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The Implicit Price for Fair Trade Coffee: Does Social Capital Matter?

Moritz Bosbach[*] and Ornella Wanda Maietta[**]

Abstract
This study aims to ascertain whether the implicit price paid for Fair Trade coffee in regular supermarkets is influenced by the stock of social capital in the territory where consumers live. A hedonic regression set-up is adopted, based on Italian scanner data taken at NUTS3 level. Regressors include attributes described on the label, which contain separate certifications for Fair Trade and organic/eco-label status, plus various indicators of social capital and their interactions with the Fair Trade and organic/eco-label attributes. The consumers' implicit price paid for the Fair Trade attribute is significantly and positively affected by a social capital proxy, which is the percentage of co-op members over total employment.

Keywords: ethical consumption; hedonic regression; scanner data

Classification JEL: C50, D12, L66, Z13

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1. Introduction

Fair Trade (henceforth, FT) is an innovative value chain which aims to provide higher economic value and social benefits to marginalised primary producers. Its objective is to improve farmers' position in trade with a guaranteed minimum price as main attribute and a focus on development and poverty alleviation (Manning et al., 2012).

In the empirical theory-driven study of FT consumption (Andorfer and Liebe, 2012), research to date has focused largely on consumer attitudes following a theoretical approach based on social psychology and sociology (Chatzidakis et al. 2007; Doran 2010; Hwang and Kim 2016). Fewer studies have followed the economic theoretical approach to the study of consumer preferences for FT goods, and their research objective has been the estimation of consumers' implicit price or willingness to pay for products labelled as FT (Louriero and Lotade 2005; Maietta 2005). Research questions, such as whether and how the socio-economic context influences FT consumer values and habits, are relatively neglected.

This remark also applies to the role played, in shaping consumer preferences for FT goods, by aspects of the social structure defining social capital (such as generalised trust, widespread civic norms and association networks) (Putnam 1993a, 1993b). Social capital, which relates to assets and resources available through network interactions, helps sharing information. This can also relate to FT socially responsible issues and could lead to an awareness *vis à vis* those issues and therefore increase the willingness to pay for them. Furthermore, the set of shared values in the case of FT organisations is tangible and clear to identify being associated with the attempt to provide greater standards of living in the developing world.

The literature has highlighted the role played by gender in shaping consumer preferences for FT goods since women, who do the bulk of the family shopping, are more likely to have heightened concern for the effects of their consumer choices (Micheletti 2004).

Women have been historically important in promoting ethical consumerism (Terragni 2007), and generally tend to exhibit stronger preferences for this kind of public goods (Zelezny et al. 2000; Aidt et al. 2006; Carlsson et al., 2010). The profile of the ethically-oriented or socially responsible customer is, then, that of a relatively young woman living in an urban area with a medium-high income, a high-level education and a high endowment of individual social capital[1] (Loureiro and Lotade 2005; Lamb 2007; Forno and Ceccarini 2006; D'Alessio et al. 2007; De Devitiis et al. 2012; Koos 2012; Yang et al. 2012; Aoki et al. 2017).

Consumers have become familiar with FT goods, sold with certified labels in the network of specialised and alternative retail outlets known as World Shops (henceforth, WSs), and run by FT non-profit organisations. Customers buying in this distribution channel can be considered as a niche segment of more socially responsible consumers who identify themselves as ethical consumers (De Devitiis et al. 2012; Lima Coelho, 2015).

Distribution chains have also played a strategic role in spreading knowledge about FT products and in their increased diffusion. For example, Co-op UK launched its own FT product line in 2000, Tesco introduced an own brand range of FT products in 2004, Marks&Spencer has been supplying only FT coffee and tea since 2006 (Wright and McCrea, 2007), and the Italian chain, Coop Italia, has received the *Ethical Award 2005* prize for its FT *'Solidal'* label from the *GDO Week,* a distribution chain magazine (Cremonini 2007). Among the coffee retailers, Starbucks has been at the forefront of purchasing FT coffee from its suppliers with the aim of selling only certified coffee (Manning et al., 2012). In general, strategies implemented by distribution chains contribute to increases in FT global sales but do not convey the transformative message of FT through their engagement (Bezençon and Blili 2009). As a consequence, consumers, who purchase FT products in regular supermarkets can

[1] Glaeser *et al.* (2002) defines social capital as an individual characteristic, the result of a specific investment choice, which is a different dimension of the human capital that the individual owns. Social capital derives from the social characteristics of a person, her/his social ability and charisma. Each individual chooses her/his optimal level of social capital by investing into social relations.

be considered as the mass market segment, more heterogeneous in terms of socio-economic characteristics and purchasing intentions compared with the niche market represented by WSs' consumers.

