

Full Research Article

## The Italian microbrewing experience: features and perspectives

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**Abstract.** The so-called Italian *craft beer revolution* is a new phenomenon characterised by a rapidly growing number of microbreweries and popularity of their products. The evolution of the Italian craft beer sector has interesting potentialities in terms of local/rural development. The analysis is based on available statistics as well as on a survey carried out in May 2014 which discloses features, motivations and expectations of the craft beer producers. Together with the risk of overproduction due to the high number of recent entries, the creation of local supply chains (from barley cultivation to its transformation into malt) is emerging as a possible evolution of the sector, thanks to the advent of a new typology of microbrewery, the agricultural brewery.

**Keywords.** Microbreweries, agricultural beer, barley-to-beer supply chain.

**JEL codes.** L11, L66, Q13.

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### 1. Introduction

In Italy, craft beer production is a recent and original phenomenon which is not only growing at a fast pace and being appreciated by consumers, but is also outperforming many other sectors of the domestic food and beverage industry, right in the middle of an adverse economic scenario. The rise of this phenomenon has been strongly influenced by the so-called US *craft beer revolution*, which was the grass-roots answer to a highly concentrated beer industry run by few ‘giant brewers’, as well as to the standardisation and homogenisation of the product (Tremblay and Tremblay, 2005). Started in California in the early 1970s, this “revolution” has led to the rediscovery of old, tastier and more flavourful beers, as well as to a great increase in the number of US producers. In the last decades, this “revolution” has crossed the US borders, spread across Europe (Cabras and

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Bamforth, 2016; Danson *et al.*, 2015; Esposti *et al.*, 2017) and, partly, also in Australia (Argent, 2018), Asia (Tsang and Li, 2016) and Latin America (Toro-Gonzales, 2015).

Eventually, the *craft beer revolution* reached Italy in the mid-nineties and its growth has become very intense in the last ten years. The Italian experience is peculiar for two reasons. First of all, Italy is a traditionally wine-producing and consuming country with an almost complete lack of beer culture and tradition (except in a few areas of the former Lombardo-Venetian Kingdom). Despite this, both craft brewers' number and popularity have been growing steadily, thus making it interesting to investigate what factors may have influenced their diffusion and success, privileging small-scale producers and generating new modes of consumption. Secondly, in the Italian experience, a further innovation has occurred in the last few years, which consists in the advent of a new and somehow unique typology of production units, the agricultural breweries. This new typology has emerged as a major part of the intense recent growth, opening new perspectives in terms of economic, social and environmental sustainability – mostly due to the creation of local supply chains, also in peripheral territories that normally have fewer development prospects.

While there is a wide literature referring to the wine sector (in which Italy has always stood out for its high-quality productions and widespread consumption), studies covering the Italian brewing sector are mainly descriptive or focusing on specific aspects<sup>1</sup>, showing that more thorough analyses are needed in order to understand the astonishing development of craft beer productions and the adoption of new brewing business models.

In this context, the aim of this paper is to investigate the main features of the Italian craft brewing experience and the increasing role of agricultural breweries especially with regards to longer-term sustainability. Paragraph 2 provides a theoretical framework in order to understand how this phenomenon has become so popular in Italy while, in paragraph 3, economic data concerning the evolution of the beer (and craft beer) industry are discussed for the US, Europe, and Italy. Paragraph 4 presents an empirical investigation on the sector dynamics and, in particular, a survey focused on the specific features and role of agricultural breweries. Paragraph 5 draws some concluding remarks.

## 2. Conceptual framework

Although the Italian craft brewing sector is still considered a small economic niche, it can be legitimately regarded as an example of broader transformations within food production and consumption spheres. Favourable dynamics of the market<sup>2</sup>, particular local/territorial features as well as the State's intervention may have contributed to its success. Simultaneously, as has already happened for other mature industries<sup>3</sup>, the beer industry has been experiencing a significant restructuring process: although the beer market

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<sup>1</sup> See Cannatelli and Pedrini (2012), Fastigi (2015), Fastigi *et al.* (2015), Garavaglia (2015), Ravelli and Pedrini (2015), Francioni (2016) and Menghini (2016).

<sup>2</sup> Such as, i.e., the diffusion of new lifestyles, more politically and ecologically oriented, which have been fostering increasing attention towards locally grown food and artisanal forms of production (Brunori, 2007; Cavanaugh, 2007; Goodman *et al.*, 2012; Grasseni, 2013; Paxson, 2013).

<sup>3</sup> As in the case of newspapers (Carroll, 1985), wine production (Swaminathan, 1995; 2001), investment banks (Park and Podolny, 2000), etc.

is notoriously oligopolistic, in the past few years a considerable number of new artisanal beer producers have made their appearance.

A few theoretical backgrounds may be helpful to understand the reasons behind the emergence and development of craft breweries. Within the social sciences, the transformations of production/consumption systems have been analysed in different disciplinary contexts and with different theoretical and methodological approaches. A first reading is provided by the Italian economic and sociological literature and its interpretation of local development and industrial districts, such as the idea that the Italian industrialisation process, particularly in the so-called 'Third Italy', was based on localised systems of small and medium enterprises in semi-peripheral areas (Becattini, 1979; Bagnasco, 1988; Blim, 1990; Trigilia, 2005). The "local", seen as a socio-cultural and institutional *milieu*, can condition economic agents' behaviour, either creating new opportunities or imposing restrictions upon the extension of the market (Granovetter, 1985 and 2005; Magatti and Borghi, 2002). Therefore, a particular *milieu* can either turn into localised advantages (*i.e.*, in terms of relatively lower costs, as in the case of large availability of a critical production factor, or higher productivity, due to better knowledge and skills) or, conversely, into localised disadvantages, which often take the form of congestion effects (such as an higher density of economic activities operating in the same area and in the same market, which intensify the competition for getting the best local production factors or the highest share of local consumers) (Esposti *et al.*, 2017). This concept is deeply linked to a central theoretical interpretation of local development, namely the idea that economic actions are embedded in social relations which, in turn, condition economic behaviours and impose restrictions upon the extension of the market.

