REA | ITALIAN REVIEW OF AGRICULTURAL ECONOMICS

Firenze University Press
www.fupress.com/rea

Citation: Francesco Scalamonti (2021) Bottled Water Industry: a quantitative study approach. *Italian Review of Agricultural Economics* 76(2): 31-44. DOI: 10.36253/rea-13095

Received: October 2, 2020

Revised: January 19, 2021

Accepted: June 7, 2021

Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Competing Interests: The Author(s) declare(s) no conflict of interest.

Bottled Water Industry: a quantitative study approach

Francesco Scalamonti

Gubbio, Perugia, Italy

Abstract. This paper is a survey of the Italian bottled water industry that with quantitative approach relates the consumes or operative volumes of mineral water market based on the middle trend of temperatures, the consumed income per-capita and the trend of the population. We present the weight-OLS models for four macro-markets – north western, north eastern, centre, southern – on the data of the Bevitalia survey and the ISTAT-Time Series dataset from 1980 to 2020. The results confirm that the operative volumes depend positively and significantly on itself lagged by one order and the other explicative variables up cited. However, the study not consider other important correlated industries as soft drinks or flavoured waters. In addition, the analysis could be more indepth at the level of regions, provinces and municipalities, or for case-study whit a qualitative approach. In conclusion, the study captures the market dynamics of the industry at long-term, and it brings to the attention of managers, researchers and business economists an industry much important for socio-economic implications and environmental impacts that can cause the consumption of bottled water that policy makers cannot afford to ignore.

Keywords: bottled water, quantitative study, sustainable development.
JEL codes: C51, L10, L66, M21.

1. INTRODUCTION

The drink water[1] or for human consumption is the most precious common good found in nature, a source of life but also a cause of war in many parts of the world. The well-known problem of water scarcity and climate change triggered by globalisation have led to a reconsideration of this important issue also in the debate of economists and beyond (Nanni, Prodi,

[1] The drink water is that which, as found at the spring, is bottled and placed on the market in compliance with Legislative Decree 105/1992 and its subsequent amendments and additions – Legislative Decree 339/1999, Legislative Decree 176/2011, and the Decrees of the Ministry of Health on food safety. The industry is subject to a complex and fragmentated normative to protect consumers, reviewed on several occasions and in different historical periods (Amorosino, 2009; Enrichens, 2018). Thus, the law definition of the good is also important into public law of economy, because the drink water is part of the public and unavailable property of the State (Mattei *et al.*, 2007; Rodotà, 2018). The code ATECO (2007) of industry identification is: *C - Manufacturing activities*; *11.00 - Beverage industry*; *11.07 - Soft drinks, mineral water and other bottled water industry*, with specific reference to bottled mineral water production.

2008; Parag, Opher, 2011; Caniglia *et al*., 2012; Collins, Wright, 2014; Carlucci *et al*., 2016; Enrichens, 2018; Lee *et al.,* 2019; Lee *et al.,* 2020).

The mineral bottled water business could be said to exemplify the modern global economy and some studies have focused on (Gironi, Piemonte, 2010; Niccolucci *et al*., 2011; La Moreaux, Tunner, 2012; Torretta, 2013; Kajtazi, Reshidi, 2018; De Marchi *et al.,* 2020), while few studies considered management and governance implication for the firms (Disanto *et al*., 2007; He *et al*., 2008; Caniglia *et al*., 2012; Carlucci *et al*., 2016; Bal, Oraman, 2019).

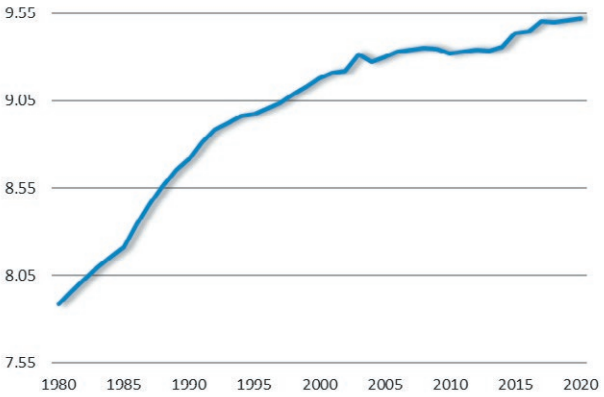
This study starts from these brief considerations to try to increase the debate among scholars of business economics and management on the topic of the marketing of bottled water, now of increasing interest in all markets (Fhelboom, Brika, 2020; Abdah *et al.,* 2020; Mahmood *et al.,* 2020).

The issue of water is certainly a matter of great importance and of general interest today, no longer confined to developing countries or linked to hydrogeological desertification conditions, but which must also be assessed on the basis of climatic impacts. The relationship between climate change and the uses of the resource leads us to investigate the possible causes of its wastage. In other words, bottled water is also under attack for its relatively high impacts on the environment and consumer prices (Gleick, 2010). Given its free availability in nature but not unlimited drinking water found in nature is a common and public good, but its bottle distribution is in the hands of a few dealers, creating thus the premises for the industry concentration and enforcement substantially high average prices per litre to bottled water (Spar, Bebenek, 2008; Marty, 2020).

Since the nineties, Italy has become the first country for bottling and for consumption of mineral drink water (ISTAT, 2020; Bevitalia, 2020). The graph in Figure 1 is the trend of operative volumes of bottled mineral water market from 1980 to 2020.

In the others hands, this is a representation of the industry life cycle (Vernon, 1966; Hymer, 1972) who since the 1990s has entered the shake-out stage and then the maturity stage. Therefore, the most appropriate form of market at these stages is monopolistic competition where weaker competitors are expelled and potential entrants find barriers to entry, which are structurally high for this industry. Consumers then make their purchases more selectively and the operating volumes of incumbent firms can slow down. It is therefore becoming more difficult for them to increase market shares and they must fight to maintain their position, including in international markets.

Fig. 1. The life cycle of bottled mineral water industry, log-values.



Source: reconstruction on Bevitalia survey.

The growth of purchases of bottled mineral water is attributable in sum to at least three qualitative factors (Hawkins, 2017): *(i)* the use of polymers in packaging, with significant savings for enterprises, but certainly a cause of environmental disease, *(ii)* a greater consumer focus on their health and a healthier lifestyle, *(iii)* a careful strategy of brand differentiation by firms, who are very careful in finding the most suitable levers of operative marketing. On the other hand, from a quantitative point of view they could depend, at instance, on the willingness of individuals to spend money and their consumption styles or even on the climatic situation of the period that binds to the need for water necessary to the organism, thus modifying the amounts of water needed.

Therefore, the purchase of bottled mineral water respect to consume tap water is now well structured and cross-structured by income groups, ages and geographical areas for several decades now (Ferri, 1999; Raspadori, 2002; Bevitalia, 2020). Just think that Italy is the first European country for consumption of bottled mineral water and exported volumes.

Italy is a country rich in water resources but where there is also a great differentiation between regions in the north, centre and south as regards the relative abundance of resource, access to markets and distribution networks. Umbria, at instance, according to its hydrogeological conformation and the particular orographic conditions of the soil is very rich in water. In another way, Umbria is the Italian region leading in consumption (ISTAT, 2020), and where several firms and groups are located: Cogedi, owner of established brands such as Oliveto and Rocchetta; Motette, one of the best performing groups in the industry (Competitive Data, 2020), and Siami, with a growing production (Bevitalia, 2020).

The bottled mineral water industry in Italy creates an interesting market and with important employment implications. Therefore, in the industry whose production has constantly grown there are some leader brands that are in the high price ranges and that have a good distribution capacity, both in domestic and foreign markets.

The paper has been structured in this way: *(i)* a part in which an expositive survey of the literature and the dynamics of the industry are reported, *(ii)* follows the presentation of empirical analysis and results, ultimately, *(iii)* in the conclusion we report considerations, limitations, future lines of research and policy implications.