This paper addresses the issue of which socio-economic factors might give rise to altruistic behaviour, such as buying FT goods in regular supermarkets. More particularly, the study aims to ascertain whether the level of social capital of the territory where consumers live influences their buying decisions through the implicit price paid for the coffee FT content. In the extant literature, there is a gap about the link between pro-social consumer behaviour and social capital since the topic of ethical (but not specifically FT) consumption has rarely been dealt with (Neilson and Paxton 2010; Koos 2012) or because the topic of FT consumption has been considered employing only purposive samples, i.e. only based on the individuals entering WSs (D'Alessio et al. 2007; De Devitiis et al. 2012). However, FT goods are now sold by a wide variety of retailers (supermarket chains, automatic vending machines, etc.) and are quite well known by a large share of the population. FT products are mainly foodstuffs; among these, coffee was the first product to be traded fairly.

The research question of the paper is relevant in order to identify determinants of the diffusion of FT values which can be enhanced in order to promote ethically-oriented consumer behaviours.

This study uses scanner data based on purchases from supermarkets recorded from 2005 to 2007, referring to a territorial unit, taken at NUTS3 level, which is the Italian province. The approach followed is the application of a hedonic regression where the dependent variable is the price of the coffee while the regressors are coffee's characteristics (FT content, organic/eco-label content and other attributes), indicators of social capital, alternately tested, and their interactions with the FT and the organic/eco-label attributes. We intend, in this way, to isolate the pattern of FT consumption from that of other ethical issues of concern to consumers (Hetterich et al. 2012) given that the FT and organic/eco-label

attributes may be strong complement in the consumers' eyes (Monier-Dilhan and Bergès, 2016). The use of the province allows us to introduce provincial social capital as an independent variable, in order to test whether and which dimension of provincial social capital influences the implicit price paid for the ethical attributes.

The remainder of the paper is divided as follows: the definition of social capital adopted in this study and its link with FT consumption are analysed in Section two. Sections three and four focus, respectively, on the methodology and on the data. Section five describes and comments on the empirical results. Some concluding remarks are offered in Section six. The Appendix describes the measures of social capital used in this study.

2. Social Capital and FT consumption

The concept of social capital is an important analytical tool borrowed from social sciences and used in economic literature and derives from the works of North (1990) on institutions and Putnam (1993a) on the role of civic traditions in Italy. The economic agent is analysed as a socialised being whose behaviour is not simply ruled by self-interest but also by norms, institutions and social relations among individuals. Social capital is variously defined in literature given its multi-dimensional and multi-faceted nature; the concept of social capital refers to shared social standards and values, interpersonal relationships and voluntary activities. It is, therefore, difficult to find a unique definition and assessment of it.

In Putnam's research (1993b), social capital is defined as the "features of social organisation, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions". Putnam states that the higher density of civic associations in the northern Italian regions explains their greater economic success as compared to the economic performance of southern regions where civic associations are less widespread and the ability to cooperate is lower (Bigoni et al. 2016). Social capital affects the economic

results of a system by reducing transaction costs, promoting investment in physical and human capital and favouring a cooperative solution to the problem of collective action. Good policy is also encouraged, for example through active participation and monitoring of the citizens (Boix and Posner, 1998; Knack, 2002). Putnam empirically relates civic engagement to measures of association networks, voter turnout at referenda or at political elections, and newspaper readership.

High levels of social capital *à la* Putnam in a community can generate high levels of trust which are central to the development of a sense of interdependence with other members of the community and, consequently, of more effective collective organisations (Neilson and Paxton 2010). Social trust can be "particularised" (relating only to members of a group) or "generalised" (extended to non-members of a group). In both cases, it creates a set of reference norms for individuals; norms which can influence how the individual perceives alternative behaviour (Durlauf 1999). In communities with high levels of social capital, social trust creates some expectations as to how individuals will interact with each other, and this will affect the individual's preferences in such a way that deviating from what is perceived to be the expected behaviour may generate a disutility in the form of stigma. Evidence of this kind for FT values is supplied by Carlsson et al. (2010) who show that the willingness to pay for ecologically friendly and FT coffee increases when the social norm of consuming ethical coffee is strengthened and by Teysser et al. (2015) who find that the willingness to pay for FT chocolate decreases when expectations regarding others' willingness to pay decrease. In communities sharing moral values, the relations between individuals benefit from trust and reciprocity (Putnam 1993a); the sharing of moral norms within a community is also necessary in order to reproduce social capital.

Social capital is formed and handed down through cultural mechanisms such as religion, tradition or common habits. Non-profit organisations contribute to shaping values

and practices in society at large, and new and not-yet accepted practices that enact less familiar values may emerge and persist (Chen et al. 2013).

