

Chapter 4

Testing the Waters: A Sociological Analysis of Domestic Water Use and Consumption



Filippo Oncini and Francesca Forno

Abstract By looking at water as a sociological object of analysis, the chapter outlines how the insights obtained from sociology can help to a great extent when framing both water as a commodity and water use as a practice. Building on the existing literature, the chapter discusses the specificity of Italy as a meaningful case study and focuses on water saving behaviour and bottled water consumption as two facets of water sustainability. After a preliminary account on the sociology of water and on the characteristics of the Italian context, we make use of the 2014 Multipurpose Survey of Daily Life and the 2014 Survey on Household Consumption by ISTAT to analyse whether water saving behaviour and bottled water consumption are stratified by economic and cultural resources. We provide evidence that while water saving behaviour is almost evenly distributed across the population, the probability of purchasing bottled water is highly dependent on the economic resources of the household. In the conclusion, we discuss our findings and their major limitations, and provide some additional research questions that sociologists could help address.

Keywords Water consumption · Bottled water · Tap water · Sustainable use

4.1 Introduction

Over the past decades, water consumption has become a theme of utmost importance for social scientists at large. The impact of climate change and the demand of people for water resources are dramatically increasing (UN 2015). Since the 1990s, the United Nations have been urging Member States to include water policies in their political agenda, stressing the importance of public interventions at all levels,

F. Oncini (✉)

Sustainable Consumption Institute, University of Manchester, Manchester, United Kingdom
e-mail: filippo.oncini@manchester.ac.uk

F. Forno

Department of Sociology and Social Research, University of Trento, Trento, Italy
e-mail: francesca.forno@unitn.it

from water and sanitary systems to household consumption choices, as water uses and misuses have an important impact on sustainable development.

Research on domestic water consumption has shown how water demand and uses can potentially be affected by a variety of factors. As a consequence, the search for determinants has attracted scholarly attention across numerous disciplines. Beside research works on the relation between water consumption and utilities tariffs, ownership structure, water conditions, household characteristics, climate and geographical features – mostly in the domain of economists and political scientists – a bulk of studies have also analysed how water consumption and uses may be related to people’s environmental knowledge and values. Within this body of works it is often discussed how water saving behaviour and water bottled consumption are associated with several socio-psychological factors such as values, beliefs, attitudes, and environmental concerns (e.g. Leiserowitz 2006; Russell and Fielding 2010; Price et al. 2014; Van Der Linden 2015; Aprile and Fiorillo 2017). Over the last years, sociological interest has been growing and new frameworks for the analysis of water use *as a social practice* and drinking water *as a commodity* have made their appearance on the scene. Nevertheless, sociological attention towards the social stratification of water uses has been so far scarce, despite this issue could widen the debate and provide alternative interpretations and policy advice.

Using Italy as a case study, this contribution makes use of two large samples of the Italian population to explore the social stratification of water waste behaviour and bottled water purchase. The study of these two water-related behaviours in the Italian context is particularly interesting for two main reasons: first, water use seems a particularly salient issue for Italian citizens, as demonstrated by the great turnout at the 2011 referendum aimed at the abrogation of the rules approved by the Parliament in support of the privatisation of local public services, including water management (Carrozza and Fantini 2016).¹ Second, the consumption of bottled water per capita is the highest in Europe and third worldwide only after Mexico and Thailand (Beverage Marketing Corporation 2018), despite tap water being drinkable practically all over the country.

For this twofold reason, in the next section we introduce the sociological perspectives that have been used to study domestic water use and bottled water consumption, highlighting the nascent state of the field within sociology. Secondly, we discuss in depth why Italy represents a meaningful case study in comparison to other countries, by focussing on the referendum of 2011 and on the comparatively high consumption of bottled water (Sect. 4.3). We then move to the empirical part (Sects. 4.4 and 4.5), where we use the Multipurpose Survey of Daily Life (MDL) and the Survey on Household Consumption (SHC) by ISTAT to explore whether and how bottled water consumption and water saving behaviour are socially patterned. In the conclusion, we discuss our findings and their major limitations, while providing some additional research questions that sociologists could help address.

¹On this see also, in addition to Sect. 4.3.1 of this chapter, Chap. 11 by Turrini and Pertile in this volume.

4.2 Water as a Sociological Object of Analysis

When looking at sociological debates, one may be struck by the ability of scholars to gaze out at every possible facet of social life. A “sociology of” indeed exists for every aspect (e.g. social stratification of labour or gender inequalities), process (e.g. social and cultural reproduction), life stage (e.g. childhood or adulthood), or good (e.g. food or music), which in turn can be combined to produce quasi-infinite lines of investigation (e.g. social class differences in the transmission of gendered food preferences from parents to children). In this light, it is rather surprising to notice that a “sociology of water consumption” is still in its infancy. Despite water being the most important natural resource, and in Maussian terminology a “total social fact” (Orlove and Caton 2010), sociologists’ efforts have thus far not cumulated to produce a clearly identifiable field of research that looks at water dynamics at the micro, meso or macro level. Yet water has become an urgent theme, as its depletion, privatisation, contamination, scarcity and unequal distribution are – or at least should be – more and more in the political agenda, especially in times of global warming and increasing world population growth (FAO 2015; WWAP 2015; 2019; WWF 2019).

Among scholars interested in the sociology of (water) consumption two main lines of research have recently emerged. Despite a common interest in sustainability, these two can be roughly distinguished by their focus on water use as a social practice and drinking water as a commodity. The former has been looking at the use of water in the course of routinised social practices, namely those everyday acts of consumption, which despite being almost invisible and inconspicuous, can consistently impinge on the use of natural resources. Starting from the arguments put forth by Schatzki (1996) and Reckwitz (2002), scholars within this tradition recognise practices as the main unit of social analysis, which exists simultaneously as (1) organised entities comprising many interconnected elements – “forms of bodily activities, forms of mental activities, ‘things and their use’, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge” (Reckwitz 2002, p. 249) – and as (2) performances, namely the actual ‘doing’ of them by their carriers. Since practices follow norms and shared understandings, practitioners generally tend to perform them consistently and similarly across space and time, though the possibility to “adapt, improvise, and experiment” leave room to modification and change (Warde 2005; Shove 2010; Evans et al. 2012). Within this framework, many ordinary, but water-intensive activities have been reconsidered and particular attention has been paid to showering and laundry routines (Hand et al. 2005; Jack 2013; Pullinger et al. 2013a; Mylan and Southerton 2018). These practices are usually examined by looking at the arrangements that result from:

- (i) Technologies and materials (materiality), to disentangle all the physical elements involved in the practice. For instance, Mylan and Southerton (2018) single out the function of dirty laundry baskets as “barometers to regulate the laundry flow”, and the many ways in which household infrastructure and spaces are used to dry clothes.