2. AROUND THE DYNAMICS OF BOTTLED WATER INDUSTRY

Water has become in the last hundred years from a free, accessible and necessary natural resource to all one of the most marketable products and a profitable business for firms in the industry (Gleick, 2010). In economics, two goods are interchangeable if they meet similar needs to the same extent, such that an increase in the price of one causes an increase in demand from the other, whit the choice of the consumer being based mainly on the price convenience between the two goods (Katz *et al*., 2020). Although these conditions may apply to bottled and tap water, on closer examination these hypotheses must be considered rather fallacious because the consumption of bottled water does not depend strictly on the price of the tap and vice versa.

Generally, the consumption of bottled water increases with increasing per capita income (IBWA, 2019) and the price can be increased by up to about five hundred times compared to the cost of tap water (Ferrier, 2001). Therefore, drinking bottled water is more a reflection of a wealthy lifestyle, and generally, it is perceived as a healthy or safe consumption due to the investments in communication and marketing of bottling firms of the industry (Disanto *et al*., 2007; He *et al*., 2008; Caniglia *et al*., 2012; Carlucci *et al*., 2016; Bal, Oraman, 2019).

Consumer choice then appears more complex and depends on additional factors (Lancaster, 1966), which go beyond the sole satisfaction of thirst or comparison between prices of competing brands (Abrahams *et al*., 2000; Wilk, 2006; Doria *et al.,* 2009; Hu *et al*., 2011; Del Giudice *et al*., 2016; Biro, 2017; Capehart, Berg, 2018). Thus, defining two goods in this industry as interchangeableis by no means a foregone conclusion, and this is particularly true for mature markets or in those where the mean quality of tap water is not so lower than that of bottled water. In fact, another aspect not to be overlooked is that the consumption of tap water would exist regardless of the consumption of bottled water precisely because of the other uses that are made of this resource.

The bottled water market, not by chance, is the example taken by Cournot to describe its model of oligopoly, where the marginal cost of production – practically given by that of the bottle alone – and the sunk costs of starting the business are represented by the only fee paid for the use of the resource (Sutton, 1991; Carlton, Perloff, 2005; Laino, 2013; Cabral, 2018). Thus, in front of the cost structure of the firms and the profit margins that expect, the industry is certainly very attractivity for those firms that are manage to enter. For these reasons, it is a very good business opportunity.

The industry is characterised by barriers to entry, as the authorisation of regional government for the exploitation of water resources is required (Nicoletti, Fredella, 2005). In addition, incumbents may decide to lower sales prices at least to the level of the total middle cost of production of the newcomer, therefore, it will have to operate below the minimum efficient production scale represented by its marginal cost (Archibald, Rosenbluth, 1975; Salop, 1979; Dixit and Stiglitz, 2001).

The potential of the market has also attracted the big international corporations such as Nestlé, Danone, Coca-Cola – present in the industry through their own commercial divisions or marketing agreements – which together with the major Italian groups increase the competition (Brei, Tadajewski, 2015; Brei, 2017). Thus, the market has entered the maturity stage of its life cycle and competitive pressures on enterprises intensified (Mascha, 2006; Clarke, 2007; La Moreaux, Tunner, 2012). By the way, water is the main input for the production of soft drinks and this makes the two industries related and vertically integrated (Galizzi *et al*., 1997; Senauer, Venturini, 2005).

Concentration processes in the industry began in the seventies, when firms start competitive strategies of horizontal growth and marketing differentiation (Balliano, Lanzetti, 1976). The competitive structure of the industry has now been consolidated with a level of concentration that anyway is not negligible (Bevitalia, 2020). Mineral water is a market composed of a heterogeneous productive system, which includes large groups and firms with a territorial characteristic. The first are able to invest in internationalization processes – now more necessary than ever to escape the stagnation of internal markets – the second are conditioned by the local market and usually have a poor marketing vocation. Therefore, these are the firms that suffer most from the raising

of barriers to the entry of the industry due to the marketing sunk costs of the bigger competing firms.

In other words, the bottled water market has entered a stage of maturity, in which the leaders are the ones that manage to guarantee high operating volumes and that have the financial resources to invest in marketing activities. Finally, this has repercussion on the structure of the industry and it is to the detriment of small competitors who, despite having the same peculiarities as the other firms in the industry in terms of productive plants, however, fail to reach satisfactory market shares.

Therefore, sunk costs both economic and bureaucratic necessary for the start of the water mining and bottling in an appropriate plant near the source are a natural barrier to the entry of new firms into the industry. This means that incumbent firms can increase market share through merger and acquisition operations. In such a market, the gap between middle production costs and middle revenues is very wide, thus retail and marketing costs are spread over higher operative volumes. Firms with higher operative volumes can benefit from an impact of the middle retail cost on the middle total cost of production lower as a result of economies of scale, and at the end, they apply lower prices than their competitors (Bliss, 1988; Corstjens *et al.*, 1995; Sciarelli, Vona, 2000; Bolton, Shankar, 2003; Kopalle *et al.*, 2009; Biffignandi, Church, 2012; Ceccacci, 2013).

The competitive tension in the industry is justified by the fact that all the supply is aimed at the satisfaction of the same need, which is the supply of water to the organism. In this sense, horizontal differentiation of the production is fundamental to competitive strategies of the firms and the affirmation of the symbolic qualities of the product (Porter, 1985). In other words, it is about the perception that consumers have of the product. Thus, in the market can be found a multitude of brands and bottles (Gruber, 1994; Dube, Manchanda, 2005; Disanto *et al.*, 2007; Dolnicar *et al.*, 2014; Carlucci *et al.*, 2016; Bal, Oraman, 2019). In general way, the bottle and packaging are the constituents of the positioning of mineral water, which from a primary good for the satisfaction of a physiological need, it undergoes a process of sophistication that gives it new meanings, especially thanks to the proliferation of marketing activities that have made possible new forms of packaging, promotion and consumption (Finlayson, 2011; Twede, 2012).

The real discriminators for firms are marketing investments and transport costs. Therefore, consumers may prefer to purchase locally sourced water, because of the less impact they would have on its final price (Lambin, 2012; Kotler *et al.*, 2012; Caniglia *et al.*, 2012; Capehart, 2015; Carlucci *et al.*, 2016; Mundel *et al.*, 2017; Bal, Oraman, 2019). However, this does not, affect the movements of the stocks of bottled water on the national territory, and the exports absorbs a not insignificant share of the operative volumes of the major enterprises in the industry (Bevitalia, 2020).

Ultimately, globalisation has certainly increased competitive pressures that weigh on management and corporate governance (Ferrucci, 2000; Milgrom, Roberts, 2005; Volpato, 2010; Hamilton *et al.*, 2011; Bosi, Trento, 2012; Gibbons, Roberts, 2013; Tunisini *et al.*, 2014; Grant, 2016; Golinelli, 2016; Sciarelli, 2017; Ferrucci, 2019), but it also represents for decision makers who manage to catch the benefits one a chance for extend the business into new markets (Chakrabarti 2011; Brouthers 2012; Matarazzo, Resciniti 2014; Cantele, Campedelli, 2016; Ruzzier *et al.*, 2017; Bannò *et al.*, 2018; Scalamonti, 2020a), such as those in the near Middle East or the Mediterranean countries of Africa (Ferrucci, Paciullo, 2015; Scalamonti, 2020b), or in Southern Asianand Eastern Europe – however already manned of the firms – in which the emergence of the middle class shifted the general consumption preferences towards more western styles (Wang *et al.*, 2000; Kim *et al.*, 2002; Florida, 2005; Lin, Wang, 2010; Vescovi, 2011; Guercini, Runfola, 2016; Neacşu, 2017). For many Southern Asian countries, the tap water is considered not safe especially for those who are not locals, at instance, the Middle East is characterized by consolidated bottled water consumption, with Turkey being by far the biggest consumer of bottled water in the region, which does it the more developed market and most easily accessible by firms in the industry (Akpinar, Gul, 2014). On the other hand, Africa has a constellation of emerging markets, but Latin America and Oceania also have growing consumer markets (IBWA, 2019; Kansole, Beidari, 2020).

3. EMPIRICAL ANALYSIS

From a macro perspective there has been a rise of the bottled water industry in both developed and emerging markets (Patsiaouras *et al.,* 2015; Howell *et al.,* 2020). At instance, Cohen *et al.* (2017) recently conducted a quantitative study to investigate predictors of bottled water consumption in China. Their results show that bottled water purchases are influenced by the mean age of the household, the mean level of education, a fairly high consumed income and the male gender component.