Non-profit organisations are important since they spur inter-personal trust, which extends to all the members of a community, and then promotes the willingness to cooperate. Moreover, association networks may work as communication channels, and denser social networks may facilitate information sharing among affiliated members (Chen et al. 2013). This is also true for FT non-profit organisations which may legitimate and propagate FT values beyond their groups' boundaries and in society at large by acculturating people to less familiar values. FT non-profit organisations aim to reshape the economy and society according to their desired values by questioning value systems with their goals and seeking to alter the behaviour of the rest of the society by means of strategies such as coordinating consumer power toward a desired ends (often made possible thanks to internet and mobile technology), involving retailers in the distribution of FT products, launching campaigns to make people aware of FT products and promoting educational activities in schools. On the other hand, WSs differ from other non-profit organisations in that they use a very effective and highly visible tool to diffuse their culture - consumption. Even those who are less favourable to ideas of solidarity or cooperative activity may be attracted by the shop-window and become interested simply through curiosity. It is then that they find out about FT and, later on, they start substituting the purchase of conventional products for FT products. Some people may than start to appreciate the work of volunteers and begin to share their culture. This leads one to reflect that WSs contribute to the reproduction of social capital and to the diffusion of a culture of solidarity. The density of WSs may, then, be used as a measure of "particularised" trust.

The role of culture is important in explaining why, during interviews, respondents show a lower interest in issues concerning the abuse of human rights compared to those concerning the defence of environment or the wellbeing of animals (Carrigan and Attala 2001; Howard

and Allen 2010). For example, Howard and Allen (2010) find that, when asked in a nationwide survey in the USA about product labelling criteria, respondents ranked 'locally grown within 50 miles of the point of purchase' and 'humane treatment of animals' highest followed by 'decent living wages for workers.' As a consequence of the initiatives of the environmentalist movement, issues such as environment-friendly behaviour and animal wellbeing have become shared values of the cultural heritage in western democracies. These topics are now included in school curricula and discussed in many media programmes which both contribute to the diffusion of 'environmentally oriented consumers' that is consumers with an environment-friendly and sustainable focus as regards their purchasing decisions (Hetterich et al. 2012). The values proposed by the ethical consumption movement have not achieved so far an equally pervasive diffusion.

Starting from the seminal work by Putnam, several research contributions on social capital have focused on Italian data. This is due to the fact that Italy displays large and persistent provincial disparities in social and economic characteristics in spite of having common policies, institutions, laws, justice system and school system, and being ethnically and religiously quite homogeneous. Thus, changes in these factors are not responsible for socio-economic differences across Italian provinces, and this in turn substantially reduces the omitted-variable problems affecting many cross-country studies (Buonanno et al. 2009). Measures of the level of social capital in Italy at the provincial level, which confirm that southern Italian provinces present a lower stock of social capital, are to be found in: Sessa (1998), Scarlato (2001), Rizzi and Popara (2006), Cartocci (2007) and Santini (2008). Details about the different indicators are given in the Appendix.

Social capital could be relevant in explaining FT consumption since regular supermarket customers may question the credibility of the private third-party FLO

certification[2], the fair trade content being a credence attribute. Given the asymmetrical information between sellers and buyers (Reinstein and Song, 2012), when selecting the product, consumers have to understand what FT labelling is and trust that the "social premium" they are paying, will be given to the disadvantaged producers (Andorfer and Liebe, 2015). Moreover, "generalised" trust may generate a sense of world citizenship, familiarity with marginalised producers in less developed countries and responsibility for this cause which creates a willingness to pay premiums (for FT socially responsible characteristics) above standard prices.

There is a wide empirical literature about the impact of social capital on economic growth, equality, reduction of poverty, work productivity and the development of the financial system (Carillo 2003; Fiorillo 2007). Whereas the impact of the FT certification on the social capital of FT certified coops' members has been investigated (i.e., Elder et al., 2012), there are very few analyses on the link between social capital and consumption, particularly FT consumption.

D'Alessio *et al.* (2007) investigate the purchasing intentions of Italian WS consumers. The results of this study are that the main purchasing intentions as regards FT products vary from region to region. However, ethics or social responsibility motivates a lower percentage of consumers in southern provinces. The percentages of consumers who include ethics or social responsibility among their purchasing intentions seem to be highly correlated to the social capital endowment for the provinces analysed, thus indicating a possible relation between social capital and socially responsible consumer behaviour.

Neilson and Paxton (2010) analyse the impact of regional–level social capital on ethical consumption, defined as the presence of boycotting activities and the purchase for ethical reasons, using the European Social Survey. The social capital indicators refer to generalised

[2] It is given by Fairtrade Labeling Organizations International, an international certifying body for Fair Trade.

trust, trust in institutions, association involvement and frequency of social meetings but only generalised trust exerts a positive and significant impact on ethical consumption.

De Devitiis et al. (2012) analyse whether the two ethical purchase intentions (*guarantees on working conditions* and *solidarity*) of Italian WS consumers are influenced by several indicators of social capital at the municipal level, controlling for both individual consumer characteristics and economic, demographic and cultural municipal characteristics. The results show that no usual indicators of social capital (such as senate voting rate and density of non-profit organisations) display a positive impact, but the percentage of co-op members in the total workforce has a significant and positive impact on the probability of buying FT products for ethical reasons (particularly as regards *solidarity*).