More in general, though, the changes that have occurred over the last decades are coherent with the postmodern society, characterised by a transition from the Fordist large-scale production to an outsourced/service-based economy, with a more flexible way of production and the co-existence of more differentiated goods in order to meet the rapidly changing and increasingly heterogeneous consumers' tastes (Antonelli *et al.*, 2015). Also, in the agri-food sector different production and distribution systems have progressively emerged with a focus on quality in food practices (Goodman, 2003). This phenomenon has led to several experiences, *i.e.* those proposed by the Slow Food association, that have spread rapidly from Italy to Europe and then to the rest of the world<sup>4</sup> (Antonelli and Viganò, 2017). What is more, on the fringe of global/industrial supply chains, the so-called *Alternative Food Networks* (AFNs) are creating a more direct relationship between farmers and consumers and offering, at the same time, ideas for local development that is socially, environmentally and economically sustainable (Marsden *et al.*, 2000; Goodman, 2002; Norberg-Hodge *et al.*, 2002; Sonnino and Marsden, 2006; Brunori *et al.*, 2012; Goodman *et al.*, 2012; Torquati *et al.*, 2016). The AFNs can determine several positive effects, including an interaction between urban and rural areas, the preservation of local knowledge, traditions and local food products, as well as reducing the negative impact of transport, storing and packaging. Furthermore, AFNs allow farmers and small food producers to differentiate their products, giving the possibility to define new development

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<sup>4</sup>In particular, to secure distinctive foods – in terms of 'taste quality' and linkage to a specific territory – facing extinction (Ark of Taste project), or aimed at protecting biodiversity, such as the Slow Food Presidia (Slow Food Foundation for Biodiversity).

strategies for small and medium-sized farms and increasing their survival probability (van der Ploeg *et al.*, 2000; Watts *et al.*, 2005; Winter, 2003; Coley *et al.*, 2009; Cleveland *et al.*, 2015). The AFNs vary widely in terms of organisational procedures<sup>5</sup>, motivations, targets, development strategies and especially in how the relationships between producers and consumers are established. Undoubtedly, a crucial and original aspect of these networks is the consumer's behaviour, which is increasingly pro-active: an increasing number of consumers, in fact, has been questioning the unsustainability of the conventional/industrial agri-food system and its process of de-localisation, supporting (or actively participating in) the process of re-localisation. Consumption, in fact, is not only aimed at satisfying functional needs, but it is increasingly being used to strengthen social relationships as well as to exhibit political and ethical beliefs. Food has a strong link-value, so the focus on 'quality' shows a strong tendency to re-embed food in social networks as well as a counteraction to the McDonaldization of society (Ritzer, 1993) therefore favouring the "food from somewhere" instead of the "food from nowhere" (McMichael, 2009).

The consumers' increasing interest for quality and craftsmanship results in different emerging behavioural styles. For example, an interesting profile of the postmodern consumer is the one known as the "craft consumer" (Campbell, 2005), who exhibits a propensity to participate in the production process – a tendency that is gradually becoming more widespread in developed societies. The roots of this trend can be found in the "anti-system" and "anti-alienation" components including a form of consumer opposition to marketing pressure (Rullani and Fabris, 2007). However, this explanation has become less relevant as it has been replaced by a form of consumption that is more similar to a creative act. The value of manual labour has risen dramatically (Weiss, 2012; Paxson, 2013; Cavanaugh and Shankar, 2014) as more and more people, find in food and in its preparation both the possibility to learn certain artisanal and manual skills – which are often alien to modern forms of work – and a way of creating and strengthening social relationships. Indeed, all this opens new market spaces to small firms aiming at the quality of their output, as well as to new forms of entrepreneurship, such as those that transform a passion (*i.e.* homebrewing) into a remunerative and job-creating economic activity (De Solier, 2013).

In general, it seems that cultural transformations, together with the use of consumption as a means of social distinction (Bourdieu, 1984), are generating new economic opportunities and offer new choices for satisfying desires and – increasingly educated – tastes of many consumers (Scarpellini, 2011). Not surprisingly, some craft beer lovers seem to show a sense of elitism which is translated into preferences for beers that are neither highly publicised nor sold too far from their production site<sup>6</sup> (Schnell and Reese, 2003). As a matter of fact, demand can increasingly be seen as a way to express one's identity and personal lifestyle more than just the satisfaction of one's needs (Blaiech *et al.*,

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<sup>5</sup> According to different types of producer-consumer relations and/or to the degree of "connectedness" to the act of food production, AFNs can be classified in four sub-groups: producers as consumers, producer-consumer partnerships and direct sell initiatives (short supply chain), specialist retails (Venn *et al.*, 2006).

<sup>6</sup> For the craft beers, it should be noted that several studies have shown consumers' preferences to be greatly influenced by their values, over and above their objective taste propensity; in some blind taste tests, many of these discerning consumers were unable to recognise their favorite products or the possible presence of contaminants in beer (see Garavaglia, 2010).

2013). Modern consumers are less snobbish and more culturally multifaceted than in the past, where the status rank relied on a few highbrow genres of culture, while nowadays “high status is signalled by selectively drawing on multiple cultural forms from across the cultural hierarchy” (Johnston and Baumann, 2010: p. 35). In fact, consumers’ increasing interest for food quality and craft productions, other than showing a certain level of cultural capital, makes them decisive in the success of the craft beer sector and in creating new patterns of production, exchange and consumption.

These theoretical considerations and the social and economic transformations they aim at interpreting are relevant for a proper understanding of the Italian craft beer revolution: however, there are other sectoral and specific aspects that actually matter and that have to be carefully considered as well.

### 3. The international beer market scenario

#### 3.1 Global trends

Beer is, without any doubt, the most popular alcoholic drink internationally: both in terms of volume and value, world beer consumption is higher than any other alcoholic drink, such as wine and spirits (Colen and Swinnen, 2011). Despite a slight decrease in 2014 and in 2015, the world’s beer production had increased for three decades (Kirin Beer University Report, 2015; 2016), with the threshold of 2 billion hectolitres close to being surpassed for the first time in history.

Asia and Latin America count together around 50% of the global beer market now, and China has been the world’s largest beer-producing country since 2002 (The Barth Report, 2004) (Table 1). In 2015, the first four world’s largest brewing companies (Anheuser-Busch InBev, SABMiller, Heineken and Carlsberg) were all headquartered in Western Europe (Belgium, the UK, the Netherlands and Denmark respectively), despite the fact that the centre of the beer market has been shifting consistently from Europe towards other geographical areas. The share of world beer production of these four major brewing companies rose from 39.7% in 2004 to 47% in 2015 (The Barth Report, 2005; 2016). To name just a few examples, the Belgian InBev<sup>7</sup> purchased the American brewing company Anheuser-Busch for \$52 billion in 2008 to form the industrial giant Belgium-based AB InBev (Howard, 2014) which, in turn, completed in late 2015 the acquisition of its closest rival, SABMiller, for over \$100 billion, creating the first “truly global brewer” (Bray, 2015).

Despite mega-brewers attempts to enter the craft beer market (see below), AB InBev’s strategy might also be interpreted as a way to compensate losses in traditional markets (like the United States) with the penetration into (relatively) new markets (such as China) with huge growth potential and where craft beers are not yet popular (Shadbolt, 2015). In fact, it is worth noticing that the *craft beer revolution* is mainly occurring in those traditional beer-drinking geographical areas (Europe and North America) whose level of beer production and/or share of beer consumption over total alcohol consumption has significantly decreased in the past years. The US is the country where, in the 1970s, the craft

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<sup>7</sup> Resulting from the merger, in 2004, between the Belgian Interbrew with the Brazilian AmBev, for \$11.5 billion (Howard, 2014).