- (ii) The ordering or fragmentation of shared social rhythms (temporality), to understand how laundry or showering routines are scheduled and become socially patterned. For instance, laundry still signals the gendered division of domestic labour, while time-use surveys highlight that people shower more often than in the past decades (Hand et al. 2005; Mylan and Southerton 2018).
- (iii) The frames of meaning that constitute conventions and social norms (conventionality), to comprehend how the practice has acquired a relatively fixed and shared understanding. For instance, Jack (2013) engaged a group of participants to wear the same pair of jeans without washing them for 3 months to bring to surface the hidden conventions regarding the “visibility” of cleanliness.

As water is not reducible to its molecular properties, the investigation of its social (ab)use cannot overlook the configuration of these three elements, which continuously interlace to reproduce or modify a practice. Thus, in their exemplification, Hand et al. (2005) illustrate how accounts for showering could consider at once the (i) innovation in plumbing, heating or power jet (materiality), (ii) the cultural history of the body and the changing significance of cleanliness (conventions), and (iii) shifts in the temporal ordering of showering, from collective Sunday bathing to privatised arrangements that allow for more fragmented moments of washing (temporality).

This framework has been rather successful in the past 15 years for its twofold contribution to the study of sustainable consumption. A methodological one, because besides being able to conjugate quantitative and qualitative techniques (Pullinger et al. 2013b), it sets out clear indications on how to identify and define a consumption practice, what social levels can be observed, and an analytic rationale to decompose the practice in its sequential activities (Mylan and Southerton 2018). But also a theoretical one, as it departs from approaches rooted in neo-utilitarian and cognitive-based theories which consider consumers’ attitudes and choices as the main units of analysis (Shove 2010). Contrarily, practice theorists propose interventions that are not based on individuals’ behaviours, but rather on the complex arrangement of the practice itself. As an example, one may imagine an intervention aiming at reducing households’ water waste that leverages on both the water efficiency requirements of buildings or devices (shifts in materiality) and on the promotion of a “contest” that awards families with lower yearly water consumption rates per capita (shifts in conventionality).

A second, more scattered, area of sociological investigation has delved deeper into the rise of bottled water consumption. As noticed by Jaffee and Newman (2013a, p. 2), “despite bottled water’s dramatic growth over the past quarter century, its present ubiquity, and the not insignificant local contestation it has generated, scholarly attention to this phenomenon has been surprisingly sparse”. The analysis has thus far looked at tap water provision and bottled water consumption as two sides of the same coin, in order to shed light on a seeming paradox: which processes led to the growth and success of an industry selling a good almost freely available and readily accessible by most people? Taking only the poles of the spectrum, two major explanations have been proposed (for a more thorough review, Hawkins 2017). One the one hand, research has looked at change in consumers’ perceptions

and practices, stressing the active role of individuals in choosing according to their own beliefs and preferences. For instance, medical studies on the benefits of frequent hydration for athletes' muscles in the 1970s have subsequently reached the wider public, thus broadening the idea that everyone would take advantage from the possibility of sipping "at disposal" (Race 2012). Similarly, lack of confidence in the quality of tap water provision, especially after environmental disasters and health hazards (e.g. Stein 2000), has been pointed at to explain why consumers may decide to opt for plastic. In this light, beverage companies started selling bottled water to respond to consumers' need for potable water, as in some areas their products came to be seen as more reliable than other sources (Hawkins 2017).

On the other hand, critics focused on the pernicious role played by corporations in fuelling the bottled water market, both by commodifying former public water sources – namely transforming non-marketed natural resources into marketed goods – and by operating through marketing strategies. Although global movements against bottled water consumption and local actions against groundwater dispossession have appeared on the scene, the ascension of bottled water has been incessant everywhere (Swyngedouw 2005; Rodwan 2017). Jaffee and colleagues, building on the concept of "accumulation by dispossession" (Harvey 2003), elucidate how corporations invested more in the creation of a bottled water market than in the privatisation of tap water provision, as the former is more convenient, profitable and controllable ("a more perfect commodity"), whilst the latter presents high maintenance costs and can meet several resistances (Jaffee and Newman 2013a, b; Jaffee and Case 2018). Nonetheless, as bottled water consumption does not exist in a vacuum, companies' capital flows have leveraged on the rich semantic network elicited by water – a symbolism where romantic aspects of nature, health precepts, body purity and safety intertwine – to both undermine trust in tap water and transform mundane and abundant things into the exotic (Wilk 2006).

Few studies, instead, consider how water use and bottled water may be stratified. The available evidence that analyses representative datasets of large populations generally neglects how individuals' resources may contribute to the social patterning of water (un)sustainable use, despite social stratification can be useful for understanding un-sustainable consumption. Before going further in this direction, some thoughts will be put forward in discussing why Italy represents a meaningful case study in comparison with other countries.

4.3 Italy as a Meaningful Case Study

4.3.1 *The Struggle over Water Management*

Over the past two decades, water has been a highly salient and debated issue in Italy, especially with regard of its management structure. Historically, water ownership in Italy had been kept public and local authorities had the power to establish public water operators responsible for managing water service. Starting from the 1990s,

however, the public management of water started to be put in question with a series of reforms. For some organisations such as the Organisation for Economic Cooperation and Development (OECD), water in Italy has been under-priced for a long time (2011). The relatively low water tariffs had been made possible by government subsidies for investments. However, because of the high public debt levels, the government has proved unable to sustain these subsidies and this, in turn, has impeded necessary improvements of the water infrastructure (Marotta 2014).