Koos (2012) analyses the impact of national–level social capital on ethical consumption, defined as the presence of boycotting activities and the purchase for ethical reasons, using the European Social Survey. The strength of the social movement organisations, defined as the proportion of people in a country who are members of a peace, human rights or environmentalist movement organisation, does not affect the decisions to boycott or buy for ethical reasons.

Summing up, Neilson and Paxton (2010) and Koos (2012), who analyse the mass-market segment of ethical consumers, find only weak evidence concerning the impact of social capital on ethical consumption, but this result could be due to the use of the dependent variable, purchasing of goods for ethical reasons. On the other hand, the evidence of a relationship between social capital and FT consumption refers to the niche segment of WS consumers in D'Alessio et al. (2007) and De Devitiis et al. (2012) suggesting the need for further investigation.

3. The Hedonic Price Model

In this paper, the hedonic price of the ethical aspect as regards coffee consumption is estimated for the Italian market. Since the seminal contributions by Gorman (1956), Lancaster (1966), Griliches (1971) and Rosen (1974), several papers have estimated, using the hedonic price technique, the implicit prices of some characteristics which differentiate closely related products. The hedonic price is used to explain the price of a differentiated product (or factor of production) and to estimate the implicit, shadow prices of its quality characteristics.

The basic idea of hedonic pricing models is that the price of a unit of a good on the market varies according to its characteristics and, thus, price differences between goods reflect differences in utility-bearing characteristics. The product will be sold by a number of manufacturers usually supplying more than one model, each model having a different price *P* and different characteristics *j*. The hedonic price function is (Rosen 1974):

$$P = f(z) \qquad (1)$$

where *z* is the vector of characteristics for the product examined.

This hedonic price equation represents the equilibrium price schedule determined by the interaction of consumers and sellers in perfectly competitive markets or where arbitrage exists.

In fact, if the utility function for a representative consumer is:

$$U = U(x, z) \qquad (2)$$

$$s.t.\ y = w\,x + f(z) \qquad (3)$$

where *y* is consumer income, *x* is a composite good which represents all goods expect the product examined and *w* is its price.

Analogue to the traditional utility maximization model, utility functions have to be maximized subject to a budget constraint. The first order conditions for characteristics *j* are:

$$f_j = U_j(x, z)/\lambda(x, z) = g(y - P, z) \quad (4)$$

where: $f_j = \partial f / \partial z_j$; $U_j = \partial U / \partial z_j$ and λ is the Lagrange multiplier.

The representative consumer will use z_j up to the level where its implicit marginal price will be equal to the willingness to pay for z_j.

A set of $j = 1, .., m$ characteristics can be identified if data over $k = 1,\ldots, n$ models are collected for a regression of the price of model k (P_k) on the levels of its characteristics (z_{kj}).

$$P_k = \beta_0 + \sum_{j=1}^{m} \beta_j z_{kj} + \varepsilon_k \quad (5)$$

The estimated β_j can be used to measure the implicit price for a marginal increase in the characteristic *j*.

The hedonic price model is generally applied to the study of markets with a high level of product differentiation and where the price paid by consumers reflects the marked variability in product characteristics. It has been largely applied to food and beverage products, particularly to wine, because of high product differentiation and availability of data. A good review of these studies can be found in Teuber (2010).

Coffee is described as a heterogeneous good, as in Goddard and Akiyiama (1989). In fact, consumers (and roasters-buyers) are concerned about what variety[3] of coffee they acquire. Sellers also distinguish their products by highlighting their country of origin, by

[3] Botanical varieties are typically divided into Robustas, which are more acid and higher in caffeine (2-4%), and Arabicas (1.1-1.7% of caffeine), which are milder and fragrant. Arabicas are further subdivided into Colombian milds (from Colombia, Kenya and Tanzania), unwashed arabicas (mainly Brazilian) and other milds (mainly from Central and South America). Other botanical varieties used for coffee are Liberica, of lower quality, and Excelsa, discovered more recently.

emphasising their particular characteristics or by showing a commitment to organic, shade-grown (like Rainforest Alliance) or FT practices. Then, new types of coffee, sold at a premium, have been successfully introduced in the market, which has experienced a strong increase in product differentiation in recent years. In particular, the Italian coffee market appears highly segmented since models from the same manufacturer can differ due to a large variety of packaging choices (and, consequently, of prices). In addition, blend recipes are responsive to changes in consumers' tastes (and relative prices) and new characteristics are offered (Manning et al., 2012). The sector consists of a few leaders and of a large number of small firms, and competition is strong in each segment.