Therefore, to influence the purchases of bottled mineral water and the development of this market there are a whole range of socio-economic and cultural factors as ethnic group, age, income, employment, gender, but pur-

chasing patterns can vary by country or region (Abrahams *et al.*, 2000; Wilk, 2006; Doria *et al.,* 2009; Hu *et al.*, 2011; Del Giudice *et al.*, 2016), while, less important seem to be the health properties of the water or the organoleptic properties shown in the labels (Carlucci *et al.*, 2016; Biro, 2017; Capehart, Berg, 2018; Bal, Oraman, 2019).

3.1. Research question, methodological note and results

This study uses quantitative explicative variables to investigate the determinants of the operative volumes of bottled mineral water, which is an industry that operates just-in-time and in which market demand asks to face the peaks due to seasonality, or which depends on other seasonal factors such as incremental consumption due to the tourist presence.

Therefore, the research questionis as follows: *are which determinants can explain purchases of bottled mineral water in Italy?*

We use aggregated data for ISTAT macro-markets: north-western, north-eastern, centre and southern with islands. Therefore, in reference to survey of literature, for explain the operative volumes of the bottled mineral water used: *(i)* the same dependent variable with one order of lag, which can be a measure of consolidated consumption style, according to the assumption that to influence the purchase at the time t there are implicitly marketing investments of the firms, *(ii)* the trend of the middle temperatures of the period which was reconstructed using a barycentric value for each macro-markets - the two most important chief city, *(iii)* the trend of population in the markets, and *(iv)*the consumed income per-capita.

The time series data on the operative volumes of bottled mineral water from 1980 to 2020 were reap and reconstructed by integrate the Bevitalia survey, while the other data were taken from ISTAT-Time Series dataset. In Table 1 we report the main panel descriptive statistics of the log-variables. The H_θ indicator is a measurement that we present to seepanel heterogeneity[2], which we find in mean not to be high. For the mean of the groups is 0.02 and for their standard deviation is 0.15.

In Table 2 we report the statistical associations at panel level for regressors, which show that there may be a not insignificant problem of autocorrelation between variables, such that, we decided to model the variance of the cross-sectional type sample using a weight-OLS regression model. Therefore, with weights based on the estimated variances of regression errors and model convergence for maximum likelihood after iterations. In this way, we catch the heterogeneity not observed using the dichotomous variables that identify the four macro-markets and that stabilize the parameters, then submitted to regular significance test. With this technique we have the dual advantage of estimating efficient parameters even in the presence of correlation between the regressors and of being able to control any other effects induced by omitted variables. The parameters are estimate with Gretl open-source statistical software.

The model with the control for the four macro-markets dummies, which are not significant and whose effects are very similar to each other, produces more efficient estimates after taking the individual effects.

It confirms the assumption behind the growth of the operative volumes of the bottled mineral water. Therefore, markets feed their growth over time, but they are also positively correlated mainly to the trend of middle

Tab. 1. The main descriptive statistics of log variables.

	Operative volumes	Temperature trend	Consumed income per-capita	Population trend
μ	7.554	2.748	4.568	7.240
σ_w	0.485	0.051	0.584	0.034
σ_b	0.301	0.083	0.000	0.301
min	6.190	2.551	3.050	6.941
Max	8.438	2.909	5.129	7.646
Unit	4.000	4.000	4.000	4.000
Obs	41.000	41.000	41.000	41.000
Std	litre	°C	Euro	unit
Source	Bevitalia	ISTAT-TS	ISTAT-TS	ISTAT-TS

Source: our elaboration.

Tab. 2. The correlation between variables used in regression models.

	Operative volumes	Temperature trend	Consumed income per-capita	Population trend
Operative volumes	1.000			
Temperature trend	0.609***	1.000		
Income per-capita consumed	0.872***	0.416***	1.000	
Population trend	0.546***	0.519***	0.075	1.000

Source: our elaboration.

[2] It was calculated as:

$$H_\theta = \frac{1}{N_i N_j} \sum_{i=1}^{N} \sum_{j=1}^{N} \left| \frac{\mu_\theta - \theta_{ij}}{\mu_\theta} \right|$$

Tab. 3. The regression model.

	Model 1	Model 2	Model 3
	Operative volumes		
Operative volumes (t-1)	0.763*** (0.040)	0.796*** (0.040)	
Temperature trend	0.213*** (0.054)	0.052* (0.028)	0.113** (0.057)
Consumed income per-capita	0.146*** (0.034)	0.125*** (0.034)	0.783*** (0.007)
Population trend	0.166** (0.079)	0.192*** (0.041)	0.984*** (0.017)
North-Western effect	−0.610 (0.506)		
North-Eastern effect	−0.630 (0.485)		
Centre effect	−0.652 (0.488)		
Southern effect	−0.624 (0.525)		
Constant		−0.532*** (0.167)	−3.460*** (0.131)
Standard error	0.023	0.024	0.050
Log-likelihood	378.079	372.617	261.962
LR-test (p-value)	(0.857)	(0.984)	(0.997)
Convergence iterations	3	2	2
Not observation (%)	*4 (2)*	*4 (2)*	-
Observations (%)	*160 (98)*	*160 (98)*	*164 (100)*

Note: *** significant at α = 0.01; ** significant at α = 0.05;* significant at α = 0.10.
Source: our elaboration.

temperatures for the period, and after also trend of consumed income per-capita and that of the population.

The parameters we have estimated are all positive and significant (Tab. 3) and in progression from model 3 to 1 the estimates of parameters improve after first inserting the delay of an order of the dependent variable and then explaining the composition effects of the panel for the four macro-markets.

4. CONCLUSIONS

4.1. Final considerations

The analysis that we propose investigates the quantitative determinants of its operative volumes. The consumption of bottled mineral water should not be a matter of preference, since water is a vital and necessary good to the organism of living beings, but in most western economies or in westernized world this is provided as tap water or as bottled mineral water. Thus, the choice between the two increasingly becomes a matter of preferences and styles of consumption (Disanto *et al.*, 2007; He *et al.*, 2008; Caniglia *et al.*, 2012; Carlucci *et al.*, 2016; Bal, Oraman, 2019). This is true in countries with mature markets such as Italy, or where on mean the quality of tap water is not said to be worse than that of bottled mineral water (Cidu *et al.,* 2011).

The purchase of bottled mineral water today can be considered as a habit or a style of consumption, which many people adopt because they perceive this type of good as safer, or healthy, or of better quality (Ferrier, 2001). Although, a more complete background must consider other factors such as the level of education or the demographic aspect (Abrahams *et al.*, 2000; Wilk, 2006; Doria *et al.,* 2009; Hu *et al.*, 2011; Del Giudice *et al.*, 2016; Biro, 2017; Capehart, Berg, 2018).

Consumption of bottled mineral water is geographically popular in all regions with some differences that have attenuated over time (ISTAT, 2020; Bevitalia, 2020). The high consumption of bottled mineral water is then promoted by the fact that there are numerous springs in all regions. Thus, among the most interesting discriminated elements is the income gap between northern and southern. It is no coincidence that the southern macro-market is the one where there is some great consumption of bottled mineral water and in which firms manage with to have a better positioning of the product according to the applied sale price (Carlucci *et al.*, 2016). In addition, firms that adopts competitive price strategies may prefer to increase the operative volumes obtained in the nearest markets, as this policy of marketing has a better impact on their costs.

The literature that debates the industry shows that consumers pay for bottled mineral water a mark-up mainly due to effective brand position strategies of the firms through the levers of operative marketing, whose aim is to have the maximum depth in the typology of product offered (Gruber, 1994; Dube, Manchanda, 2005; Disanto *et al.*, 2007; Dolnicar *et al.*, 2014; Carlucci *et al.*, 2016; Bal, Oraman, 2019).