The idea that guided the Italian Government to embark on a reform process of the water sector was the increase in both the efficiency and the size of water utilities through an incremental adoption of a market-oriented mode of governance, based on competition. The so-called “Galli Law” (Law no. 36/1994) aimed at consolidating municipal service providers into regional utilities, separating service provision from regulation, achieving cost recovery from tariffs, and improving efficiency. Accordingly, this law devised a new administrative body called *Ambito territoriale ottimale* (Optimal Territorial Area, ATO).

Although aiming to improve the quality of the service, the water management reform stimulated a number of conflicts between jurisdictions operating at different scales, with recurrent judicial actions from 2000 onwards. As argued by Carrozza and Fantini (2016), “at the heart of these conflicts there was either the wish of local governments to preserve their previous autonomous control of the sector or their effort to create new spaces for action in the water sector” (p. 102).

The conflicts generated at the institutional level have not been the only ones. The process was also challenged at the national level by a grassroots mobilisation that opposed the privatisation of water services. While a movement of opinion around water had already started to emerge in Italy in the late 1990s (Carrozza and Fantini 2016), citizens’ dissent became stronger and more organised at the turn of the new century.

Citizens’ mobilisation drove to the establishment in 2006 of the *Forum italiano dei movimenti per l’acqua* (Italian Water Movements Forum), a coalition of civil society actors encompassing a wide spectrum of organisations: alterglobalist NGOs, environmental groups, trade unions, civic committees, local authorities, consumers associations, missionaries and parishes (Carrozza and Fantini 2016). The Forum’s first activity was to promote a bill providing for the re-publicisation of water services. The initiative was able to collect wide public attention and the bill, later presented in Parliament, was signed by over 400,000 citizens. In 2010, however, the Constitutional Court established that the Italian legislature could legitimately opt for free market principles in matter of water resources management (Judgment No. 325/2010). As a consequence, the Forum’s second national action was to call for three referendums aimed at the abrogation of the rules approved by Parliament in support of the privatisation of local public services, including water management.

As in the case of the bill, also the referendum initiative enjoyed strong levels of citizens’ support. In a very short period of time the Forum was able to collect 1,400,000 signatures, almost three times the required amount (Carrozza and Fantini

2016). During the referendum, which was held in June 2011,² citizens voted almost unanimously for the repeal of the existing legislation on the privatisation of water services. However, in spite of such an overwhelming result, 2 months later the Italian Parliament approved a law that strengthened the privatisation of water management. As a response, the Forum, supported by six Italian Regions (Apulia, Lazio, Emilia-Romagna, Marche, Umbria and Sardinia), started a legal fight in order to get the new law recognised as illegitimate by the Constitutional Court.

The Court did so in 2012, by declaring the new legislation in clear conflict with the popular will expressed in the referendum (Judgement No. 199/2012). Consequently, the Forum started a campaign of ‘civil obedience’ to demand the respect of the popular vote expressed in the referendums of June 2011. This campaign intended to make all actors – central Government, Parliament, regional Governments, municipalities, the corporations that had been managing the water services and all public and private stakeholders – respect the will of the Italian people and keep the management of water services public (Carrozza and Fantini 2016).

In addition to legal actions, during these years activists adopted also a number of other strategies such as exhibitions, performances, conferences, meetings, media campaigns and mail-bombing directed at MPs, cabinet ministers, local administrators and all those involved in decision-making in the water sector. Such a various repertoire of action adopted by the “water movement” was not aimed solely to inform, inspire and sustain the political struggle, but also to transform people’s views and practices related to water, re-socialising its symbolic and cultural dimensions (Carrozza and Fantini 2016). While raising awareness on the importance of water for life, and discussing the repercussions of water being treated as a commodity, activists also directly asked citizens to re-think their water consumption habits, stressing the need for a more responsible daily use of water. For instance, the “turn-off-the-faucet” campaigns in different guises (“*Imbrocciamola*” and “*Acqua del Sindaco*”) aimed to reduce the consumption of bottled water.

²The original proposal addressed three questions: a first one concerned the repeal of the law that forced local Governments to turn to the market for the provision of all local public services; a second regarded the abolition of the specific rule on the choice of water services management; one last question was related to the method of calculation of the water service fees. In January 2011, the Constitutional Court, the highest court of Italy in matters of constitutional law that also decides on the eligibility of referendum questions, rejected the second question and passed the other two. As underlined by Marotta (2014): “In particular, the Constitutional Court approved the referendum for the repeal of the legislation on water services with specific reference to the criterion of ‘adequate return on the invested capital’ (Judgement no. 26/2011). The Court made it clear that this referendum aimed at separating water management from the global logic of market profit” (p. 42).

4.3.2 *Water Service Provision and Quality*

Despite efforts for improvement, water service provision in Italy still suffers from very high water losses in the distribution networks, with an average dispersion value of 47% (ISTAT 2019). Consequently, this means that almost half of the water withdrawn for municipal supply is not billed to the customers because of leakage, malfunctioning water meters and water theft.

Moreover, although as estimated by ISTAT (2019) families connected to the municipal water supply in Italy are in general satisfied with the service (those who feel “very satisfied” with the service amount to 21.3%, and those “quite satisfied” to 63.3%), the overall level of satisfaction varies significantly across the territory. Families that are at least quite satisfied are nine out of ten in the North, eight in the Centre and South and down to seven in the Islands (Sicily and Sardinia). However, there are geographical areas of the country where the share of poorly satisfied families far exceeds the percentage of those very satisfied. The greatest deviations are recorded in Calabria (26.6% not satisfied against 9.6% very satisfied), Sardinia (24.3% against 8.8%) and Sicily (22.7% against 11.1%). Moreover, although water that comes from the tap must be potable according to the law, families that do not regularly drink water from the tap still represented in 2018 the 29%, amounting to roughly 7.5 million people (ISTAT 2019). The territorial differences are noteworthy: from 17.8% in the North-East to 52.0% in the Islands, with the highest percentage in Sicily (53.3%), followed by Sardinia (48.5%) and Calabria (45.2%).