Few applications of the hedonic price model also take into account the coffee FT attribute: Galarraga and Markandya (2004), Maietta (2005) and Schollenberg (2012). Following Hodgson (2011), an augmented hedonic regression set-up is adopted where regressors include coffee attributes described on the label, plus various indicators of social capital, alternately used, and their interactions with the Fair Trade and the organic/eco-label attributes.

4. The Data and the Empirical Specification

The data used for analysis are annual scanner panel data referring to observed sales of all the models of the producers supplying roasted coffee in a representative sample of Italian shops ranging from so-called supermarkets (400-2,500 m^2) to megastores (2,500 m^2) over the period 2005-2007 collected and provided by IRI InfoScan.

Coffee producers usually supply more than one model, each with different characteristics, most of them described on the label. Price and sale volume for each model is known. Finally, this information is given for a territorial unit corresponding to one Italian

province or, but in only two cases, to an aggregate of two provinces. The total number of models in our data-set is 1,827 supplied by 196 coffee producers.

[Table 1 here]

The list of variables used in this study is reported in Table 1. Price is CPI-deflated, following Costanigro et al. (2007), and the CPI figures are sourced from Istat (the Italian National Institute of Statistics).

The FT attribute is defined by the following labels: CTM Altromercato, Commercio Alternativo, Libero Mondo and the firms certified by FLO in Italy[4]. The environment-friendly attribute is defined by the organic or Rainforest Alliance labels.

Moka is a coffee type to be used in a particular coffee pot (known in Italy as moka). Espresso coffee is prepared by means of a high-pressure machine. The dummy variable *Branded* corresponds to one for the following main coffee producers: Corsini, Hag, Kimbo, Illy, Lavazza, Mauro, Nestlè, Sao, Segafredo, Splendid and Vergnano. Coffee quality valuation is sourced by IIAC (International Institute of Coffee Tasters). The figures for the disposable income variable are proxied by the value added, at the base-year, by inhabitant (sourced from Istat). The information on roaster characteristics (size, nature of enterprise property rights and location) is sourced from Agra (2001) and the Aida (Bureau van Dijk) dataset.

Measures of the social capital component *à la* Putnam are sourced from Sessa (1998), Scarlato (2001), Rizzi and Popara (2006), Cartocci, (2007) and Santini (2008). Moreover, in order to use indicators which generally perform better than multi-dimensional ones (Buonanno et al., 2009) and to disentangle the effect of different dimensions of social capital, we tested elementary indicators of civicness *à la* Putnam. These are: voter turnout at

[4] The list of the firms with FLO certification in Italy is at the address: http://www.equo.it

referenda, sourced from *Ministero dell'Interno*, Home Office (*Referenda*); the density of non-profit organisations, sourced from Istat (*Non-profit*); the density of WSs, which is a measure of "particularised" social capital tailored to our study, sourced from CensimEquo (2007) (*WSn*); and the percentage of co-op members over total employment, sourced from Istat (*Coop*). In order to check robustness, we also used the percentage of separate waste collection over total waste, sourced from Istat (*Recycling*).

We control for income (*Income*), as measured by the value added, which may be correlated with social capital. To further control for unobserved heterogeneity due, for instance, to cultural differences, macro-regional dummies are introduced (for North-West, North-East and Centre).

The regressors of the hedonic model are coffee attributes (relative to caffeine content, labels, botanical varieties, country-of-origin, taste and flavouring, packaging choice, cooking, roaster and other coffee characteristics), *per capita* income and indicators of provincial social capital plus their interaction with both the FT and the organic/eco-label attributes. There are thirteen indicators of social capital tested in this paper; therefore, the results of the alternate specifications of social capital are presented from Model (1) to Model (13).

5. Empirical results

Given that consumer theory does not provide any guidance as to what functional form ought to be used in estimating a hedonic price function, the choice of the functional form should be based on the data, which implies the application of the Box–Cox tests to several functional forms. Following the literature (Landon and Smith 1997; Carew 2000; Costanigro et al. 2007; Benfratello et al. 2009; Bimbo et al. 2016), the appropriate functional form has been selected from different transformations of the dependent variable after a grid search on the power functions of the deflated price P^{α}, where α varies from -2 to +2, plus the natural log

transformation. The selection criteria are the value of the Ramsey's Reset test for the model's functional form, and for omitted variable bias, the value of the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity and the goodness of fit (adjusted R^2).

[Table 2 here]

Table 2 provides a summary of the test statistics for the different transformations of the dependent variable referred to the variable specification named Model (1) in Table 3. The functional specification which provides a reasonable description of the data is the reciprocal quarter power function (α equal to -0.25). This exhibits an insignificant specification test and a good model fit. The moderate heteroskedasticity of this specification is corrected by clustering on the coffee producer code. Referring to the variable specification named Model (1) in Table 3, multicollinearity has been verified and the mean VIF is equal to 2.54 with an individual VIF lower than 10 for each variable.