**Table 1.** Beer production by country (1,000 hl; 1961, 2000, 2015).

	1961	2000	2015	Ranking
China	500	220,000	471,572	1
USA	111,505	232,500	223,513	2
Brazil	8,000	82,600	138,575	3
Germany	76,266	110,429	95,623	4
USSR/Russia	26,000*	54,900	78,200	5
Mexico	8,303	57,812	74,500	6
Japan	12,431	70,998	53,800	7
Vietnam	n.a.	7,430	46,700	8
United Kingdom	45,374	55,279	44,054	9
Poland	7,064	24,000	39,800	10
France	18,154	18,926	20,520	17
Belgium	13,850	14,733	18,250	22
Italy	3,081	12,575	15,397	28

\* 1961 production refers to the whole former Soviet Union; 2000 and 2015 data refer to the Russian Federation.

Source: Elaboration on The Barth Report (1962; 2002; 2016).

beer movement started (Tremblay and Tremblay, 2005) and where the craft beer sector still registers by far the best performance in the world. According to the Brewers Association<sup>8</sup> (2016a; 2016b), in 2016 the US craft beer share was 12.3% of the US beer market. It is a remarkable result, also considering that the craft beer sales volume grew by 6.2% in the same year while the overall beer market remained stable. In 2016, the number of craft breweries in the US was 5,234 (on a total number of 5,301). This is a substantial number if considered that only a few dozen breweries were operating in 1983 when the smallest number was reached in 150 years (Ronnenberg, 1998; Watson, 2015).

Beside the US pioneering experience, however, it must be acknowledged that an international convergence in alcohol consumption patterns is gradually happening. In emerging countries with lower income per capita (such as, i.e., China and Russia) the share of beer consumption has been growing steadily. On the contrary, in traditional European “beer-drinking” countries (such as Austria, Belgium, Czech Republic, Germany, Ireland and the UK) per-capita beer consumption has decreased in favour of wine and/or spirits, while the opposite has occurred in “wine-drinking” (such as Italy, Spain, France) and “spirit-drinking” countries (such as Poland). In the past 5 years solely (between 2010 and 2015), in the 28 European member States the number of active breweries went from 4,035 to 7,397 (The Brewers of Europe, 2016) and, as the former President of the Brewers of Europe (Demetrio Carceller) acknowledged, “«almost 100 per cent» of the new entrants are microbreweries producing speciality beers and mirroring the craft trend that has shaken up the US beer industry”, with the result that the artisanal brewers are taking market share off industrial ones (Daneshkhu, 2014).

<sup>8</sup> The Brewers Association is the US craft industry body, promoting and protecting American craft brewers.

Following the craft beers success, many big brewing companies have started either to produce premium beers as well (Carroll and Swaminathan, 1992; 2000; Swaminathan, 1998; Carroll *et al.*, 2002; Hannan, 2005; Garavaglia, 2010) or to directly purchase craft breweries. Anheuser-Busch (wholly owned subsidiary of the Belgian AB-InBev) dominates the US beer market with a 45% market share, even though this share has continuously declined over the past years (Trefis Team, 2017). From developing their in-house craft beer brand Shock Top to acquiring American craft brands, Anheuser-Busch has looked to penetrating the craft beer market. Despite the “threat of loss of customers due to the tie-up of their favourite local craft beer brand with a corporate giant” being real, on the other hand the increased reach and distribution channels could add new customers (Trefis Team, 2015).

But this phenomenon has not been confined to the United States (Allyn, 2016): in 2015, two very important London-based craft breweries, such as Meantime and Camden Town, were bought by SabMiller and AB InBev respectively (Turco, 2016a). And the same trend is now also concerning Italy: in fact, the first case of an industrial brewing company – AB InBev – buying an Italian craft beer producer – Birra del Borgo, one of the most popular and innovative Italian craft breweries – dates back to 2016 (Montagnoli, 2016; Turco, 2016b).

A final consideration is needed regarding the malting barley supply chain. In 2015, the European malting capacity was around 42% of the global malting capacity (Euromalt, 2017a), and the barley suitable for producing malt (which must be of high quality and able to germinate evenly and rapidly) was mainly produced in France (12.5 million tons), Germany (11.6 million tons), UK (7.3 million tons), and Spain (6.4 million tons)<sup>9</sup> (Euromalt, 2017b).

### 3.2 The Italian beer landscape

It is worth emphasising that a universally recognised definition for craft beer in Italy did not exist until 2016. In Italy, the craft beer movement started in the mid-1990s, mostly in the Central and Northern regions. This growth was fostered by some legislative and institutional innovations. In particular, in 1995 the Legislative Decree No. 504 introduced some simplifications and innovations into the complex bureaucratic procedures concerning beer production, and this explains why 1996 is usually considered the initial year of the Italian craft brewing sector. The new legal definition of artisanal beer (*Disegno di Legge* S 1328-B, article 35), approved by the Italian Parliament in 2016, defines it as beer produced by small, independent breweries that does not undergo pasteurisation or microfiltration during its production. A small independent brewery is defined as one that is legally and economically independent of any other brewery, that uses equipment physically distinct from any other brewery<sup>10</sup>, that does not operate under an operating license

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<sup>9</sup> The total EU production of malting barley, in 2015, was 61.11 million tons (Euromalt, 2017b).

<sup>10</sup> The requirement that an artisanal brewery use only its own equipment seems to exclude contract brewing from this definition, although its application has yet to hit the ground. While it may lead to a decline in brewing in this manner, it may also lead to more simple changes in marketing, as those who practice it may choose to dispense with the use of “artisanal” in their labels and other promotional materials. As beer firms are the most popular type of microbrewery adopted by new craft brewers, it will be interesting to see how and if this legal definition shapes the Italian craft brewing landscape (Fastigi and Cavanaugh, 2017).

of any other company, and whose production does not exceed 200,000 hectolitres per year. At the moment, very few Italian craft breweries produce more than 10,000 hectolitres per year while all the industrial ones (except for Hausbrandt group and Menabrea) have a much larger brewing capacity, from 616,000 hectolitres of Birra Forst to 5.2 million hectolitres of Heineken Italia (Assobirra, 2016; data refers to the year 2015)<sup>11</sup>.

The first Italian microbreweries had a very small productive capacity and their beers distinguished from industrial ones because they were neither pasteurised nor filtered. Compared to other European countries, in Italy the lack of tradition left room to creativity and experimentalism: this creativity, combined with the Italian artisan ability, soon made Italian craft beers more and more respected and popular among beer experts, both in Italy and abroad and many of them are now recognised worldwide especially for their original tastes and styles. This increasing credibility of the Italian craft beer players is also reflected in the takeover, in 2012, of the Thomas Hardy's Ale – a famed historic British beer brand – by Brew Invest, a subsidiary of the Vecchiato brothers' Interbrau, one of the most important specialty beers distributors in Italy as well as owner of the agricultural craft brewery Birra Antoniana.