Interestingly, as pictured in Fig. 4.1, regions where individuals are more satisfied with water service are not necessarily those with the highest percentage of individuals who regularly drink water from the tap. While there are only two regions (Trentino-Alto Adige and Aosta Valley) which score high in both individuals who regularly drink tap water and individuals who are highly satisfied with water service, and three regions (Calabria, Sicily and Sardinia) where both figured are low, in all other Italian regions such relationship is less clear-cut, meaning that there might be other factors, rather than individuals satisfaction with water service, which have a bearing on people’s habit to drink tap water.

In this regard, Fig. 4.2 shows how the percentages of people who regularly drink water from the tap and, conversely, of those who do not, have significantly changed over time following different paths. On the one hand, the percentage of individuals who regularly drink water from the tap has followed a rather fluctuating trend over the years (decreasing from 1993 to 1999, steadily increasing until 2012, and then decreasing again in the most recent years³), while the percentage of those who do not drink water from the tap because of lack of trust has steadily decreased. On the

³Although it is clearly difficult to speak of a direct effect on people’s water consumption of the campaigns launched by the Italian “water movement” to reduce the consumption of bottled water and, conversely, increase that of tap water, it is nevertheless interesting to note that the percentage of those who declare to usually drink water from the tap seems to have increased during the years immediately after the referendum (2011–2012), only to decrease again in the following years.

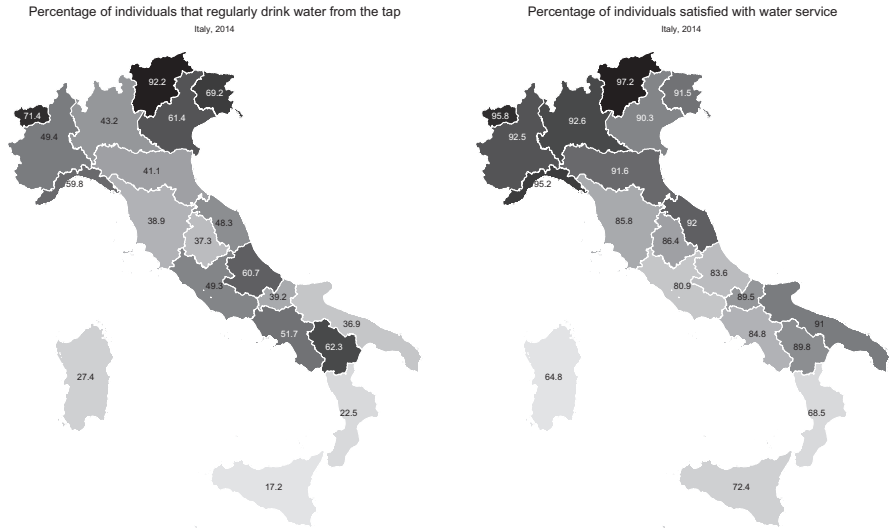


Fig. 4.1 Left panel (a): percentage of individuals who regularly drink water from the tap by region. Right panel (b): percentage of individuals satisfied with water service by region. (Own analyses based on the Multipurpose Survey of Daily Life by ISTAT (2014))

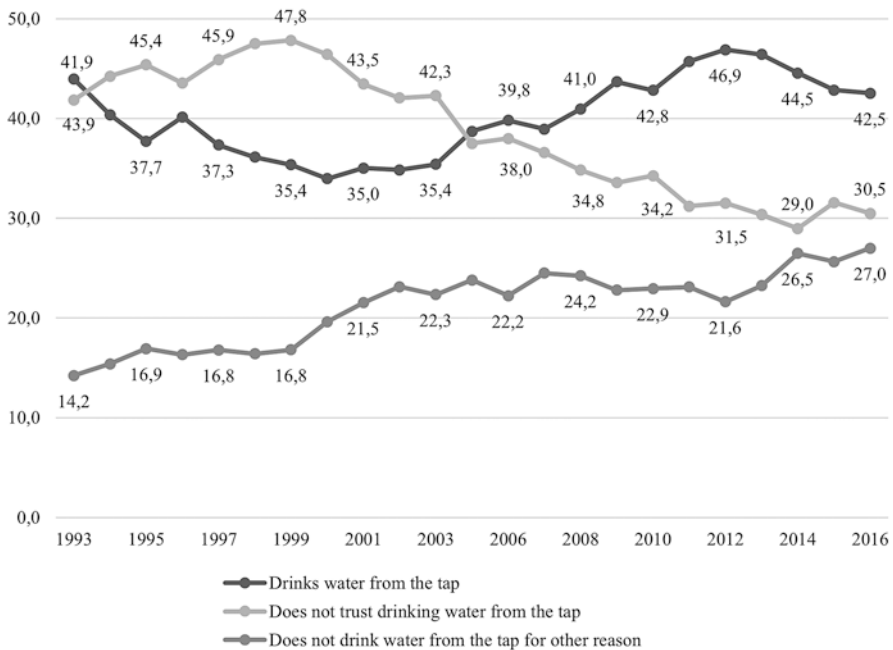


Fig. 4.2 Tap water trends from 1993 to 2016. (Own analyses based on the Multipurpose Survey of Daily Life by ISTAT)

other hand, the percentage of those who do not drink tap water because of other reasons has steadily increased, mirroring the constant increase in bottled water consumption.

As pointed out by several studies, the reasons why people may opt for bottled water rather than tap water are in fact manifold and are not necessarily connected to the lack of trust in the public drinking water system. For example, consumers may turn to bottled water because of their dissatisfaction with the organoleptic quality of tap water, such as taste, odour and sight (Doria 2006). Or alternatively, they may prefer bottled water because it is considered healthier, but not necessarily safer, than tap water (Carlucci et al. 2016).

4.3.3 Bottled Water

As already mentioned, Italy is one of the highest producers and consumers of bottled water in the world. According to the 2018 Beverage Marketing Corporation report, with a production of 13,450 billion litres and a per capita annual consumption of 222 litres in 2017, Italy is Europe’s biggest consumer of bottled water (29 litres per capita more than in Germany, +16.4%; 84 litres more than in France, +68.9%) and ranks third at the world level behind Mexico and Thailand (Beverage Marketing Corporation 2018; Legambiente 2018).