Therefore, it is not surprise that due to consolidated consumption styles, the variations in the operative volumes of the bottled mineral water in Italy – considered in the four ISTAT macro-markets: north-western, north-eastern, centre and southern with islands – depend positively and significantly mainly of the operative volumes lagged by one year, and more marginally also by variations in middle temperatures trend of the period (IRI, 2016).

The analysis could be suitable for regions, but it could also extent to provinces and municipalities (Bol-

lino, Espa, 2015) and it could also be in-deep. In this sense, it might be interesting to use spatial regression models or the more appropriate linearly approximated almost ideal demand system(AIDS-LA), which is the more simplified version of the popular AIDS model used in the empirical demand analyses (Deaton, Muellbauer, 1980; Green, Alston,1990; Moschini, 1995; Banks *et al*., 1997). Base assumption is that non-linear Engel curves cause an increase in consumed income, but at the same time they also cause a decrease in income share allocated to each good, with a consequent decrease in income elasticity. In other way, a specific case study (Yin, 2017) could be made on significant enterprises of the industry.

The study discounts the methodological limitations, such as it refers only to the product category of bottled mineral water. Thus, it overlooks other important correlated industries such as soft drinks and flavoured water. A mineral water producer can make use of any excess production capacity to produce soft drinks and flavoured water, provided that it has the necessary flexibility of the plants to benefit of the economies of scope, even if the reverse is not possible as water is the main input for the production.

Among other things, within the industry identified by ATECO taxonomy are included categories of goods which are lowly interchangeable on both the demand and supply-side. There is a problem of delimitation the market or industry, specifically to bottled water and, within this, a problem of differentiation between mineral water or flavoured water, which in turn are different from soft drinks. Therefore, the possibility to produce with flexible plants and to benefit of economies of scope does not seem sufficient for to include in the same market or industry of the productions that are different from each other like soft drinks. Moreover, the hight horizontal differentiation of products also confirms that flexibility demand-side is not an appropriate criterion for one wide definition of the industry and market.

Attention in the law and economic debate on issues of competition protection has grown over the years in Italy. Thus, it is important the definition of *geographic relevant market* given by authority of the protection of competition, in addition to typical definition for industry of the industrial economics for bottled mineral water. Since, it is more useful for to identify situations where there is risk of situations of abuse of market power of the incumbents (Bruzzone, 1995). This can be defined as the smallest of competitive contexts – product set or geographical area, within which it is possible to create significant market power by incumbent firms given the degree of products substitutability. Finally, these brief considerations can be extended to all those industries grouped into conglomerate and spurious taxonomies.

4.2. Policy implications

We close with a few brief considerations on the good that identifies this particular industry, as the profile of the water resource remains complex and multifaceted (Urbani, 2009). For the market and the economy in general, it is necessary to minimise the gap between consumer demands and the need for businesses to make profits (Katz *et al.,* 2020). In this sense, the allocative function of the market and its efficiency are not compromised. The management of complex goods such as water must necessarily involve two aspects. The first is that of the management of a common good, and the second is that of productivity. This means that water management and its market need idiosyncratic industrial investments and economic policy choices that respect the objectives of social and environmental sustainability in a now changed global social, political and economic background (Marelli, Signorelli, 2019).

For economists, when a good is not exclusive or the subject of rivalry and its consumption is accessible to all, thus it is a common good and it is precisely from this type of goods that a whole series of problems arise about their governance (Ostrom, 1990). Therefore, in the current stage of globalization characterized by high fragmentation, the role of enterprises in society also changes and for businessman and managers is important to increase their ethical awareness (Orlitzky, Moon 2011; Chirieleison, 2017). Specifically, there has been a rise in enterprises responsibilities initiatives providing bottled drinking water in emerging and developed markets (Brei, Böhm, 2011).

Business decision makers – businessman and managers – could adopt more selective and responsible behaviour in respect to manage the environmental impacts of their business (Fhelboom, Brika, 2020; Abdah *et al.,* 2020; Mahmood *et al.,* 2020). It is also essential in Italy to prepare appropriate policy for the protection of environmental and territory sustainability, as is already being done in other parts of world (Tao, Xin, 2004; Barnes, Cao, 2014; Kooy, Walter, 2019; Tosun *et al*., 2020). On the other hand, consumers may also decide to adopt better purchasing behaviours, maybe inspired by the economy of small decisions (Erev, Haruvy, 2016), or more focused on a common civic sense and responsibility (Zamagni *et al.,* 1999; Bruni, Zamagni, 2004; Becchetti, Rosati, 2007). Thus, policy makers should take note of the possibility that greenhouse gas emissions – linked to higher development rates – can be reduced by

pushing active demand substitution policies that change consumption habits over time (Hallett *et al.,* 2010; Niccolucci *et al*., 2011; Sarkodie, Strezov, 2019).

Among the many definitions that characterize today's debate on the future of man and the environment, of particular attention is certainly that of sustainable development in the sense of satisfying the needs of the present without compromise of the possibilities for development for future generations. This concept has since been extended also in relation to the direct and individual responsibility of people, which refers to a voluntary and conscious adherence of each to these principles.

In the face of possible growing water famines, it is necessary to establish strategies to reduce waste within a clear framework of market regulation – including for territorial levels – and that politics must have the will to govern (Bollino, Signorelli, 2018). It will also be up to the policy to redefine a framework for reconciling efficiency in industrial management – which requires the remuneration of capital – and the needs in the management of a public and common good (Polytechnic of Milan, 2019; UNESCO, 2020).

Indeed, climate change is more unpredictable and is making water an increasingly scarce and polluted resource, threatening sustainable development while reducing biodiversity. A growing demand for water will determine the need for a policy response that can improve water management in the light of the effects of climate change (Carullo, 2009).

Climate projections indicate an increase in precipitation in Northern Europe and a reduction in Southern Europe (UNESCO, 2020). Therefore, key actions to achieve effective adaptations and resilience to extreme events in the European region include: *(i)* increased water efficiency and savings strategies, *(ii)* monitoring and data sharing, *(iii)* coherence between climate change adaptation measures and their prevention by reducing the risk of related natural disasters, *(iv)* the possibility of drawing on structural funds to meet these objectives.

In this sense, the agricultural sector is the one that will suffer most from climate change compared to other production sectors with negative shocks on farmers' incomes (Day *et al.,* 2018). Therefore, while the impact of these changes is difficult to quantify, it is conceivable that both a decrease in water availability and an increase in demand due to higher consumption may occur locally (Dell *et al.,* 2014; Costantini *et al.,* 2018). Therefore, it becomes necessary to plan coordinated industrial policy actions in order to mitigate climate impacts and reduce the waste of resources (Luciani, 2020), who must find, in farmers and producers/bottlers, the main actors and interpreters aware of the management and protection of a resource of the highest value for the community.

Finally, a reference to the long-standing problem of negative externalities and environmental impact – wastes and emissions – or the "shifting of burdens" problems in industrial processes that that shifts the attention on identification of appropriate fees that enterprises must pay for the exploitation of the common economic resource (Alesina, Passarelli, 2010; Bollino, Micheli, 2012). In other words, the problem of the congruence of concession fees that enterprises have to pay for water bottling – but more generally for the exploitation of public resources – and the problem of the governing the common resources are now topical in Italy.

In this sense, the assessment of the impacts of the life cycle of production processes (LCA) and therefore of products is of extreme importance. This analysis can help interpret data on emissions and resource consumption associated with a product's life cycle in terms of environmental burdens and human health (Bigerna, Polinori, 2015). At instance, the European LCA platform, which provides guidelines, is an important added value to the work of researchers and professionals who want to assess the negative externalities of production processes (Baldo, 2008; EU, 2010).

Therefore, even for water resources, attention is being paid in the various institutional levels to the risk of a possible crisis caused by water scarcity, especially in light of the latest climate change (Polytechnic of Milan, 2019; UNESCO, 2020). The strong global dependence of the markets has led many bottled mineral water firms to improve the attractiveness of their products through packaging, transforming the historic glass bottle into an additional and design element. The glass bottle that constituted a "void to render" and that biggest firms could sometimes produce by integrating the production process downstream, was progressively replaced by a container accessible outside the production chain at low cost, keeping the organoleptic qualities of water unchanged (Twede, 2012; Hawkins *et al.,* 2015; Marty, 2020). In other ways, this has allowed firms to greatly reduce the costs attributable to plants, thus making production more profitable and cheaper distribution thanks to the use of polymers in packaging. Therefore, today, firms are also required to make a further effort towards the use of biodegradable materials, in order to have as eco-friendly water bottling as possible.