The evolution of the Italian craft brewing sector is impressive and its extraordinary growth has been concentrated largely in the last 10 years. In 2015, the Italian craft beer sector produced 390,000 hectolitres (with a growth of 22% with respect to 2014) and made up 2.1% of the national beer production<sup>12</sup>. Despite the lack of beer tradition in Italy, craft beers are now much more than a marginal component of the national beer offer. It is, rather, a very dynamic portion of the industry which is successfully capturing the evolution of consumers' tastes and behaviours, that tend to penalise industrial and homogenised productions in favour of more differentiated and creative beers. On the other hand, however, this rapid growth also raises serious questions about the long-term sustainability of this sector in Italy: in fact, this intense growth will likely slow down in the future, not only reducing the number of new entries but also negatively affecting the performance of the incumbents – eventually pushing some of them out of the market. Furthermore, a dip in craft beers prices could be expected as approaching its maturity phase.

Finally, the lack of beer-tradition in Italy has obliged the vast majority of national small producers to import raw materials from abroad (from regions with a longer and stronger beer tradition), with the consequence that local food supply chains are still often not involved in the creation of added value.

According to the current regulation, Italian microbreweries can be divided into four categories: 1) *craft brewery*, the most common type, which owns a production facility and sells its beer mainly off-site; 2) *brew pub*, which has a production facility as well but distributes its beer mainly on-site (*i.e.*, in its pub/restaurant); 3) *beer firm*, a firm that rents beer brewing equipment and space from other breweries to brew their own beer. The

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<sup>11</sup> Paying attention solely to the production capacity, in the US the Brewers Association stated that a craft brewery can produce up to 6 million barrels of beer per year (little more than 7 million hectolitres) whereas, in Italy, the association Unionbirrai (cultural association which promotes craft beer culture in Italy) as well as other authors (Cannatelli and Pedrini, 2012; Ravelli and Pedrini, 2015) – before the introduction of the legal definition of artisanal beer – used not to consider breweries as microbreweries if their production exceeded 10,000 hectolitres per year.

<sup>12</sup> Elaboration on Assobirra (2016).

fourth category, *agricultural brewery*, was included in 2010 following the approval of the Ministerial Decree No. 212. This typology is, to all intents and purposes, an agricultural firm which can therefore benefit from certain advantages with respect to other non-agricultural brewers, such as a more advantageous tax treatment and the possibility to benefit from European funds for rural development. To keep this status, *agro-brewers* must produce at least 51% of the raw materials used in their brewing process, as well as become members of a consortium, which malts the grains conferred by the members<sup>13</sup>.

This latter typology represents a major novelty within the Italian craft brewing movement. On the one hand, according to the farmer's perspectives, it offers an important opportunity of production diversification for the agricultural firm. On the other hand, and more importantly, agricultural brewing may be the key link to local supply chains, opening the possibility of growing and malting barley locally as more than 80% of barley cultivation in Italy is currently used for feeding livestock (Fontana *et al.*, 2005). This shows an unexploited space for barley cultivation intended for beer production, largely insufficient at the moment. Apart from the recent opening of the "Consorzio Italiano di Produttori dell'Orzo e della Birra" (called COBI), a micro malt house in the Marche region that malts barley conferred by its members, the production of malting barley has always been localised in the southern part of Italy where, in fact, the only two industrial malt houses are based. However, following the boom of the Italian craft brewing sector in the last decade, the creation of regional supply chains, as COBI did, will add value both to final products and to raw materials (Fastigi *et al.*, 2015).

Of major interest here is the emergence of agricultural breweries as the most dynamic and promising typology, representing also a hope for the long-term sustainability of the sector, on multiple levels (Fastigi, 2015). In economic terms, agricultural breweries are much more market- and business-oriented than the majority of very small, family-based and often amateur traditional microbreweries. From the social and environmental points of view, instead, they are expected to be more sustainable because, by Italian regulations, the bulk of the raw materials (in particular the production of barley and its transformation into malt) must come from the agricultural brewery itself thus implying a much shorter (local) supply chain and positive spillovers for the territory in terms of creation of knowledge and new satellite economic activities.

#### 4. Empirical analysis

The main objective of the present paper is to provide some empirical evidence on the evolution of Italian craft brewing sector with particular attention to issues concerning its long-term sustainability and the role of agricultural breweries in this respect. Such empirical analysis is here pursued through a twofold approach. First of all, a descriptive but detailed analysis of the firms' dynamics within the sector is carried out in order to identify the emergence in the last few years of some tendencies that may indicate risks and opportunities in terms of long-term sustainability. On the one hand, the increase of turnover may signal some initial problems while, on the other hand, the emergence of agricultural breweries can be interpreted as a positive evolution. The geographical characterisation of

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<sup>13</sup> This is the usual case, but there are also very few brewers that malt their cereals by themselves.

these processes may be relevant, and are also investigated, as it may indicate a stronger local dimension of these native activities.

Such descriptive analysis, however, does not take into account many relevant aspects concerning the recent evolution of the sector and its perspectives in terms of socio-economic sustainability. Motivations and expectations as well as specific characteristics of these firms and producers are of major relevance to detect the real entrepreneurial dimension of the phenomenon, its business and market orientation as well as its strategic choices. In particular, it is of primary interest here, given the hypotheses put forward above concerning the possible role of agricultural breweries in order to investigate the peculiarities of these firms and whether their emergence may represent a significant step of the whole sector towards a higher economic sustainability. This kind of investigation is herein performed through an online survey administered to all the microbreweries which were active by the end of May 2014 (Fastigi, 2015). Finally, an Ordered Logit model is estimated in order to empirically assess the determinants of the different expectations about the future evolution of the sector and, in particular, the role of agricultural breweries in this respect.

The data for these elaborations were collected from the web portal [Microbirrifici.org](http://Microbirrifici.org), the most accurate (online) database with regards to microbreweries in Italy.

#### 4.1 A descriptive analysis of the recent Italian craft brewing dynamics

The emergence of the craft brewing sector within the Italian beer industry is analysed in the present paper through a descriptive analysis of market dynamics<sup>14</sup>. Table 2 shows the striking upward trend in the Italian craft beer sector, with a large number of new small craft producers entering the market in the last two decades. In 2015, there were 920 active craft breweries in Italy. This is the result of 1,077 firms entering the market in the 1996-2015 period while 157 left it over the same period. Therefore, the number of Italian microbreweries has been increasing year after year demonstrating a rising growth rate but some new phenomena have also emerged in recent years. First of all, together with an intense entry rate, the last 4 years have also been characterised by a significant number of exits signalling that a kind of turnover process has also begun. Secondly, the sector has recently experienced an increasing heterogeneity with regards to brewery typologies (see Table 2).

Beer firms and agricultural breweries somehow represent two antithetical directions of the same kind of evolution. As the Italian craft brewing sector is now exiting from the period of pioneers, amateurs, and home-brewers and entering that of market and business orientation, such evolution apparently may take two opposite forms. On the one hand, larger size microbreweries may decide to enter the market by only taking care of the final part of the supply chain, that of commercial valorisation and differentiation of the prod-

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<sup>14</sup> The determinants and the time-dependence of these dynamics can be more formally investigated with survival models. This kind of econometric investigation is beyond the scope of the present paper especially as it is not particularly informative concerning the specific features of major interest agricultural breweries while it still assures limited robustness in inferential analysis due to the quite recent emergence of the phenomenon and, thus, the limited number of observations (just 5 years). Nonetheless, an example of this econometric investigation on market dynamics can be found in Esposti *et al.* (2017).

