_	37544	0.2740	0.4460
ncomp	37544	2.8574	1.2898
high_school	37544	0.3648	0.4814
bachelor_degree	37544	0.1275	0.3336
sit_econ_good	37309	0.5380	0.4986
ill	36443	0.3027	0.4594
munic_low	37544	0.3490	0.4767
munic_high	37544	0.4500	0.4975
area_center	37544	0.1759	0.3808
area_south	37544	0.3988	0.4897
<i>Participation in cultural activities</i>			
archo	36662	0.2115	0.4084
books	36769	0.4060	0.4911
cinema	36721	0.4312	0.4952
museums_exhib	36617	0.2606	0.4390
newspaper	36940	0.5351	0.4988
opera_classic	36606	0.0961	0.2947
other_music	36587	0.1903	0.3926
theater	36682	0.1701	0.3757
<i>Participation in social activities and other attitudes</i>			
ecological	36350	0.0172	0.1299
env_unsat	36870	0.2552	0.4360
labels	36579	0.3730	0.4836
neighbour_trust	36641	0.7317	0.4431
politics	36509	0.0368	0.1882
sport	37441	0.1827	0.3864
volon	36636	0.1078	0.3102

**Table 3. Results from the first-stage equation (selection equation) of probit model à la Heckman**

Variables	Marginal effects	z-value	sig n
<i>Socio-demographic characteristics</i>			
Male	-0.006	-1.15	
Age 35–44(Reference group: 18-34)	0.005	0.63	
Age 45–54	0.041	4.90	***
Age 55–64	0.008	0.91	
Age greater than 64	-0.117	-13.80	***
Central Italy (Reference group: North Italy)	-0.033	-4.26	***
Southern Italy	-0.083	-13.73	***
Municipalities up to 10,000 inhabitants (Reference group: metropolis)	-0.011	-1.49	
Municipalities with more than 10,000 inhabitants	-0.003	-0.55	
Good economic situation	0.038	6.83	***
High school diploma (Reference group: completed compulsory education)	0.127	20.85	***
Bachelor's degree	0.177	22.19	***
<i>Social capital and trust</i>			
Political parties	0.108	7.65	***
Ecological association	0.159	7.85	***
Neighbour trust	0.064	10.38	***
Environmental dissatisfaction	0.081	13.15	***
Number of observations	35,670		

Notes: Regressors' legend: see Table A in Appendix A. The standard errors are corrected for heteroskedasticity. The symbols \*\*\*, \*\*, \* denote that the coefficient is statistically different from zero at 1%, 5% and 10%, respectively. The constant is omitted because the marginal effects are given by  $dy / dx$ ; consequently, the derivative of the dependent variable respect to a constant is equal to zero.

**Table 4. Results from regression or observation equation of probit model à la Heckman**

Variables	Marginal effects	z-value	sig n
<b><i>Socio-demographic characteristics</i></b>			
Male	-0.052	-7.12	***
Age 35–44(Reference group: 18-34)	0.048	5.34	***
Age 45–54	0.040	4.15	***
Age 55–64	0.036	3.78	***
Age greater than 64	0.034	3.23	***
Central Italy (Reference group: North Italy)	0.009	1.24	
Southern Italy	0.026	4.10	***
Municipalities up to 10,000 inhabitants (Reference group: metropolis)	0.042	5.32	***
Municipalities with more than 10,000 inhabitants	0.003	0.47	
Good economic situation	0.030	4.18	***
High school diploma(Reference group: completed compulsory education)	0.024	2.20	**
Bachelor's degree	0.034	2.40	**
Number of household members	0.006	2.54	**
Ill	-0.017	-2.74	***
Labels	0.197	37.43	***
<b><i>Cultural consumptions</i></b>			
Cinema	0.038	5.21	***
Theatre	0.013	1.61	
Opera and classical music	0.009	0.90	
Other music	0.031	3.73	***
Museum and exhibitions	0.061	6.12	***
Archaeological and monuments sights	0.042	4.57	***
Newspapers	0.044	6.24	***
Books	0.048	6.23	***
<b><i>Social capital</i></b>			
Sport	0.013	1.84	*
Voluntary activities	0.008	0.91	
Number of observations	34,074		
Mills ratio	-0.159	-4.52	***
Wald test(p-value)	0.0005		
Log-likelihood	-19080.984		
BIC	38443.75		
AIC	38215.97		