In this sense, the Mineracqua Federation – a section that is part of Confindustria network and that brings together the biggest Italian firms in the industry, could also play an important role in raising awareness of water but, in general, of the importance of the circular

economy today (Hawkins *et al.,* 2015; De Marchi *et al.,* 2020). It is precisely in an area where the use of recycled polymers would help to reduce greenhouse gas emissions that are responsible for rising temperatures (Holtz-Eakin, Selden, 1995; Goldewijk, 2001; Houghton, 2008; Ciccone, Jarocinski, 2010; Jones *et. al.,* 2011).

In conclusion, the operative implications of this study are: *(i)* to have caught the market dynamics at long-term of the bottled mineral water industry (Makov *et al.,* 2019), and *(ii)* to want to bring to the attention of managers, researchers and business economists a market of considerable interest for the socio-economic implications and environmental impacts that arise from the consumption of bottled mineral water – especially if these are in plastic (Orset *et al.*, 2017) – and that policy makers cannot afford to overlook.

REFERENCES

Abdah B., Al-Khatib I.A., Khader A.I. (2020). Birzeit university students' perception of bottled water available in the West-Bank market. *Journal of Environmental and Public Health*, 2020: 1-10. DOI:10.1155/2020/5986340

Abrahams N.A., Hubbell B.J., Jordan. J.L. (2000). Joint production and averting expenditure measures of willingness to pay: do water expenditures really measure avoidance costs?. *American Journal of Agricultural Economics*, 82(2): 427-437. DOI:10.1111/0002-9092.00036

Akpinar M.G., Gul M. (2014). An assessment of consumer preferences on the drinking water market: today to the future. *Journal of Water Supply: Research and Technology Aqua*, 63(7): 525-531. DOI:10.2166/aqua.2014.106

Alesina A., Passarelli F. (2010). *Regulation versus taxation*. NBER Working Paper, 16413: 1-32, September.

Amorosino S. (2009). Le acque più "pregiate": i regimi amministrativi delle acque minerali e termali. *Revista Aragonesa de Administración Pública*, 11: 179-189.

Archibald G.C., Rosenbluth G. (1975). The "new" theory of consumer demand and monopolistic competition. *The Quarterly Journal of Economics*, 89(4): 569-590. DOI:10.2307/1884693

Bal D.Ç., Oraman Y. (2019). A contemporary approach for strategic management: the research in bottled water industry. *Journal of Global Strategic Management*, 13(1): 5-15. DOI:10.20460/Jgsm.2020.273

Baldo G.L., Marino M., Rossi S. (eds.) (2008). *Analisi del ciclo di vita LCA – Life Cycle Assessment: gli strumenti per la progettazione sostenibile di materiali, prodotti e processi*. Milano: Edizioni Ambiente.

Balliano P., Lanzetti R. (1976). *Studio sull'evoluzione della concentrazione nell'industria delle bevande in Italia*. Bruxelles: Commissione della Comunità Europea.

Banks J., Blundell R., Lewbel A. (1997). Quadratic Engel Curves and Consumer Demand. *Review of Economics and Statistics*, 79(4): 527-539. DOI:10.1162/003465397557015

Bannò M., Pozza E., Trento S. (2018). La famiglia fa male all'internazionalizzazione dell'impresa?. *Sinergie Italian Journal of Management*, 34(100): 133-154. DOI:10.7433/s100.2016.09

Barnes A., Cao W. (2014). Muddy waters: the public health risks and sustainability of bottled water in China. *Vermont Law Review*, 38: 971-1025.

Becchetti L., Rosati F. (2007). Global social preferences and the demand for socially responsible products: empirical evidence from a pilot study on fair trade consumers. *World Economy*, 30(5): 807-836. DOI:10.1111/j.1467-9701.2007.01012.x

Bevitalia (2020). *Acque minerali: annuario 2019-2020*. Milano: Edizioni Beverfood.

Biffignandi S., Chiesa F. (2012). *Il comparto alimentare e beverage: produzione, consumo, packaging e macchinari*. Milano: Franco Angeli.

Bigerna S., Polinori P. (2015). *Efficienza di costo e qualità della vita: un'analisi nei principali comuni italiani*. In Bollino C.A., Espa G. (eds.) Analisi e Modelli di Efficienza e Produttività a Livello Microterritoriale: 99-123. Milano: Franco Angeli.

Biro A. (2017). Reading a water menu: bottled water and the cultivation of taste. *Journal of Consumer Culture*, 19(2): 231-251. DOI:10.1177/1469540517717779

Bliss C. (1988). A theory of retail pricing. *The Journal of Industrial Economics*, 36(4): 375-391. DOI:10.2307/2098445

Bolton R.N., Shankar V. (2003). An empirically derived taxonomy of retailer pricing and promotion strategies. *Journal of Retailing*, 79(4): 213-224. DOI:10.1016/j.jretai.2003.09.005

Bollino C.A., Espa G. (eds.) (2015). *Analisi e modelli di efficienza e produttività a livello microterritoriale*. Milano: Franco Angeli.

Bollino C.A., Signorelli M. (2018). *Evolution of production structure in the Italian regions*. In Di Matteo M., Piacentini P. (eds.), The Italian Economy at the Dawn of the 21st Century: 150-171. New York: Routledge.

Bollino C.A., Micheli S. (2012). On the relative optimality of environmental policy instruments: an application of the work of Alberto Alesina. *Atlantic Economic Journal*, 40: 385-399. DOI:10.1007/s11293-012-9338-y

Bosi G., Trento S. (eds.) (2012). *Il Governo dell'impresa: economia e diritto della corporate governance*. Bologna: Il Mulino.

Brei V.A., Böhm S. (2011). Corporate social responsibility as cultural meaning management: a critique of the marketing of "ethical" bottled water. *Business Ethics: A European Review*, 20 (3): 233-52. DOI:10.1111/j.1467-8608.2011.01626.x.

Brei V.A. (2017). How is a bottled water market created?. *WIREs Water*, 5(1): e1220. DOI: 10.1002/wat2.1220

Brei V.A., Tadajewski M. (2015). Crafting the market for bottled water: a social praxeology approach. *European Journal of Marketing*, 49(3/4): 327-349. DOI:10.1108/ejm-03-2013-0172

Brouthers K.D. (2012). Institutional, cultural and transaction cost influences on entry mode choice and performance. *Journal of International Business Studies*, 44(1): 1-13. DOI:10.1057/jibs.2012.22

Bruni L., Zamagni S. (2004). *Economia civile: efficienza, equità, felicità pubblica*. Bologna: Il Mulino.

Bruzzone G. (1995). *L'individuazione del mercato rilevante nella tutela della concorrenza*. Temi e Problemi–Studi dell'AGCM, 1: 7-60.

Cabral L. (2018). *Economia industriale*. Roma: Carocci.

Caniglia E., Foti V.T., Timpanaro G. (2012). Analisi del comportamento del consumatore di acqua minerale in Sicilia. *Economia Agro-Alimentare*, 2: 153-180. DOI:10.3280/ECAG2012-002008

Cantele S., Campedelli B. (2016). Internationalisation and performance of SMEs: exploring the moderating effects of intangible assets and capital intensity. *International Journal of Business and Globalisation*, 17(2): 205-223. DOI:10.1504/ijbg.2016.078407

Capehart K.W. (2015). Fine water: a hedonic pricing approach. *Journal of Wine Economics*, 10(2): 129-150. DOI:10.1017/jwe.2015.15

Capehart K.W., Berg E.C. (2018). Fine water: a blind taste test. *Journal of Wine Economics*, 13(1): 20-40. DOI:10.1017/jwe.2017.50

Carlton D.W., Perloff G.M. (2005). *Modern industrial organization*. Boston: Addison Wesley.