**Table 2.** Active microbreweries in Italy by typology (1996 – 2015). Variations ( $\Delta$  %) refer to the previous year.

Year	Craft Breweries		Brew Pubs		Beer Firms		Agricultural Breweries		Total	
	No.	$\Delta$ %	No.	$\Delta$ %	No.	$\Delta$ %	No.	$\Delta$ %	No.	$\Delta$ %
1996	8	33	8	167	0	-	0	-	16	78
1997	9	13	13	63	0	-	0	-	22	38
1998	8	-11	23	77	0	-	0	-	31	41
1999	12	50	32	39	0	-	0	-	44	42
2000	18	50	40	25	0	-	0	-	58	32
2001	21	17	49	23	0	-	0	-	70	21
2002	23	10	59	20	0	-	0	-	82	17
2003	34	48	61	3	0	-	0	-	95	16
2004	42	24	64	5	0	-	0	-	106	12
2005	55	31	70	9	0	-	0	-	125	18
2006	72	31	80	14	0	-	0	-	152	22
2007	91	26	92	15	3	-	0	-	186	22
2008	127	40	101	10	6	100	0	-	234	26
2009	155	22	106	5	9	50	0	-	270	15
2010	174	12	106	0	17	89	32	-	329	22
2011	201	16	115	8	30	76	38	19	384	17
2012	248	23	122	6	58	93	50	32	478	24
2013	309	25	125	2	117	102	68	36	619	29
2014	386	25	133	6	199	70	89	31	807	30
2015	434	12	136	2	246	24	104	17	920	14

Source: Elaboration on Microbirrifici.org.

ucts. This is what most beer firms do and this form would definitely allow big producers, and also large industrial brands, to enter this growing and promising market segment with its own new products. In this case, craft brewing does not guarantee any kind of local dimension in terms of agricultural production, competences, and skills. The entry of these bigger players might thus have major implications for the future of craft brewing in Italy. This looks like a pattern of conventionalisation (that is, craft products more like industrial ones) that may guarantee economic sustainability in terms of market and business orientation, thus of long-term profitability, but, in fact, might also reveal a negative outcome concerning the sustainability of localised supply chains and social and environmental feedbacks.

At the same time, the advent of agricultural breweries may represent the opposite attempt to transform this experience into a profitable activity while still maintaining a real craft dimension, high product heterogeneity and specificity as well as a stronger linkage with the local dimension and environment. While beer firms tend to prefer imported raw materials, it can be stated that where agricultural breweries are present this gives opportunities for local cereal, malt and, maybe, hop production and, therefore, opportunities

for the already mentioned, though still developing, regional supply chains (Fastigi *et al.*, 2015). A further convenience, in this respect, is represented by the fact that such initiatives, given their agricultural and rural relevance, may encounter the interest of regional policies. In particular, the regional Rural Development Plans (RDP) in Italy definitely played a role in supporting these initiatives and will be relevant, as well, also in the current programming period (2014-2020).

Table 2 supports this interpretation of a recent twofold evolution of the sector. In the last five years,<sup>15</sup> after the introduction of the “agricultural brewery” within the Italian regulation, the two most significantly growing typologies are the beer firms and the agricultural breweries. Therefore, though both processes are present, the question is whether we are experiencing an inversion in the re-orientation to market and business of the sectors: more focused on local (and, maybe, sustainable) agricultural production and transformation and less convergent towards the conventional industrial production mode?

Before trying to provide an answer to this question in the following sections, it is worth noticing here a final descriptive piece of evidence about the last years of evolution. It concerns the regional distribution of different microbrewery typologies and the emergence of a degree of geographical/local specialisation in this respect. Figure 1a shows the regional concentration of active microbreweries in Italy, highlighting Lombardy (16,6%), Piedmont (10,4%), Tuscany (8,8%) and Veneto (8,5%) as the four regions with the highest number of production units. This evidence may seem somehow obvious due to the size effect: these are among the largest (in geographical and demographic terms) Italian regions. Nonetheless, as shown in Figure 1a, these regions still form a continuous area in the North-Western part of the country while other large regions in the South (for instance Apulia and Sicily) do not belong to this leading group.

Again focusing attention on the specific segment of agricultural breweries, however, the picture is a little different (Figure 1b). Among the four regions with the highest number of production units we still find Tuscany and Lombardy but also Emilia-Romagna and, above all, Marche. Marche is a relatively small region but still presents the highest number of agricultural breweries among Italian regions with 16 production units. This is not so surprising, as it is the region where the already mentioned COBI consortium was created and is operating. This demonstrates how agricultural breweries are strongly related to the presence of a local supply chain. Also the concentration of production units in the four leading regions is higher in the agricultural brewery case compared to other typologies, at 49% and 43%, respectively.

To get rid of the regional size effect in order to have better representation of the geographical characterisation of the Italian craft brewing experience, it is helpful to express the presence of production units in relative terms. Figure 1c shows the four Italian regions with the highest number of production units per 100.000 inhabitants. It is now clear that the area with the highest presence of microbreweries is not the North-Western part of Italian but the Central-Eastern part. Also expressing the presence of agricultural production units in relative terms provides a different picture. Figures 1d and 1e reports the number of agricultural breweries per 100.000 inhabitants and the share of agricultural

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<sup>15</sup> In 2010, the first year when agricultural breweries were added in the Italian regulation of the sector, there were 28 units.

**Figure 1.** Top four Italian regions for: (a) number of craft breweries, (b) number of agricultural breweries, (c) craft breweries per 100000 inhabitants (Italy = 1.5), (d) agricultural craft breweries per 100000 inhabitants (Italy = 0.17), (e) share of agricultural breweries on total microbreweries (Italy=11%).



Source: Elaboration on Microbirrifici.org. Data refers to the year 2015.

units on total microbreweries, respectively. The four regions with the highest values are the same for both indicators: Marche is by far the first (more than 35% of microbreweries are agricultural units) then followed by two contiguous central regions (Umbria and Toscana) and by a North-Eastern one (Friuli-Venezia-Giulia).

These maps actually reveal that the Italian craft brewing experience has a relevant geographical characterisation. Southern regions are still less active in this respect while the most dynamic areas correspond to that part of the country (the Central and North-Eastern part) with a marked, and widely emphasised, historical experience based on an industrialisation process driven by small and medium enterprises and a strong specialisation in traditional sectors.

There is an overall agreement that the advent of agricultural breweries represents a relevant and positive improvement within the Italian context. From an agricultural perspective, this has become a real alternative for farms' looking for profitable diversification strategies and new market opportunities. In pursuing such strategies, as mentioned, they may have access to the public support delivered by the regional RDPs that

is absent, or much more difficult to obtain, for non-agricultural breweries. Moreover, the local impact of these breweries is higher than non-agricultural ones especially in relation to jobs creation and revitalisation of rural areas and economies. A final, but still relevant advantage of agricultural breweries, would consist in the fiscal advantages acknowledged to this typology by the recent Italian regulation as it is treated as agricultural production and can thus benefit from the special agricultural tax regime. The latter advantages may also be problematic as it might encourage non-agricultural breweries to convert to the agricultural typology or major industrial producers to enter this segment by matching the minimum requisites designated by the current regulation. In fact, the advent of this typology is too recent to already assess whether this risk is real and its possible extent.