The number of observations is 67,695 derived from 3 years (2005-2007), the observation unit is defined by model *k* in province *l*. The GLS estimated parameters of equation 5 are reported in Table 3 for several indicators of social capital from Model (1) to Model (13).

[Table 3 here]

In interpreting the results in Table 3, it is important to note that, because of the transformation of the dependent variable, coefficients with a negative sign signify a positive impact of the coffee attribute on price and *vice versa*. Both the FT and the organic/eco-label attributes are significant and exhibit the expected sign, but the coefficient absolute value of the former is higher than that of the latter, meaning that the FT attribute is more highly-valued. The marginal effect, computed applying Abrevaya (2002) for the variable

specification of Model (1), is equal to 8.7 € per kg for the FT attribute and to 3.5 € per kg for the organic/eco-label attribute[5]. Consumers also pay more for artisanal, local and regional roasters, the coefficients for artisanal, local and regional producers with a negative sign being significant or highly significant. Other highly-valued attributes in the marketplace are, in decreasing order: Jamaican origin, pre-dosed pods, gift packaging, filters, ginseng taste, canned packaging, Arabica variety, branded coffee, decaffeinated coffee and beans.

First of all, fewer interactions with the social capital indicators, compared to the organic/eco-label attribute, are significant; this could be attributed to the lower pervasive diffusion of FT values. Furthermore, indicators of social capital considered more determined by civic and altruistic norms, such as voter turnout at referenda and blood donations (Guiso et al., 2004; Buonanno et al., 2009), are not significant.

The only interaction of the FT attribute with the indicator of social capital shown to be significant with the expected sign is the variable relative to the percentage of co-op members over total employment. The density of WSs, which is our measure of "particularised" trust, is not significant, meaning that WSs have not worked as a communication channel of FT values for the mass-market segment of consumers at regular supermarkets.

The interaction with non-sport newspaper buyers is highly significant, but it exhibits a negative relationship, meaning that consumers pay less for the FT attribute when the percentage of non-sport newspaper buyers is higher, probably because internet and social media have been the main information channel of FT initiatives. The interactions with the density of non-profit associations is only weakly significant and positive, showing a negative relationship between the implicit price paid for the FT attribute and the density of non-profit associations. This result is in line with the negative relationship between the *solidarity* motivation and the percentage of non-profit organisation tax-payer donations, already

[5] This result is in line with a higher willingness to pay for the FT attribute than for the organic attribute of Scottish and Dutch consumers (Akaichi et al., 2016).

observed for WS consumers (De Devitiis et al., 2012).

Literature has already evidenced the role of national roasters, together with consumer preferences and education, in the diffusion of coffee ethical certifications (Manning et al., 2012). Our results suggest that the distribution chain itself may have worked as a communication channel of FT values, feeding a "generalised" trust, in terms of a sense of world citizenship, in consumers at regular supermarkets with a potentially ethical and pro-social focus in their buying decisions.

The organic/eco-label attribute is significant and positive when interacted with the following indicators of social capital: Sessa's and Santini's measures, the blood donation indicator, the election participation rate and the recycling indicator. Where these indicators are higher, consumers pay less for the organic/eco-label attribute in coffee consumption. The interpretation may be that in provinces were the environment is less protected consumers are willing to pay more for the organic or the Rainforest Alliance label. The level of environmental defence is inferred by the high significance of Santini's measure, which is constructed by taking into account the crime rate by inhabitant, which is highly correlated to environmental crimes. This result can be explained by the use on the part of consumers of organic/Rainforest Alliance labels as a guarantee of healthy products and by a self-interested motivation to protect their own health. However, given that we are not explaining the purchased quantity of organic/eco-label coffee, the interpretation may also be that there is a very strong environmental concern on the part of only a few consumers (probably women) living in a more polluted territory and willing to pay more for a cleaner world. In any case, looking at the significance of the interaction with the recycling proxy, we observe a higher willingness to pay for the organic/eco-label attribute where a pro-environment behaviour is less widespread, probably to compensate the absence of community pressure and/or of more effective public initiatives.

Summing up, this paper adds to the small literature on the relationship between social

capital and ethical consumption by providing evidence according to which consumers consider differently the FT and the organic/eco-label attributes and no evidence of complementarity between them emerges. Complex indicators of social capital never explain the willingness to pay for the FT attribute, and the same can be said for our measure of "particularised" social capital, the density of WSs, whereas elementary indicators of social capital, like newspaper readership and the density of non-profit organisations, are associated with a lower willingness to pay for the FT attribute. Only the diffusion of a culture of solidarity toward other workers, proxied by the percentage of co-op members over total employment, has worked as a communication channel of FT values for the mass-market segment of consumers at regular supermarkets.