Carlucci D., De Gennaro B., Roselli L. (2016). Competitive strategies of Italian bottled water industry: evidence from a hedonic analysis. *Rivista di Economia Agraria*, 1: 292-304. DOI:10.13128/REA-18648

Carullo A. (2009). La gestione reddituale del demanio idrico regionale in finanza di progetto. *Revista Aragonesa de Administración Pública*, 11: 201-223.

Ceccacci F. (2013). *La private label nei percorsi di modernizzazione del trade*. Torino: Giappichelli.

Ciccone A., Jarociński M. (2010). Determinants of economic growth: will data tell?. *American Economic Journal: Macroeconomics*, 2(4): 222-246. DOI:10.1257/mac.2.4.222

Cidu R., Frau F., Tore P. (2011). Drinking water quality: comparing inorganic components in bottled water and Italian tap water. *Journal of Food Composition and Analysis*, 24(2): 184-193. DOI:10.1016/j.jfca.2010.08.005

Clarke T. (2007). *Inside the bottle: an exposé of the bottled water industry*. Ottawa: Polaris Institute.

Cohen A., Zhang Q., Luo Q., Tao Y., Colford Jr J.M., Ray I. (2017). Predictors of drinking water boiling and Bottled Water Consumption in Rural China: a hierarchical modeling approach. *Environmental Science and Technology*, 51(12): 6945-6956. DOI:10.1021/acs.est.7b01006

Collins H., Wright A. (2014). Still sparkling the phenomenon of bottled water: an Irish context. *Journal of Marketing Management*, 2(1): 15-31.

Competitive Data (2020). Acqua *minerale e bevande analcoliche: l'analisi delle prime 140 aziende nel 2019*. Available at: monitoraitalia.it/acqua-minerale-bevande-analcoliche-aziende-2019 (accessed on 10 January 2020).

Corstjens J., Corstjens M., Lal R. (1995). Retail competition in the fast-moving consumer goods industry: the case of France and the UK. *European Management Journal*, 13(4): 363-373. DOI:10.1016/0263-2373(95)00028-j

Costantini V., Markandya A., Paglialunga E., Sforna G. (2018). Impact and distribution of climatic damages: a methodological proposal with a dynamic CGE model applied to global climate negotiations. *Economia Politica*, 35: 809-843. DOI:10.1007/s40888-018-0129-z

Chakrabarti A., Vidal E., Mitchell W. (2011). Business transformation in heterogeneous environments: the impact of market development and firm strength on retrenchment and growth reconfiguration. *Global Strategy Journal* 1: 6-26. DOI:10.1002/gsj.3

Chirieleison C. (2017). CSR education in Italian economics departments: an exploratory study. *Journal of Corporate Citizenship*, 65: 12-29. DOI:10.9774/gleaf.4700.2017.ma.00004

Deaton A.S., Muellbauer J. (1980). *Economics and Consumer Behavior*. Cambridge: University Press.

Day E., Fankhauser S., Kingsmill N., Costa H., Mavrogianni A. (2018). Upholding labour productivity under climate change: an assessment of adaptation options. *Climate Policy*, 19(3): 367-385. DOI:10.1080/14693062.2018.1517640.

De Marchi E., Pigliafreddo S., Banterle A., Parolini M., Cavaliere A. (2020). Plastic packaging goes sustainable: an analysis of consumer preferences for plastic water bottles. *Environmental Science and Policy*, 114: 305-311. DOI:10.1016/j.envsci.2020.08.014

Del Giudice T., Cicia G., Grunert K.G., Krystallis A.K., Zhou Y., Cembalo L., Verneau F., Caracciolo F.

(2016), New trends in the Chinese diet: cultural influences on consumer behaviour. *Italian Journal of Food Safety*, 5(2): 106-110. DOI:10.4081/ijfs.2016.5273

Dell M., Jones B.F., Olken B.A. (2014). What do we learn from the weather? The new climate-economy literature. *Journal of Economic Literature*, 52(3): 740-798. DOI:10.1257/jel.52.3.740.

Disanto R., Pilone V., Viscecchia R. (2007). *Il posizionamento comunicativo delle acque minerali: un possibile modello interpretativo*. Atti del XLIV Convegno Studi SIDEA: 1-19. Taormina: 8-10 Novembre.

Dixit A.K., Stiglitz J.E. (2001). *Monopolistic competition and optimum product diversity* (May 1974). In Brakman S., Heijdra B.J. (eds.), The Monopolistic Competition Revolution in Retrospect: 70-88. Cambridge: University Press.

Dolnicar S., Hurlimann A., Grün B. (2014). Branding water. *Water Research*, 57: 325-338. DOI:10.1016/j.watres.2014.03.056

Doria M.F., Pidgeon N., Hunter P.R. (2009). Perceptions of drinking water quality and risk and its effect on behaviour: across-national study. *Science of The Total Environment*, 407(21): 5455-5464. DOI:10.1016/j.scitotenv.2009.06.031

Dubé J.P., Manchanda P. (2005). Differences in dynamic brand competition across markets: an empirical analysis. *Marketing Science*, 24(1): 81-95. DOI:10.1287/mksc.1040.0087

Enrichens N. (2018). Le acque private. *Agricoltura Istituzioni Mercati*, 1: 120-134. DOI:10.3280/aim2016-001006

Erev I., Haruvy E. (2016). *Learning and the economics of small decisions*. In Kagel J.H., Roth A.E. (eds.), The Handbook of Experimental Economics: 638-716, Vol. 2. Princeton: University Press.

EU (2010). *Analysing of existing environmental impact assessment methodologies for use in Life Cycle Assessment*. Joint Research Centre Europena Union–JRCEU and Institute for Environment and Sustainability–IES, Luxembourg: European Union Publications. Available at: eplca.jrc.ec.europa.eu/uploads/ILCD-Handbook-LCIA-Background-analysis-online-12March2010.pdf (accessed on 10 January 2020).

Ferri M. (1999). *L'evoluzione del settore delle acque minerali: aspetti di produzione e di commercializzazione*. Padova: Cedam.

Ferrier C. (2001). Bottled water: understanding a social phenomenon. *Journal of the Human Environment,* 30(2): 118-119. DOI:10.1579/0044-7447-30.2.118

Ferrucci L. (2000). *Strategie competitive e processi di crescita dell'impresa*. Milano: Franco Angeli.

Ferrucci L. (2019). *Modelli di corporate governance e varietà evolutiva delle imprese*. Milano: Franco Angeli.

Ferrucci L., Paciullo G. (eds.) (2015). *Internazionalizzazione in Africa tra imprese, istituzioni pubbliche e organizzazioni no-profit*. Milano: Franco Angeli.

Fhelboom R., Brika B. (2020). Bottled water sold in the Tripoli markets: challenges and shortcomings. *Water Conservation and Management*, 4(2): 73-77. DOI:10.26480/wcm.02.2020.73.77

Finlayson D. (2011). *Market development of bottled waters*. In Dege N., (eds.), Technology of Bottled Water: 5-32. Hoboken: Wiley-Blackwell.

Florida R. (2005). *Cities and the creative class*. London: Routledge.

Galizzi G., Venturini L., Boccaletti S. (1997). Vertical Relationships and dual branding strategies in the italian food industry. *Agribusiness*, 13(2): 185-195. DOI:10.1002/(sici)1520-6297(199703/04)13:2<185::aid-agr7>3.0.co;2-z

Gibbons R.S., Roberts J. (eds.) (2013). *The handbook of organizational economics*. Princeton: University Press.

Gironi F., Piemonte V. (2010). Life cycle assessment of polylactic acid and polyethylene terephthalate bottles for drinking water. *Environmental Progress and Sustainable Energy*, 30(3): 459-468. DOI:10.1002/ep.10490

Gleick P.H. (2010). *Bottled and sold: the story behind our obsession with bottled water*. Washington D.C.: Island Press.

Goldewijk K. (2001). Estimating historical land use changes over the past 300 years: the hyde database. *Global Biogeochemical Cycles* 15: 417-433. DOI:10.1029/1999GB001232

Golinelli G. (2016). *L'approccio Sistemico – ASV al Governo dell'impresa*. Vol. 1-2. Padova: Cedam.