In Italy the consumption of bottled water began in the 1970s (Carlucci et al. 2016). From the mid-1980s to 2000, the bottled water industry grew from a niche market filled with special healing waters and elite brands to a market involving more than 250 brands of bottling companies with about 130 factories (Beverage Marketing Corporation 2018). As it is possible to see in Fig. 4.3, the number of

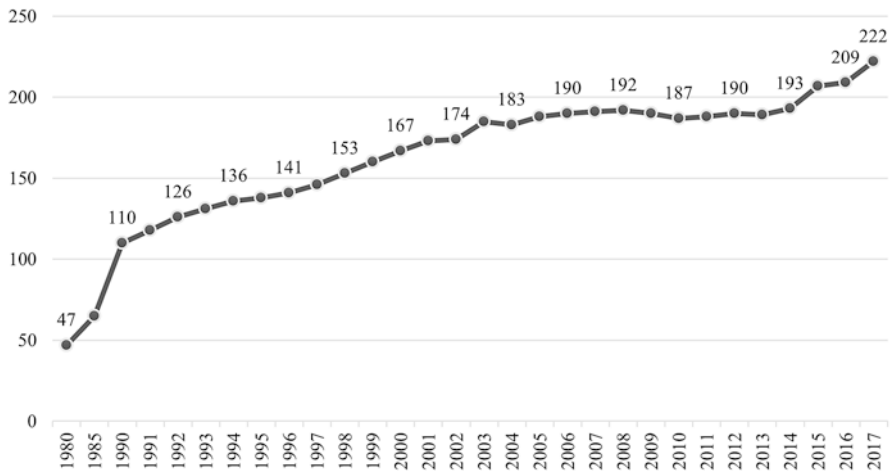


Fig. 4.3 Litres of bottled water per capita in Italy from 1980 to 2017. (Own elaboration based on Bevitalia (2019))

litres of bottled water consumed per capita have constantly increased, growing faster from the beginning of the 1980s to the turn of the new century, to remain stable for about a decade (from 2004 to 2014), to start to grow again towards the peak of 222 litres per capita in 2017.

With a total value between €7 billion and €10 billion a year, the business of bottled water generates revenues for around €2.8 billion for Italian bottling companies. In 2017, the mineral water sector saw a 7.8% growth in volume and 7.7% growth in value. Sparkling water showed a particularly strong performance (+9.2% in volume and +8.4% in value), while still water maintained the positive trend registered in recent years, with +8.3% growth in volume and +8% growth in value (Bevitalia 2019).

The Italian bottled water market is dominated by eight producers (Sanpellegrino Nestlé Waters, San Benedetto, Fonti di Vinadio, Acque Minerali Group of Italy, Lete, Ferrarelle, Cogedi, Spumador) which together make up over 74% of total national production. As emphasised by the 2018 Beverage Marketing Corporation report, the Italian market is the only large market for packaged water that is not dominated by large multinational beverage companies. The only large multinational that has conquered the leadership of the market is Sanpellegrino (owned by Nestlé Waters), while Coca-Cola, although operating on the market for some years, is far from the top positions, and the other two large multinationals of packaged waters, Danone and Pepsico, are almost absent (Beverage Marketing Corporation 2018).

The consumption of bottled water has important implications for the production of plastic waste and consequent pollution. Indeed, besides issues related to water conservation as a fundamental strategy to guarantee a sustainable management of scarce resources, the entire process of extraction, processing, packaging and transportation of bottled water has a considerable environmental impact (Carlucci et al. 2016).

According to Legambiente (2018), the reason for the high production and consumption of bottled water in Italy is to be found in the rather low concession fees applied by the Italian regions to bottling companies. Although in Italy water springs are owned by the State and, therefore, extraction concessions fall within the competences of the Italian regions, the tariffs applied are usually very low, allowing very high profits for the business of bottled water. Such low tariffs clearly have an impact on the final price of bottled water for consumers, which according to Beverfood, an Italian magazine specialised in the beverages sector, is the lowest in the European Community, and with a price of 0.2 euros per litre is one of the cheapest in the world (Bevitalia 2019).⁴

Opponents of bottled water around the world have often accused the industry of doing more than merely advertising a product (Jaffee and Newman 2013a, b). In this regard, activists have often argued that the bottled water industry represents the effort by corporations to commodify a human need in a time of increasing scarcity

⁴These data are from Statista (“Average selling price of mineral water in large retail distribution in Italy in 2018, by type”, <https://tinyurl.com/y42e2fnk>) and Numbeo (“Price Rankings by Country of Water (1.5 liter bottle)”, <https://tinyurl.com/yxvqfhan>).

of such an essential and basic natural resource. The several appeals made by the Italian “water movement” (Martinelli 2011) seem however to have clashed with the convenience (in term of comfort and money) of choosing bottled water, especially for out-of-home consumption (Doria 2006). Over the past decades Italians have grown accustomed to the idea of shopping a bottled water from almost everywhere. As disposable plates, cups and utensils, also bottled water is after all at the heart of the contemporary consumer experience.

4.4 Data and Methods

4.4.1 Data and Dependent Variables

To analyse the stratification of water use and bottled water consumption we rely on the 2014 Multipurpose Survey of Daily Life (MDL) and the 2014 Survey on Household Consumption (SHC) by ISTAT, the Italian National Institute of Statistics. The former collects data on the daily life of a representative sample of Italian families, and all respondents are required to fill out a questionnaire on their habits, including how often one pays attention not to waste water. Original response categories were “regularly”, “sometimes”, “rarely” and “never”, which we then recoded so to have a dummy variable distinguishing people who pay at least some attention (1) from those who rarely or never pay attention (0). To compare the results of the model with the stratification of other practices oriented toward sustainability, we conducted the same analyses also on three other variables collected in the survey, which have the same response categories and were recoded in the same manner. These are “How often do you pay attention not to waste electricity”, “How often do you purchase local products” and “How often do you purchase organic products”. We restrict the analysis to individuals aged 25 to 64 years old, and after listwise deletion the sample comprises 22,101 cases (91.4% of the original analytical sample).