6. Concluding remarks

This study aims to ascertain whether the implicit price paid by Italian consumers for the Fair Trade content of coffee is influenced by the level of social capital of the territory where consumers live, particularly by the component of civicness *à la* Putnam.

The approach followed is the hedonic price regression applied on scanner data referring to a territorial unit that is the province. The regressors include coffee and socio-economic characteristics of the territory where consumers live: *per capita* income, several indicators of provincial social capital and their interactions with the FT and organic/eco-label contents of coffee.

The only indicator of social capital which increases the implicit price paid for the FT attribute in the mass-market segment of coffee consumers is the percentage of co-op members over total employment. Several indicators of social capital (the blood donation indicator, the election participation rate, two complex indicators of social capital) *plu*s a recycling habit indicator do influence the implicit price paid for the organic/eco-label attribute in coffee

consumption but in the opposite direction; the higher the level of social capital, the lower consumers pay for the organic/eco-label attribute. This result can be explained both by a self-interested motivation for consumers to protect their own health, or by a very genuine environmental concern on the part of a few consumers in provinces with a less protected environment.

We conclude that any public support given to coops may indirectly contribute to the promotion of FT values and of ethically-oriented consumer behaviours.

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Appendix

A.1. The social capital indicators

Sessa (1998) measures the civicness *à la* Putnam by a principal component analysis applied to variables such as the level of participation in elections to the senate, the number of associations *per capita*, the number of co-op members *per capita*, the rate of female participation in the labour force, the percentage of municipalities in the province with: a public library, a public nursery and public summer activities for children, the recreational expenditure on culture and sport activities over the expenditure for television subscriptions and the percentage of families with three or more employed members.

Scarlato (2001) measures social capital through a principal component analysis applied to variables such as the stock of core infrastructure, the number of artistic, cultural and recreational associations *per capita*, the environmental quality of the main cities in the province, the number of daily newspaper buyers *per capita* and the indicator of civicness *à la* Putnam measured by Sessa and previously defined.

Rizzi and Popara (2006) measure social capital by means of a principal component analysis applied to the rate of participation in elections, the rate of participation in referenda, the number of volunteers *per capita*, the number of non-profit associations *per capita*, the number of blood donations *per capita*, the rate of female participation in the labour force, the density of enterprises and two indicators of socio-economic infrastructure. The first component extracted, which explains the 53% of total variance, is interpreted as a proxy of civicness *à la* Putnam due to the correlation between participation in elections and in referenda, the rate of female participation in the labour force and the density of enterprises. Henceforward this indicator of social capital has been labelled as Rizzi&Popara.

Cartocci (2007) measures social capital by means of four indicators which refer to: the number of buyers of non-sport daily newspapers *per capita* (*Newspapers*), the participation rate at elections (*Elections*), blood donations defined as the standardised sum of the number of blood donors and of blood donations per thousand of inhabitants (*Blood*) and sport activity defined as the standardised sum of the number of sport associations and of the number of their members per thousand of inhabitants (*Sport*). These four indicators have been provided separately for the Italian provinces and have been used alternately in this study.

Santini (2008) measures social capital by means of a principal component analysis applied to several variables, including turnout at national elections, participation in non-profit associations, the number of television subscriptions per 100 families and the crime rate including the number of murders by inhabitant.

Table 1. Descriptive statistics of the variables

Variables	Description	Mean	Std. Dev.
P	price (2007-based €/kg)	12.485	15.00
Dec	decaffeinated dummy	0.077	0.27
Moka	moka dummy	0.457	0.50
Espr	espresso dummy	0.214	0.41
Filters	filter dummy	0.083	0.28
Pods	pre-dosed pod dummy	0.007	0.08
Pack	vacuum-packed dummy	0.708	0.45
Can	canned dummy	0.060	0.24
Br	branded dummy	0.657	0.47
Arab	Arabica dummy	0.135	0.34
FT	FT-labelled dummy	0.025	0.15
Org	organic or Rainforest Alliance-labelled dummy	0.014	0.12
Beans	coffee bean dummy	0.123	0.33
Kenia	Kenia origin dummy	0.004	0.06
Giamaica	Giamaica origin dummy	0.001	0.03
Mexico	Mexico origin dummy	0.002	0.04
Classic	classic taste dummy	0.050	0.22
Ginseng	ginseng flavour dummy	0.0004	0.02
Gift	gift packaging set dummy	0.087	0.28
Cd	dummy for cd as a gift	0.001	0.03
Npacks	No. packs	1.600	1.11
Local	dummy for producer of the same province	0.043	0.20
Regional	dummy for producer of other provinces in the same region	0.128	0.33
Artisanal	dummy for artisanal producer	0.013	0.11
Multinational	dummy for multinational producer	0.079	0.27
Stars	Number of stars given to coffee quality by IIAC	0.139	0.50
Income	value added by inhabitant, at the base-year, in current th. €	2.288	0.45
	Social capital indicators		
Sessa		0.395	0.18
Rizzi		0.427	0.31
Santini		0.511	0.05
Scarlato		0.382	0.85
	Sourced from Cartocci		
Blood	blood donation indicator	0.280	0.87
Newspapers	non-sport daily newspaper buyers over 1000 inhabitants	88.981	33.85
Elections	voters in political elections (%)	56.581	5.29
Sport	indicator of sport associations	0.117	0.91
	Other indicators		
Referenda	voter turnout at referenda in 2001-2005 (%)	30.686	8.09
Non profit	non-profit associations over 1000 inhabitants in 2001	2.672	0.80
WSn	number of World Shops over 1000 inhabitants in 2006	0.012	0.01
Coop	co-op members over total employment in 2001 (%)	1.528	0.48
Recycling	separate waste collection over total waste in 2003-2005 (%)	30.193	14.79
Dummy for 2006		0.334	0.47
Dummy for 2007		0.342	0.47
Dummy for North-West		0.333	0.47
Dummy for North-East		0.288	0.45
Dummy for Centre		0.201	0.40