Grant R. (2016). *L'analisi strategica per le decisioni aziendali*. V ed. Bologna: Il Mulino.

Green R., Alston J.M. (1990). Elasticities in AIDS Models. *American Journal of Agricultural Economics*, 72(2): 442-445. DOI:10.2307/1242346

Gruber H. (1994). Differenziazione del prodotto ed evoluzione della struttura del mercato: il caso del mercato delle acque minerali. *L'Industria–Rivista di economia e politica industriale*, 2: 336-343.

Guercini S., Runfola A. (2016). How western marketers respond to the new middle class in emerging market cities: the case of Italian fashion marketers. *International Business Review*, 25(3): 691-702. DOI:10.1016/j.ibusrev.2015.10.003

Hallett A.H., Acocella N., Di Bartolomeo G. (2010). Policy games, policy neutrality and Tinbergen controllability under rational expectations. *Journal of*

Macroeconomics, 32(1): 55-67. DOI:10.1016/j.jmacro.2009.07.002

Hamilton G., Petrovic M., Senauer B. (eds.) (2011). *The market makers: how retailers are reshaping the global economy*. Oxford: University Press.

Hawkins G. (2017). The impacts of bottled water: an analysis of bottled water markets and their interactions with tap water provision. *WIREs Water*, 4(3): e1203. DOI:10.1002/wat2.1203

Hawkins G., Potter E., Race K., (2015). *Plastic water: the social and material life of bottled water*. Cambridge: University Press.

He S., Jordan J., Paudel K. (2008). Economic evaluation of bottled water consumption as an averting means: evidence from a hedonic price analysis. *Applied Economics Letters*, 15(5): 337-342. DOI:10.1080/13504850600706040

Holtz-Eakin D., Selden T.M. (1995). Stoking the fires? CO2 emissions and economic growth. *Journal of Public Economics*, 57: 85-101. DOI:10.1016/0047-2727(94)01449-X

Houghton R.A. (2008). *Carbon flux to the atmosphere from land-use changes 1850-2005*. In Trends A Compendium of Data on Global Change: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory and U.S. Energy Department. Available at: cdiac.ess-dive.lbl.gov/trends/landuse/houghton/houghton (accessed on10 January 2020).

Howell R., Sinha K.M., Wagner N., Doorn N., van Beers C. (2020). Consumption of bottled water at the bottom of the pyramid: who purchases first?. *Journal of Macromarketing*, 40(1): 31-50. DOI: 10.1177/0276146719866890

Hu Z., Morton L.W., Mahler R. (2011). Bottled Water: united states consumers and their perceptions of water quality. *International Journal of Environmental Research and Public Health*, 8(2): 565-578. DOI:10.3390/ijerph8020565

Hymer S. (1972). The internationalization of capital. *Journal of Economic Issues*, 6(1): 91-111. DOI:10.1080/00213624.1972.11503013

IBWA (2019). Market report findings: different years. *International Bottled Water Association*: 1-20. Available at: bottledwater.org/statistics/ (accessed on 10 January 2020).

IRI (2016). *Il clima impatta i consumi: il mercato dell'acqua minerale nel canale moderno*. White Paper, Settembre. Available at: iriworldwide.com/IRI/media/IRI-Clients/International/it/White-paper-Acqua-minerale_2016.pdf (accessed on 10 January 2020).

ISTAT (2020). *Le statistiche dell'Istat sull'acqua relativa agli anni 2018-2019*. Available at: istat.it/it/files/2020/03/Le-statistiche-Istat-sull%E2%80%99acqua.pdf (accessed on 10 January 2020).

Jones C.D., Hughes J.K., Bellouin N., Hardiman S.C., Jones G.S., Knight J., Liddicoat S., O'Connor F.M., Andres R.J., Bell C., Boo K.-O., Bozzo A., Butchart N., Cadule P., Corbin K.D., Doutriaux-Boucher M., Friedlingstein P., Gornall J., Gray L., Halloran P.R., Hurtt G., Ingram W.J., Lamarque J.-F., Law R.M., Meinshausen M., Osprey S., Palin E.J., Parsons Chini L., Raddatz T., Sanderson M.G., Sellar A.A., Schurer A., Valdes P., Wood N., Woodward S., Yoshioka M., Zerroukat M. (2011). The HadGEM2-ES implementation of CMIP5 Centennial Simulations. *Geoscientific Model Development*, 4: 543-570. DOI:10.5194/gmd-4-543-2011

Kajtazi S., Reshidi N. (2018). Consumer-side decision factors on their selection of bottled water brands: statistical method study in a Kosovo sample. *Ekonomika*, 97(1): 105-116. DOI:10.15388/ekon.2018.1.11782

Kansole M.R., Beidari M. (2020). Investigating the taste, odor and appearance of selected bottled and sachet sold drinking water in Burkina Faso. *Journal of Water Resources and Ocean Science*, 9(1): 1. DOI:10.11648/j.wros.20200901.11

Katz M.L., Rosen H.S., Bollino C.A., Morgan W. (eds.) (2020). *Microeconomia*. VI ed., Milano: McGraw-Hill.

Kim J., Forsythe S., Gu Q., Jae-Moon S. (2002). Cross-cultural consumer values, needs and purchase behavior. *Journal of Consumer Marketing*, 19(6): 481-502. DOI:10.1108/07363760210444869

Kooy M., Walter C. (2019). Towards a situated urban political ecology analysis of packaged drinking water supply. *Water*, 11(2): 225. DOI:10.3390/w11020225

Kopalle P., Biswas D., Chintagunta P.K., Fan J., Pawels K., Ratchford B.T., Sills J.A. (2009). Retailer pricing and competitive effects. *Journal of Retailing*, 85(1): 56-70. DOI:10.1016/j.jretai.2008.11.005

Kotler P., Keller K.L., Ancarani F., Costabile M. (2012). *Marketing Management*. Milano: Pearson.

La Moreaux P.E., Tunner J.T. (2012). *Springs and bottled waters of the world*. London: Springer.

Laino A. (2013). *Imprese e mercati imperfetti*. Milano: Franco Angeli.

Lambin J.J. (2012). *Market-driven management: Marketing strategico e operativo*. Milano: McGraw-Hill.

Lancaster K.J. (1966). A new approach to consumer theory. *Journal of Political Economy*, 74(2): 132-157. DOI:10.1086/259131

Lee B.D., Oh Y.H., Kim W.B., Hwang J., Lim W.-R., Choi S.-J., Hamm S.-J. (2020). State and strategy of production, market and integrated management of mineral water, South Korea. *Water*, 12(6): 1615. DOI:10.3390/w12061615

Lee K.H., Park S.Y., Jo E.H., Lee D.H. (2019). A comparison of taste of drinking water for water purifier filter development. *Indian Journal of Public Health Research and Development*, 10(5): 1119. DOI:10.5958/0976-5506.2019.01221.x

Lin X., Lu Wang C. (2010). The heterogeneity of Chinese consumer values: a dual structure explanation. Cross Cultural Management. *An International Journal*, 17(3): 244-256. DOI:10.1108/13527601011068342

Luciani F. (2020). The new horizons of the economy. *Bioeconomics Review*, 3(2): 1-7. Available at: bioeconomicsreview.unipg.it/index.php/bioeconomics/article/view/18 (accessed on 10 January 2020).

Mahmood A.K., Kamal A.A., Hama A.R. (2019). Study and evaluation of stored drinking water characteristics using three types of roof water tanks in Kirkuk governorate, Iraq. *Wasit Journal of Engineering Sciences*, 7(1): 11-16. DOI:10.31185/ejuow.vol7.iss1.110

Makov T., Meylan G., Powell J.T., Shepon A. (2019). Better than bottled water? Energy and climate change impacts of on-the-go drinking water stations. *Resources, Conservation and Recycling*, 143: 320-328. DOI:10.1016/j.resconrec.2016.11.010

Marelli E., Signorelli M. (eds.) (2019). *Politica economica: le politiche nel nuovo scenario europeo e globale*. Torino: Giappichelli.