Notes: the dependent variable takes value 1 if the respondent has purchased a biological product at least once. Regressors' legend: see Table 1. The standard errors are corrected for heteroskedasticity. The symbols \*\*\*, \*\*, \* denote that the coefficient is statistically different from zero at 1%, 5% and 10%, respectively. The constant is omitted because the marginal effects are given by  $dy / dx$ ; consequently, the derivative of the dependent variable respect to a constant is equal to zero.

## APPENDIX A

**Table A. Descriptive statistics of the single components of the environmental concern variable**

Variables	Observations	Mean	Standard Deviation
Global warming	37544	0.3303	0.4703
Extinction of some animal and plant species	37544	0.1650	0.3712
Climate change	37544	0.4195	0.4935
Production and disposal of waste	37544	0.4778	0.4995
Noise	37544	0.1196	0.3245
Air pollution	37544	0.4856	0.4998
Soil pollution	37544	0.2860	0.4519
Pollution of seas and rivers	37544	0.3731	0.4836
Earthquakes and floods	37544	0.2985	0.4576
Man-made disasters	37544	0.3322	0.4710
Forest destruction	37544	0.1616	0.3681
Electromagnetic pollution	37544	0.1366	0.3434
Landscape destruction (excessive construction of buildings)	37544	0.1674	0.3733
Depletion of natural resources	37544	0.1829	0.3866
Other environmental problems	37544	0.0093	0.0960
Environmental Concern	37544	0.5596	0.4964

Note: Respondents were asked which environmental problems were concerning them mostly. The 15 different environmental issues listed in this table were the possible answers, and the respondents were asked to tick a maximum of 5 issues. To establish the level of concern over environmental issues (thus to build the “env\_concern2” variable), we associate to respondents with 5 ticked issues (the highest possible level of concern about environmental issues) the value 1, and 0 to all respondents who ticked less than 5 issues. Further details are in Section 3 of the paper.

## APPENDIX B

**Table B. Results from the uncorrected model (eq. (1))**

Variables	Marginal effects	z-value	sign
<i>Socio-demographic characteristics</i>			
Male	-0.073	-13.12	***
Age 35–44 (Reference group: 18-34)	0.074	8.82	***
Age 45–54	0.075	8.90	***
Age 55–64	0.077	8.45	***
Age grater than 64	0.011	1.11	
Central Italy (Reference group: North Italy)	0.007	1.03	
Southern Italy	0.041	6.78	***
Municipalities up to 10,000 inhabitants (Reference group: metropolis)	0.054	7.43	***
Municipalities with more than 10,000 inhabitants	0.019	2.79	***
Good economic situation	0.042	7.69	***
High school diploma(Reference group: completed compulsory education)	0.061	9.71	***
Bachelor’s degree	0.074	7.83	***
Number of household members	0.007	3.18	***
Ill	-0.028	-4.46	***
Labels	0.197	37.71	***
<i>Cultural consumptions</i>			
Cinema	0.071	10.72	***
Theatre	0.029	3.29	***
Opera and classical music	0.015	1.36	
Other music	0.043	5.30	***
Museum and exhibitions	0.079	9.19	***
Archaeological and monuments sights	0.062	7.04	***
Newspapers	0.073	12.69	***
Books	0.075	11.94	***
<i>Social capital</i>			
Sport	0.022	2.94	***
Voluntary activities	0.023	2.46	**
Number of observations	34,550		
Log-likelihood	-19363.573		
BIC	38998.85		
AIC	38779.15		

Notes: the dependent variable consumption of biological products takes value 1 if the respondent at least once has consumed a biological product. Regressors’ legend: see Table A in Appendix A. The standard errors are corrected for heteroskedasticity. The symbols \*\*\*, \*\*, \* denote that the coefficient is statistically different from zero at 1%, 5% and 10%, respectively.