The SHC survey collects data on household expenditure from a representative sample of Italian families over a period of 12 months to avoid seasonality bias. The reference person in the household is required to fill in the weekly record of purchases of goods and services, which is then converted into a monthly estimate. In the survey, it is possible to distinguish between families that do not spend money for mineral water (0), and families that spend any amount greater than zero (1). In this case, we restricted the analysis to households with a reference person aged 18 to 64 years old, with non-missing values for all the variables considered (N = 10,463). On both samples, we applied logistic regression using survey weights to correct for sampling bias.

4.4.2 Control Variables

In the MDL survey we measured cultural and economic resources distinguishing between the educational level of the respondent (tertiary, upper secondary, lower secondary and primary or less) and social class in five categories (bourgeoisie, white collar, petty-bourgeoisie, working class and inactive). Additional control variables included type of family (single, couple, lone parent), age (35–44, 45–54, 55–59, 60–64), gender (male, female), number of components and macro-area of residence (North, Centre, South and Islands).

In a similar manner, in the SHC survey we differentiated between the educational level of the reference person (tertiary, upper secondary, lower secondary or less) and the total expenditure of the household minus nondurables as a proxy for income. Control variables included marital status (single, couple, separated/divorced, widow), employment status (worker, unemployed, inactive, other), number of people in the household, age, gender of the respondent, macro-region of residence (North, Centre, South, Islands).

4.5 An Exploration into the Social Stratification of Water Waste and Bottled Water Purchase

Table 4.1 presents the frequency distribution of the original response categories of the four dependent variables capturing different practices oriented toward sustainability. As it can be noticed, the distributions are very different. While more than 70% of respondents declare to regularly pay attention not to waste water and electricity, purchasing local or organic products are practices much less commonly taken up. Only 21.6% and 10.6% of individuals, respectively, habitually engage in these types of behaviours. This difference is not surprising: while avoiding water or electricity waste is a cost-free practice, which can help save money, purchasing local and organic products inevitably require an additional cost for consumers.

Moving to the results of the logistic regressions, Fig. 4.4 illustrates the marginal effects of engaging in the four practices by educational level of the respondents. Tables 4.2 and 4.3 present instead the marginal effects for all the control variables used in the models. Although all four practices are to some extent stratified by educational level, the magnitude of the difference is much more marked for purchasing

Table 4.1 Descriptive statistics for the original response categories of the dependent variables. Own elaboration based on ISTAT MDL survey (2014)

	Water	Electricity	Local products	Organic products
<i>Regularly</i>	71.1	75.9	21.6	10.6
<i>Sometimes</i>	18.6	17.1	39.9	35.9
<i>Rarely</i>	6.7	4.6	18.5	24.2
<i>Never</i>	3.6	2.5	20.1	29.4

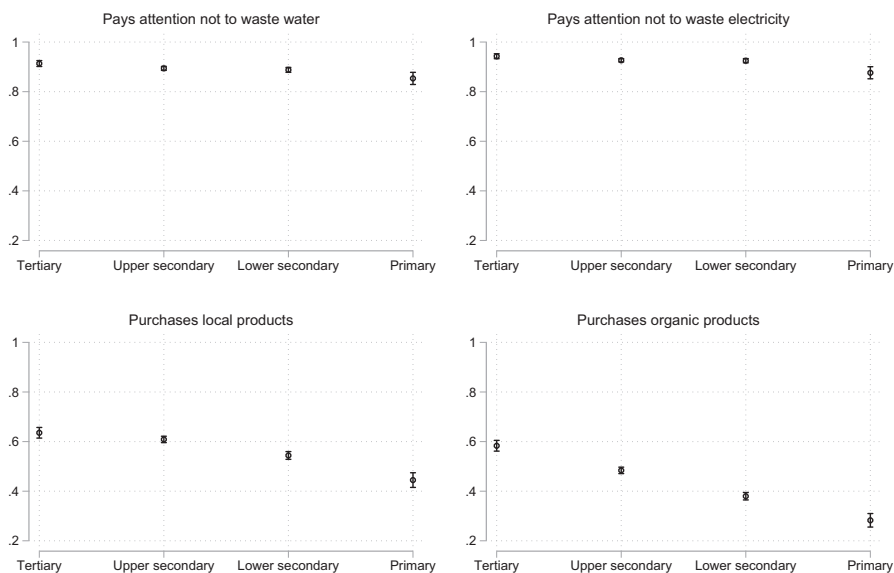


Fig. 4.4 Marginal effects of education level on the probability of paying attention to water consumption and electricity, and purchasing local products and organic products. (Own elaboration based on ISTAT MDL survey (2014))

local and organic products.⁵ In the case of water and electricity consumption, respectively 6.0 and 6.7 percentage points separate tertiary and primary educated individuals, while there is not a substantial difference with individuals holding an upper or lower secondary title; conversely, the educational level has a strong monotonic association with the probability of purchasing local and organic products. For the former, the probability moves from 63.6% for tertiary educated respondents, to 60.9% for upper secondary educated ones, and then drops to 54.4% and to 44.5% for individuals with, respectively, a lower secondary and primary education. For the latter, the magnitude of the association is even larger, as it moves from 58.3% for tertiary-educated individuals, to 28.3% for primary-educated ones, decreasing of 10 percentage points along each educational level. Similarly, economic resources (proxied by social class) are not associated with the probability of saving water or electricity, but they play a significant role in the purchase of local and organic products: compared to the bourgeoisie, all the other classes are significantly less likely to acquire at least sometimes these products. In particular, working class individuals are respectively 10.5 and 11.9 percentage points less likely to acquire local and organic products.

In the case of bottled water consumption, 66.2% of the families declare that they have spent any amount more than 0 for mineral water in the previous month, whereas

⁵Results do not change substantially if we apply an ordered logistic regression on the original response categories or if we recode the variables distinguishing between “regularly” and all the others.