From a production point of view, however, an agricultural brewery can take different forms. As mentioned above, the basic requisite for a microbrewery to be considered agricultural is that at least 51% of the cereals used in its beer production must come from the brewery's own cultivation. In practice, there is no other limitation concerning the transformation stage, the plant size and ownership. Gradually, two opposite typologies have emerged. Agricultural breweries that are in fact originally conventional craft breweries that rent land to crop the large enough amount of product to meet the requirements to be considered an agricultural brewery and take advantage of the resulting benefits. On the other hand, there are the farms with conventional cereal production that decide to orient their production towards malt and beer transformation by renting a plant or by delivering its barley to an independent, often collective, production plant (technically, a type of agricultural beer firm). This second typology corresponds more closely to the idea of the local supply chain and to reinforce this link with the local production, collective plants or producer organisations voluntarily reinforce the requirements implied by the regulation. For instance, for a farm to be part of the previously mentioned COBI consortium and to benefit from COBI's trademark "Birragricola" (namely, "agricultural beer"), agricultural breweries must use at least 70% of their own grains.

Therefore, the advent of the agricultural brewery within the original and somehow unexpected Italian craft brewing experience has been hailed as a positive evolution. However, its characters are still largely unknown and its perspective has to be fully understood.

#### *4.2 The survey*

Can we ultimately state that the even more recent "agricultural brewery revolution" is taking place within the recent "Italian craft brewing revolution"? And, if the answer to this first question is positive, what actually characterises this revolution? In other words, what are the differences with respect to non-agricultural craft breweries and to what extent do they open new and more sustainable perspectives in the sector? As anticipated, statistical information is largely lacking regarding this specific phenomenon and it would not in any case capture the deeper aspects such as the motivations and expectations of the new agricultural beer producers. Therefore, to shed light on these aspects, an online survey was launched in 2014, through electronic questionnaires sent to all the active craft beer producers. The aim was to obtain information about their background, their motivations to undertake such a particular activity, their expectations as well as detailed production

information including the origin of the feedstock used in the beer production and preferred distribution channels<sup>16</sup>.

The questionnaire was designed to gather first-hand information on craft brewers work history, time spent homebrewing as a hobby before starting their own private brewery, business strategy and expectations about the future of the sector. Last but not least, special attention is paid to the potential of this phenomenon in terms of generating local development which is also economically, socially and environmentally sustainable. The questionnaire was sent to the 604 microbrewers registered as active by May 2014 (in the web portal Microbirrifici.org) and was completed by 325 units, with a response rate of 53.81%. These 325 producers can be considered a representative sample of the whole population of Italian craft beer producers. The distribution across the four different typologies (Table 3) and across regions within the sample is very close to the same proportion within the population. As expression of the most recent growth of the sector, only 11.4% of the sampled breweries were founded before 2005. Of the other 88.6%, 23.4% were founded between 2005 and 2009, 65.2% between 2010 and the end of 2013.

By distinguishing the respondents by the year of foundation some significant differences emerge in terms of the origin of their choices to enter this market, *i.e.* their motivations and expectations. Table 4 compares the two groups of respondents (founded before and after 2010) with regards to some survey questions<sup>17</sup>. It emerges that “new” breweries are more business oriented as their entry choices is less dependent on previous homebrewing amateur experience and resulting more from a strategic choice concerning their activity. Also the context is new as these new entrants expect a more intense growth in production, thus more competition and lower prices. Nonetheless, differences among the two groups are not so large and do not apparently express a real change within the sector or post-2010 “revolution”.

In fact, if a post-2010 “revolution” within the Italian craft brewing sector really occurred, this should be attributed to the advent of agricultural breweries. Therefore, to

**Table 3.** Composition of the sample (breweries that responded to the survey) compared to the population by typologies.

	Sample (respondents)		Population	
	No.	%	No.	%
Craft breweries	171	52.6	297	49.2
Brew Pubs	58	17.9	125	20.7
Beer Firms	67	20.6	118	19.5
Agricultural breweries	29	8.9	64	10.6
Total	325	100.0	604	100.0

<sup>16</sup> For more details on the sample see also (Fastigi, 2015; Fastigi *et al.*, 2015). The complete survey results are available upon request.

<sup>17</sup> Those with more significant differences between the two groups are reported. The whole comparison is available upon request.

**Table 4.** Comparison of survey responses between breweries founded before and after 2010 (%).

	<2010	2010-2013
<i>What are the main reasons that made you want to become a craft brewer?</i>		
Passion	44.3	41.5
Search for quality	18.4	20.3
Willingness to experiment	17.9	18.5
Strategic choice (business opportunity or production diversification)	13.0	15.3
Others	6.5	4.4
<i>What do you expect as far as the production and number of breweries, in Italy, in the next five years?</i>		
> production and breweries	53.9	65.7
> only production	24.4	21.9
Other	21.7	12.4
<i>What are the expectations of the average price of craft beers in Italy in the next five years?</i>		
Increase	25.2	26.0
Stable	30.6	30.3
Decrease	38.7	40.4
I don't know	5.4	3.4

assess whether these new entrants eventually determined a significant change in behaviours, motivations and expectations, the relevant comparison of the answers to the survey has to be made between agricultural and non-agricultural production units. In particular, here we want to assess, in sequence, whether differences have emerged regarding structural characteristics, motivations and expectations and, consequently, production and marketing choices.

Table 5 highlights some of the main differences emerging from the survey among the two groups. While the owner's age is the same (about 40 years), their experience in the sector is different. Agricultural breweries' owners more frequently than others (34.3% and 23.7% respectively) come from a former experience in the beer sector or in somewhat similar activities, like wine or spirits production. This could suggest that agricultural breweries are often strategic choices in terms of activity diversification and business re-orientation of already existing professional activities. This would find further confirmation in the higher presence of previous amateur and home-brewing experience among the non-agricultural commercial breweries compared to agricultural ones (77.4% and 55.2% respectively). Nonetheless, these characteristics highly vary within the two groups and when a mean-comparison test (t-test) is performed, the results indicate a not statistically significant difference between agricultural and non-agricultural microbreweries.

With regard to production and economic size, however, the difference between the two groups emerges more clearly. Among non-agricultural breweries we find on average activities with a lower number of employees, production and revenue compared to agricultural ones. The latter, in particular, show an average production level in 2013 which is more than double the average production levels of non-agricultural breweries. The mean-

**Table 5.** Structural characteristics: comparison between survey responses of agricultural and non-agricultural breweries (% of responses).