Table 2. Diagnostics used for model selection

	Model fit	Specification		Hetereoskedasticity
	Adj. R2	Ramsey's Reset	P-value	Breusch-Pagan/Cook-Weisberg
Transformation of the dependent variable				
-2	0.75	10.17	0.02	4707.37
-1.5	0.73	203.22	0.00	5093.68
-1	0.33	12.54	0.00	3006.45
-0.5	0.18	7.19	0.03	2827.31
-0.25	**0.71**	**4.58**	**0.21**	**77.74**
Box-Cox (-0.102)	0.73	10.71	0.01	243.64
Ln	0.74	8.56	0.04	1226.20
0.25	0.71	371.28	0.00	4623.06
0.5	0.66	5.64	0.13	1008.60
1	0.57	1626.66	0.00	3380.58
1.5	0.52	26.01	0.00	1107.21
2	0.38	36.91	0.00	416.88

Table 3. The coefficients of the hedonic regressions

Variable	Coef. Model(1)	Coef. Model(2)	Coef. Model(3)	Coef. Model(4)	Coef. Model(5)	Coef. Model(6)	Coef. Model(7)	Coef. Model(8)	Coef. Model(9)	Coef. Model(10)	Coef. Model(11)	Coef. Model(12)	Coef. Model(13)
Constant	0.59***	0.59***	0.61***	0.58***	0.59***	0.59***	0.59***	0.60***	0.59***	0.59***	0.59***	0.59***	0.59***
Dec	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
Moka	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Espr	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**
Filters	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***
Pods	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***	-0.16***
Pack	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***	0.04***
Can	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***	-0.04***
Bra	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
Arab	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
FT	-0.08***	-0.08***	-0.09***	-0.08***	-0.08***	-0.09***	-0.08***	-0.08***	-0.08***	-0.09***	-0.08***	-0.08***	-0.08***
Org	-0.04**	-0.04**	-0.07**	-0.03**	-0.03**	-0.04**	-0.03**	-0.09**	-0.03**	-0.04**	-0.04**	-0.04**	-0.05**
Beans	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**
Kenia	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**
Giamaica	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***	-0.18***
Mexico	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***	0.02***
Classic	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**
Ginseng	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***	-0.11***
Gift	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***	-0.12***
Cd	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***	0.09***
Npacks	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***
Stars	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**
Local	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
Regional	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**	-0.01**
Artisanal	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***	-0.10***
Multinational	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sessa	-0.012***												
Rizzi		-0.003*											
Santini			-0.06***										
Scarlato				-0.002***									
Sport					-0.002***								
Newspapers						-0.0001***							
Blood							-0.001**						
Elections								0.00					
Referenda									0.0001**				
Non profit										-0.002***			
WSs											-0.02		
Coop												-0.003***	
Recycling													0.0001**
FT x Sessa	0.000												
Org x Sessa	0.022**												
FT x Rizzi&Popara		-0.003											
Org x Rizzi&Popara		0.008											
FT x Santini			0.014										
Org x Santini			0.076***										
FT x Scarlato				0.001									
Org x Scarlato				0.003									
FT x Sport					0.000								
Org x Sport					0.004								
FT x Newspapers						0.0001***							
Org x Newspapers						0.000							
FT x Blood							0.000						
Org x Blood							0.01***						
FT x Elections								0.000					
Org x Elections								0.001***					
FT x Referenda									0.000				
Org x Referenda									0.000				
FT x Nonprofit										0.002*			
Org x Nonprofit										0.002			
FT x WSs											0.16		
Org x WSs											0.26		
FT x Coop												-0.003**	
Org x Coop												0.002	
FT x Recycling													0.000
Org x Recycling													0.0005**
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macroregion dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*** significant at the 1% level ** significant at the 5% level * significant at the 10% level