Table 4.2 Marginal effects on the probability of paying attention to water and electricity. Own elaboration based on ISTAT MDL survey (2014)

	Pays attention to water			Pays attention to electricity			
	AMEs	Std. Err.	p-value	AMEs	Std. Err.	p-value	[95% Conf. Interval]
Education level							
Upper secondary [ref. Tertiary]	-0.019	0.007	0.005	-0.016	0.006	0.005	-0.028 -0.005
Lower secondary	-0.026	0.008	0.002	-0.018	0.007	0.011	-0.032 -0.004
Primary	-0.060	0.015	0.000	-0.067	0.014	0.000	-0.094 -0.039
Social class							
White collar [ref. Bourgeoisie]	0.023	0.010	0.029	0.013	0.009	0.142	-0.004 0.029
Petty-Bourgeoisie	0.007	0.012	0.589	0.006	0.010	0.540	-0.013 0.026
Working class	0.021	0.011	0.058	0.014	0.009	0.133	-0.004 0.032
Inactive	-0.008	0.014	0.580	-0.018	0.013	0.144	-0.043 0.006
Type of family							
Couples [ref. Single]	0.002	0.009	0.799	0.009	0.008	0.298	-0.008 0.025
Lone parents	-0.027	0.012	0.022	-0.017	0.010	0.097	-0.038 0.003
Age							
35-44	0.036	0.009	0.000	0.034	0.008	0.000	0.018 0.050
45-54	0.057	0.009	0.000	0.048	0.008	0.000	0.032 0.063
55-59	0.059	0.010	0.000	0.057	0.009	0.000	0.040 0.074
60-64	0.075	0.010	0.000	0.066	0.009	0.000	0.049 0.082
Gender							
Female [ref. Male]	0.036	0.005	0.000	0.029	0.004	0.000	0.021 0.038
Number of components	-0.005	0.003	0.107	-0.003	0.002	0.210	-0.008 0.002
Macro-area of residence							
Centre [ref. North]	0.016	0.008	0.038	0.004	0.007	0.522	-0.009 0.017
South and Islands	0.020	0.006	0.001	0.011	0.005	0.039	0.001 0.021
N = 20.011							

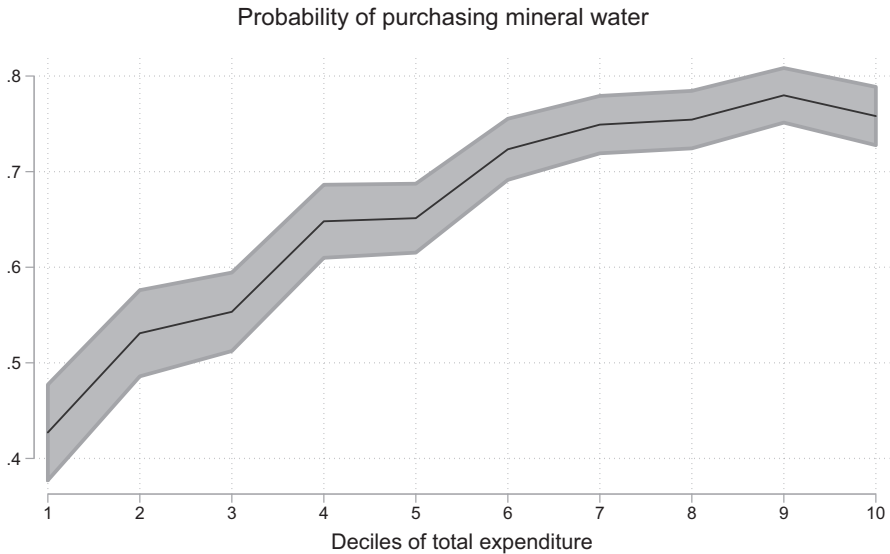


Fig. 4.5 Marginal effects of deciles of total expenditure on the probability of purchasing mineral water

33.8% are likely to exclusively rely on tap water. Figure 4.5 illustrates the marginal effects of the deciles of total expenditures – our proxy for household income – on the probability of purchasing mineral water. Table 4.4 displays instead the marginal effects for all control variables.

In line with similar studies (Johnstone and Serret 2012), the probability of purchasing bottled water increases with higher economic resources. The probability moves from 42.7% in the first decile to more than 75% in the last three deciles, with an increase of more than 30 percentage points across income layers. Conversely, the educational level seems to be negatively associated to bottled water purchases, as lower secondary (or less) educated respondents are 4.9 percentage points more likely than tertiary educated ones (see Table 4.4) to buy bottled water. This result points to the importance of distinguishing between cultural and economic resources as two different components of social position, which instead are too often captured by the loose concept of socioeconomic status.⁶

⁶Bottled water consumption could be also driven by the perceived quality of tap water in the area of residence. Despite water being drinkable almost everywhere in Italy, families may opt for bottled water because they do not appreciate the organoleptic quality of tap water or because they do not trust the service provider. This could explain why there appears to be a regional gradient, with households in the South and Islands almost 12 percentage points more likely to purchase bottled water net of several control variables (see Table 4.4). Additional research using regional, and possibly council data on water uses and quality could help disentangle how individuals' bottled water purchases, their resistance to tap water, and its perceived quality are imbricated.

Table 4.4 Marginal effects on the probability of purchasing bottled water. Own elaboration based on ISTAT *SHC survey (2014)*

	<i>AMEs</i>	<i>Std. Err.</i>	<i>p-value</i>	<i>[95% Conf. Interval]</i>	
Education level					
Upper secondary [ref. Tertiary]	0.027	0.016	0.106	-0.006	0.059
Lower secondary	0.049	0.018	0.006	0.014	0.083
Total expenditure (deciles)					
2° [ref. 1°]	0.104	0.032	0.001	0.040	0.167
3°	0.126	0.032	0.000	0.063	0.188
4°	0.220	0.031	0.000	0.158	0.281
5°	0.223	0.031	0.000	0.162	0.284
6°	0.295	0.030	0.000	0.235	0.354
7°	0.321	0.030	0.000	0.261	0.380
8°	0.326	0.031	0.000	0.266	0.386
9°	0.351	0.030	0.000	0.292	0.411
10°	0.330	0.031	0.000	0.268	0.391
Gender					
Female [ref. Male]	0.009	0.014	0.530	-0.019	0.037
Age					
35–64 [ref. 18–34]	-0.037	0.017	0.034	-0.071	-0.003
Marital status					
Married/cohabiting [ref. Single]	0.024	0.018	0.182	-0.011	0.059
Divorced	-0.009	0.020	0.658	-0.048	0.030
Widow	0.023	0.033	0.489	-0.042	0.087
Region of residence					
Centre [ref. North]	0.064	0.016	0.000	0.033	0.095
South and islands	0.112	0.013	0.000	0.087	0.137
Number of components					
	-0.004	0.006	0.521	-0.016	0.008
Working condition					
Unemployed [ref. Employed]	0.009	0.020	0.629	-0.029	0.048
Inactive	-0.005	0.018	0.795	-0.039	0.030
Other	0.043	0.041	0.295	-0.037	0.122
N = 10,463					

4.6 Discussion and Conclusions

By focussing on water use and bottled water purchase, this contribution aimed to introduce some possible connections between the sociological scholarship on consumption and the study of water use in Italy.