	Agricultural breweries	Non-agricultural breweries
<i>Owner's age</i>	39.8	39.6
Two-group mean-comparison test (t test)	-.047	
<i>Former working experience of the owner in the beer, wine, spirits' sector</i>		
Yes	34.5	23.7
No	65.5	76.3
Two-group mean-comparison test (t test) a	-1.151	
<i>Did the owner homebrew before starting the commercial craft brewery?</i>		
Yes	55.2	77.4
No	44.8	22.6
Two-group mean-comparison test (t test)a	.628	
<i>Number of employees</i>		
None	41.4	54.7
1-3	37.9	27.3
4-5	6.9	8.3
>5	13.8	9.7
Two-group mean-comparison test (t test)b	.104	
<i>Beer production - 2013 (hl)</i>		
	1.357	564,6
Two-group mean-comparison test (t test)	2.173*	
<i>Revenue - 2013 avg. (€)</i>		
<50.000	27.3	42.7
50.000-100.000	22.7	15.5
100.000-250.000	18.2	20.5
>250.000	31.8	21.3
Two-group mean-comparison test (t test)c	1.267	

<sup>a</sup> The test is computed on the dichotomous variable: Yes = 1; No = 2.

<sup>b</sup> The test is computed on the polytomous ordered variable: 1 = None; 2 = 1-3; 3 = 4-5; 4 => 5.

<sup>c</sup> The test is computed on the polytomous ordered variable: 1 =< 50.000 €; 2 = 50.000-100.000 €; 3 = 100.000-250.000 €; 4 => 250.000 €.

\* Statistically significant at 0.1 level.

comparison test concludes that, at least in terms of production volumes, agricultural microbreweries are statistically bigger than non-agricultural ones.

A further evidence on the difference between agricultural and non-agricultural breweries has emerged within the Italian brewing sector in the last few years and concerns the differentiated production and marketing choices. This evidently depends on the already mentioned restrictions agricultural producers must meet in order to be considered agricultural breweries. But again, differences go beyond this and they are linked to a stronger business orientation of agricultural breweries. Table 6 compares some responses concerning the production and marketing choices. Their larger size and stronger business orienta-

**Table 6.** Production and marketing choices: comparison between survey responses of agricultural and non-agricultural breweries (% of responses).

	Agricultural breweries	Non-agricultural breweries
<i>% of sales within the region?</i>	67.5	70.2
Two-group mean-comparison test (t test)	-0.397	
<i>% of sales in different channels?</i>		
Direct selling	23.1	38.0
Specialised retailers	69.4	58.0
Large-scale retailers	5.2	1.9
Web	2.3	2.1
Two-group mean-comparison test (t test) <sup>a</sup>	-2.169*	
<i>How do you evaluate the quality of Italian malts</i>		
Good	88.9	31.3
Medium	7.4	22.6
Poor	3.7	46.2
Two-group mean-comparison test (t test) <sup>b</sup>	-3.290*	
<i>Do the conditions to produce barley for beer in Italy exist?</i>		
Yes	96.4	79.3
No	0.0	7.6
I don't know	3.6	13.1
Two-group mean-comparison test (t test) <sup>c</sup>	-1.917*	

<sup>a</sup> The test is computed on the % of sales in specialised retailers.

<sup>b</sup> The test is computed on the polytomous ordered variable: Good = 1; Medium = 2; Poor = 3.

<sup>c</sup> The test is computed on the dichotomous variable: Yes = 1; No = 2.

\* Statistically significant at 0.1 level.

tion justifies why agricultural breweries sell a slightly larger proportion outside the local (regional) market and tends to exploit more retail channels (both specialised and large-scale retailers) rather than rely on direct selling. In particular, this latter aspect is statistically different (mean-comparison test) between the two groups.

Beside market orientation, however, the main difference between the two typologies implied by the regulation concerns the feedstock, that is, cereal production, its provision and perception about quality. Considering the lack of a beer tradition in Italy (in most of the country), it is not surprising that Italian beers are mainly produced with imported malted cereals, from countries such as Germany or the United Kingdom, which, thanks to their tradition, have an undeniable competitive edge in terms of quality and price. The results of the questionnaire confirm this, showing that Italian non-agricultural microbrewers buy a very high percentage of their raw materials abroad (more than 90%) while this is evidently not possible for agricultural breweries where feedstock supply coming from abroad is just around 11%. This generates a major difference regarding the creation of a good quality local supply chain: most agricultural brewers are convinced that in Italy there are conditions for a national and local provision of cereals and malt to produce good

quality beer. This confidence is significantly lower among non-agricultural producers as confirmed by the mean-comparison tests.

On the one hand, this “agricultural side” of the craft beer revolution offers a great opportunity to increase the share of cereals cultivated within national borders (and the variety of supply), as well as to reduce the environmental impact of international transport of cereals from abroad. In this context, the exploitation of Italian barley would represent an interesting opportunity to add value to beers that are the result of skills, creativity and passion, thus responding to differentiated consumption behaviours, interested in local productions and cultures. On the other hand, the creation of a local supply chain linked to agricultural breweries does not limit their market penetration.

#### 4.3 A quantitative assessment of expectations formation

Of major interest here is to assess whether these differences between the two typologies with regards to structure, size and marketing choices might lead to substantial differences also in terms of motivations and expectations concerning the craft brewing business. Table 7 compares some survey answers and supports this argument. Passion remains the most considerable factor in deciding to launch a craft beer business in both cases: 43.5% owners of non-agricultural microbreweries and 32.1% of agricultural ones responded that they started producing craft beer because they wanted to transform a passion into a job opportunity. The search for quality and desire to experiment different beer styles are significant factors as well, but less for agricultural producers. For the latter, on the contrary, a very relevant motivation (25% of the respondents) is the search for business opportunities and making a consequent strategic choice to re-orient the farming activity.

In addition to motivations, expectations also seem to differ. Most respondents declare optimistic expectations for the future concerning the enhancement of the cultivated area dedicated to feedstock for beer production, higher number of producers and overall volume of production. Agricultural breweries, however, show less optimistic, or more realistic, expectations: both feedstock and beer production is going to increase but the number of breweries will not. As a result most agricultural producers expect a price decrease, whereas non-agricultural microbreweries still trust in a price increase.

The apparently different motivations and expectations emerging from Table 7, however, provide just a qualitative evidence that can be hardly interpreted as an indisputable difference between agricultural and non-agricultural microbreweries. In order to more formally assess this different attitude, the answers provided on the expectations about the evolution of the sector have been used to construct an ordered categorical variable. Three questions have been considered: expectation about production volumes; expectation about prices; expectation about the quality of Italian barley and malt production. For the generic  $i$ -th microbrewery the ordered variable  $EX_i$  takes the following values:  $EX_i = 0$  when the expectation is negative for all the three questions (no production increase, no price increase, no quality improvement);  $EX_i = 1, 2$  or  $3$  when the expectation is positive for 1, 2 or all 3 aspects, respectively. As the microbreweries taking value  $EX_i = 3$  are very few (just 2 units), values 2 and 3 have been collapsed into a unique value. Thus, the adopted ordered variable takes the following values:  $EX_i = 0, 1, 2$ .