Marty N. (2020). The true revolution of 1968: mineral water trade and the early proliferation of plastic 1960s–1970s. *Business History Review*, 94(3): 483-505. DOI:10.1017/S0007680520000549

Mascha M. (2006). *Fine waters: a connoisseur's guide to the world's most distinctive bottled waters*. Philadelphia: Quirk Books.

Matarazzo M., Resciniti R. (2014). New trends in foreign market entry mode choices: the case of Italian mid-sized companies. *Journal of International Business and Economics*, 2(4): 57-70. DOI:10.15640/jibe.v2n4a4

Mattei U., Reviglio E., Rodotà S. (eds.) (2007). *Invertire la rotta: idee per una riforma della proprietà pubblica*. Bologna: Il Mulino.

Milgrom P., Roberts J. (2005). *Economia organizzazione e management*. Vol. 2. Bologna: Il Mulino.

Moschini G. (1995). Units of Measurement and the Stone Index in Demand System Estimation. *American Journal of Agricultural Economics*, 77(1): 63-68. DOI:10.2307/1243889

Mundel J., Huddleston P., Vodermeier M. (2017). An exploratory study of consumers' perceptions: what are affordable luxuries? *Journal of Retailing and Consumer Services*, 35: 68-75. DOI:10.1016/j.jretconser.2016.12.004

Nanni T., Prodi F. (2008). *Cambiamenti climatici: la situazione in Italia*. Energia, 1: 66-71.

Neacşu N.A. (2017). Implementing quality strategies to increase competitiveness on mineral waters' market. Bulletin of the Transilvania University of Braşov Series V. *Economic Sciences*, 10(59): 103-110.

Niccolucci V., Botto S., Rugani, B., Nicolardi V., Bastianoni S., Gaggi C. (2011). The real water consumption behind drinking water: the case of Italy. *Journal of Environmental Management*, 92(10): 2611-2618. DOI:10.1016/j.jenvman.2011.05.033

Nicoletti G.M., Fredella F.L. (2005). *Le concessioni per le acque minerali in Italia*. In Spada V., Tricase C. (eds.), Risorse Naturali e Sviluppo Economico-Sociale: Vol. 1-2. Bari: WIP edizioni.

Orlitzky M., Moon J. (2011). *Assessing corporate social responsibility education in Europe: trends and comparisons*. In Fisher D.G., Swanson D.L. (eds.), Toward Assessing Business Ethics Education: 143-75, Charlotte: Age Publication.

Orset C., Barret N., Lemaire A. (2017). How consumers of plastic water bottles are responding to environmental policies?. *Waste Management*, 61: 13-27. DOI:10.1016/j.wasman.2016.12.034

Ostrom E. (1990). *Governing the commons: the evolution of institutions for collective action*. Cambridge: University Press.

Parag Y., Opher T. (2011). *Bottled drinking water, water and health*. Encyclopedia of Life Support Systems-EOLSS: 1-26.Paris: UNESCO.

Patsiaouras G., Saren M., Fitchett J.A. (2015). The marketplace of life? An exploratory study of the commercialization of water resources through the lens of macromarketing. *Journal of Macromarketing*, 35 (1): 23-35. DOI:10.1177/0276146714538454.

Polytechnic of Milan (2019). *Water Management Report*. Available at: energystrategy.it/report/water-management-report.html (accessed on 10 January 2020).

Porter M. (1985). *Competitive advantage: creating and sustaining superior performance*. New York: Free Press.

Raspadori P. (2002). Bollicine: per una storia dell'industria delle acque minerali in Italia dalle origini agli anni Ottanta del Novecento. *Annale di storia dell'impresa*, 13: 357-396.

Rodotà S. (2018). *Verso i beni comuni*. In Preterossi G., Capone N. (eds.), I Beni Comuni: L'inaspettata Rinascita degli Usi Collettivi: 31-89. Napoli: La Scuola di Pitagora.

Ruzzier M., Akbar Y.H., Bortoluzzi G., Tracogna A. (2017). The growth challenge of western SMEs in emerging markets: an exploratory framework and

policy implications. *Managing Global Transitions*, 15(3): 291-314. DOI:10.26493/1854-6935.15.291-314

Salop S.C. (1979). Monopolistic competition with outside goods. *The Bell Journal of Economics*, 10(1): 141. DOI:10.2307/3003323.

Sarkodie S.A., Strezov V. (2019). Economic, social and governance adaptation readiness for mitigation of climate change vulnerability: evidence from 192 countries. *Science of The Total Environment*, 656: 150-164. DOI:10.1016/j.scitotenv.2018.11.349.

Scalamonti F. (2020a). La transizione delle economie a sud del Mar Mediterraneo: il quadro macroeconomico e le determinanti degli investimenti esteri. *L'Industria – Rivista di economia e politica industriale*, 4: 1-46. DOI:10.1430/98711

Scalamonti F. (2020b). Emerging markets and cross-cultural distance: a revisit of drivers of SMEs internationalization process. *Piccola Impresa / Small Business*, 1: 161-187. DOI:10.14596/pisb.361

Sciarelli S. (2017). *La gestione dell'impresa: tra teoria e pratica aziendale*. Padova: Cedam.

Sciarelli S., Vona R. (eds.) (2000). *L'impresa commerciale:economia e gestione*. Milano: McGraw-Hill.

Senauer B., Venturini L. (2005). *The globalization of food systems: a conceptual framework and empirical patterns*. Working Paper of The Food Industry Center – University of Minnesota, 5(1): 1-40.

Spar D., Bebenek K. (2008). Profitable springs: the rise, sources, and structure of the bottled water business. *Entreprises et histoire*, 50(1): 100-118. DOI:10.3917/eh.050.0100

Sutton J. (1991). *Sunk cost and the market structure, price competition, advertising and the evolution of concentration*. Cambridge: University Press.

Tao T., Xin K. (2004). A sustainable plan for China's drinking water. *Nature*, 511: 527-528. DOI:10.1038/511527a

Torretta V. (2013). Environmental and economic aspects of water kiosks: case study of a medium-sized Italian town. *Waste Management*, 33(5): 1057-1063. DOI:10.1016/j.wasman.2013.01.014

Tosun J., Scherer U., Schaub S., Horn H. (2020). Making Europe go from bottles to the tap: political and societal attempts to induce behavioral change. *WIREs Water*, 7(3): e1435. DOI:10.1002/wat2.1435

Tunisini A., Pencarelli T., Ferrucci L. (2014). *Economia e management delle imprese: strategie e strumenti per la competitività e la gestione aziendale*. Milano: Hoepli.

Twede D. (2012). The birth of modern packaging. *Journal of Historical Research in Marketing*, 4(2): 245-272. DOI:10.1108/17557501211224449

UNESCO (2020). *World water development report: water and climate change*. Paris: United Nations Educational, Scientific and Cultural Organization. Available at: unesdoc.unesco.org/ark:/48223/pf0000372985 (accessed on 10 January 2020).

Urbani P. (2009). Il governo delle acque. *Revista Aragonesa de Administración Pública*, 11: 71-85.

Vernon R. (1966). International investment and international trade in the product cycle. *The Quarterly Journal of Economics*, 80(2): 190-207. DOI:10.2307/1880689

Vescovi T. (2011). Strategie di marca per i prodotti italiani in Cina. *Micro&Macro Marketing*, 1: 73-92. DOI: 10.1431/34370a

Volpato G. (2010). *Economia e gestione delle imprese: fondamenti e applicazioni*. Roma: Carocci.

Wang C.L., Chen Z.X., Chan A.K., Zheng Z.C. (2000). The influence of hedonic values on consumer behaviors. *Journal of Global Marketing*, 14(1-2): 169-186. DOI:10.1300/j042v14n01_09

Wilk R. (2006). Bottled water. *Journal of Consumer Culture*, 6(3): 303-325. DOI:10.1177/1469540506068681

Yin R.K. (2017). *Case study research design and methods*. Newbury Park: Sage.

Zamagni S., Acocella N., Roncaglia A., Pizzuti F.R. (1999). *Social paradoxes of growth and civil economy*. In Gandolfo G., Marzano F. (eds.), Economic Theory and Social Justice: 212-250. London: Palgrave Macmillan.