**Table 7.** Motivations and expectations: comparison between survey responses of agricultural and non-agricultural breweries (% of responses).

	Agricultural breweries	Non-agricultural breweries
<i>What are the main reasons that made you want to become a craft brewer?</i>		
Passion	32.1	43.5
Search for quality	14.3	20.2
Willingness to experiment	12.5	18.9
Strategic choice (business opportunity or production diversification)	25.0	0.0
Others	16.1	17.5
<i>In Italy in the next five years, will the quantity of cultivated barley for craft beer production increase?</i>		
Yes	67.9	65.2
Not much	32.1	33.8
I don't know	0.0	1.1
<i>What do you expect concerning the production and number of breweries in Italy in the next five years?</i>		
> production and breweries	60.7	63.9
> only production	32.1	23.4
Other	7.1	12.7
<i>What are the expectations of the average price of craft beers in Italy in the next five years?</i>		
Increase	10.7	27.2
Stable	21.4	31.3
Decrease	67.9	37.1
I don't know	0.0	4.5

This categorical variable is then entered into a ordered logistic regression model (Ordered Logit) whose determinants (i.e., the independent variables) are selected characteristics of microbreweries presented and discussed in previous sections: the geographical location of the microbrewery expressed by a geographical gradient (an increasing variable moving from Northern to Southern provinces; Torino province takes the lowest value, Siracusa province takes the highest value); the age of the entrepreneur; the age of the microbrewery; the typology (a dummy taking value 0 for non-agricultural breweries and 1 for agricultural ones); the production level (hl/year); the % of sales within the region; the % sales in specialised shops.

Table 8 reports the Maximum Likelihood (ML) estimation of this Ordered Logit model (Cameron and Trivedi, 2005). Rather than reporting the estimated coefficients, the table reports the respective marginal effects as they can be directly interpreted as the increase of the probability to be associated to a given option induced by a unit increase of the inde-

**Table 8.** Ordered Logit estimation: conditional marginal effects for the 3 options (estimated standard errors in parenthesis).

	option 0 (N=36)	option 1 (N=205)	option 2 (N=84)
Geographical gradient N-S	-.0059* (.0030)	-.0058* (.0029)	.0116* (.0060)
Age - Entrepreneur	.0014* (.0008)	.0014* (.0010)	-.0028* (.0016)
Age - Brewery	.0032 (.0044)	.0030 (.0044)	-.0062 (.0088)
Agricultural microbrewery (dummy)	.0122 (.0231)	.0121 (.0232)	-.0243 (.0461)
Production (hl/year)	.0001 (.0001)	.0000 (.0001)	-.0001 (.0001)
% sales within the region	-.0037 (.0033)	-.0036 (.0030)	.0073 (.0065)
% sales in specialised shops	-.0058* (.0023)	-.0055* (.0020)	.0113* (.0052)

\* Statistically significant at 0.1 level.

pendent variable.<sup>18</sup> Extreme options (highly pessimistic and highly optimistic breweries) collect a lower number of observations compared to the intermediate one. Nonetheless, in all options numerosity is enough to identify some statistical significant determinant.

The estimation results emerging from Table 8 suggest that expectations formation is significantly affected by three major factors: the geographical location; the age of the entrepreneur; the selected supply chain with the consequent marketing strategy. More positive expectations are found moving from Northern to Southern provinces and in young producers. Moreover, expectations are also higher for microbreweries with a higher share of sales to specialised shops so, arguably, with a stronger attention to the quality and specificity of their products.

On the contrary, the microbrewery typology does not seem to have a significant impact; in other words, expectations do not significantly differ between agricultural and non-agricultural breweries. The size and the age of the microbrewery do not significantly affect expectations, too. In fact, for all these variables the sign of the marginal effects would rather suggest that less optimistic expectations can be found in older and bigger agricultural microbreweries. It is worth noticing that these results differ from what emerged in previous studies about the main determinants of craft brewing dynamics in Italy (Esposti *et al.*, 2017). While agricultural breweries definitely represented a major engine in the recent boom of the sector in Italy and this rapid growth did not show a major geographical characterisation, the expectations about the future evolution of the sector are more affected by the location rather than by the typology.

## 5. Conclusions

This article aims at investigating the evolution of the new and strongly increasing phenomenon of production and consumption of craft beers in Italy. Although microbreweries are often seen as a niche sector within a market ruled by industrial mass producers,

<sup>18</sup> Coefficient estimates are available upon request. An Ordered Probit estimation has also been performed. Results are qualitatively very similar but with lower statistical quality. These further estimation results are available upon request.

the so-called craft brewing “revolution” is triggering interesting transformations in several contexts with possibly significant reverberations in terms of sustainable local development. Regarding this latter aspect, the Italian case shows an interesting peculiarity. It consists in the emergence, in the last five years, of a highly dynamic and particular segment, that of agricultural breweries.

The empirical analysis confirms that the advent of this new typology is significantly affecting the evolutionary trajectories of a still infant sector in Italy. Above all, it changes its long-term perspectives in terms of economic and socio-environmental sustainability. As a matter of fact, since the mid-nineties the Italian craft brewing “revolution” has been strongly dependent on amateur and home-brewing forms (the so-called “knowledge productive leisure” – De Solier, 2013), that then moved into commercial production. This origin explains the enthusiasm and the creativity that characterises the Italian experience but it may also reveal unsustainable aspects in the long term. The small microbreweries’ size, their “naivety” as well as their dependence on imported feedstock and competences, may jeopardise their competitiveness in both domestic and foreign markets. The survey carried out and discussed, however, demonstrates that agricultural breweries are themselves “revolutionising” the sector with regard to these aspects. Their larger size, business orientation, creation of local supply chains, but also their more realistic attitude towards the real evolutionary potential of the sector may represent a real opportunity for the longer-term success of the Italian craft brewing industry.

The role of policies is also critical in this respect. On the one hand, it has been crucial for the birth of the Italian craft beer sector (Legislative Decree No. 504, 1995) and, in particular, of agricultural craft breweries (Ministerial Decree No. 212, 2010).<sup>19</sup> On the other hand, however, a further selective support is now expected for this latter typology, especially because of their potential in helping developing rural territories and their long-term sustainability. In particular, the creation of local supply chains, from the cultivation of barley to its transformation into malt, seems a major target for agricultural and rural policies. This seems of strategic relevance not only to reduce dependence on foreign imports (and, consequently, limiting the environmental impact of transport activities) but also to create economic opportunities for micro malt houses which, in turn, might even differentiate and innovate their malt production and trigger the research and development of new dedicated varieties of Italian malting barley (Anderson, 2013). On these opportunities and on the role of policy and regulation in this respect deeper investigations and further research are expected in the future.

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<sup>19</sup> The new legal definition of artisanal beer (Disegno di Legge S 1328-B, article 35), approved by the Italian Parliament 20 years after the birth of the sector, is the evidence of the greater and greater regard that this phenomenon has generated among the public.

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