As discussed above, Italy represents an interesting case study for various reasons. Over the past two decades, water has been a highly salient and debated issue and this especially with regard to its management structure. The attempts made by the Italian Government to reform water governance through an incremental adoption of a market-oriented approach gave rise to a vast popular movement opposing the privatisation of water services, which was a key element marking the water

policy-making over the last years.⁷ But Italy also presents one of the highest rate of bottled water consumption, with important implications for the production of plastic waste and consequent pollution.

By building on the existing studies, in this chapter we tried to deepen our understanding of water saving behaviour and bottled water consumption, by discussing how domestic water use and consumption are socially patterned.

Without any claim of completeness, we distinguished two major approaches, outlining how recent efforts in the broader sociological literature on consumption have focused the attention on water intensive practices at home (such as laundry, gardening, or showering) and critical reflections on the success of the bottled water market. In line with this twofold distinction, we used two representative surveys of Italian families to study the social stratification of water domestic use and bottled water consumption, a theme which has seldom captured the attention of scholars. Obviously, these are but two of the manifold water domains capable of attracting sociological attention: the study of water supply politics in cities (Anand 2011), the organisation of social movements against water privatisation (Bakker 2007; Jaffee and Newman 2013a, b) or the functioning of irrigation systems and related practices in rural settings (Ternes 2018; Miao et al. 2018) are just a few examples of the extent of the subject.

The analyses suggest that, in general, the great majority of individuals pay attention to water wastage at home, and when compared with other sustainable practices that require greater economic efforts and that are considered markers of distinction of the middle upper classes (e.g. Oncini 2019), differences across educational levels are negligible. While purchase of organic and local food is considerably stratified by cultural and economic resources, water (and energy) saving practices seem instead almost evenly distributed across the population. The vast diffusion of the practice and the absence of a strong gradient are comprehensible, as paying attention not to waste water requires little additional effort (e.g. turning off the tap when brushing teeth or decrease showering time) and can indeed be economically convenient.

On the other hand, the probability of purchasing bottled water increases with the available economic resources of the household: in other words, wealthier families are less likely to exclusively rely on tap water. This result, in line with the evidence gathered in other countries (Johnstone and Serret 2012), deserves attention as it brings into question the simple idea that sustainable behaviours are more widespread among the middle classes. It may be so in the case of organic food purchase, or when deciding to participate in Alternative Food Networks (Graziano and Forno 2012), but in many other circumstances, the higher economic availability of more privileged strata of the population is likely to be associated with un-sustainable practices, if only for the lack of economic constraints.

⁷Additional analyses, available upon request, show indeed the existence of a significant relationship between regularly keeping oneself informed about politics and paying attention not to waste water. This correlation might suggest that water use is a salient, politically connoted issue for people who are interested in politics, and resonate with the wave of activism that surrounded the 2011 referendum.

These results, coupled with the fact that the main cause of water wastage in Italy is to be found in poor hydraulic infrastructures causing the loss of almost 50% of drinkable water (ISTAT 2019), may suggest that policy efforts should address the reduction of plastic-bottled-water consumption rather than raise awareness on water saving practices. A few encouraging signs might be found in the spreading of water kiosks and domestic purification devices that improve the palatability of tap water, as well as in the growing consumers' awareness regarding the environmental impact of plastic (Torretta 2013; Carlucci et al. 2016). Nevertheless, as already discussed above, the bottled water sector has been growing unremittingly since 1980s and per-capita consumption reached its maximum in 2017.

Despite its explorative objective, some limitations of this study are worth mentioning. First, the dependent variable in the MDL survey measures a rather generic attitude towards water saving and does not tell us anything regarding more specific water-intensive practices such as bathing or gardening, which would allow a much-refined understanding of sustainability practices (e.g. Pullinger et al. 2013a) and their social stratification. Second, in the SHC survey we are only able to distinguish families that purchase mineral water from those that do not, with no information regarding the material of the bottles. Nonetheless, although some families could also rely exclusively on glass bottles, the sector is still predominantly driven by plastic containers, which take up 82% of the water-packaging market (Bevitalia 2019).

On a final note, how could the sociological imagination help and widen the study of water use in the Italian context? In this chapter, we relied on survey data to explore two facets of the phenomenon, but many other research questions are open to investigation. What are the factors that push individuals to rely on bottled water despite tap water being cheaper and safe practically everywhere? What are the social and historical reasons that favoured the success of the mineral water industry (e.g. Black 2009)? What is the role of drinkable water in the meal routines of families? Why in some regions tap water is consumed more than in others regardless of its inherent quality and flavour? Is trust in public institutions linked to the avoidance of tap water? How do bottled water companies use marketing leverages to mark symbolic boundaries and distinguish almost identical goods? Sociological research, especially in the Italian context, could help provide additional keys to interpret water uses and misuses, and possibly inspire more effective responses to environmental concerns.

References

- Anand, N. (2011). Pressure: The politechnics of water supply in Mumbai. *Cultural Anthropology*, 26(4), 542–564.
- Aprile, M. C., & Fiorillo, D. (2017). Water conservation behavior and environmental concerns: Evidence from a representative sample of Italian individuals. *Journal of Cleaner Production*, 159, 119–129.
- Bakker, K. (2007). The “commons” versus the “commodity”: Alter-globalization, anti-privatization and the human right to water in the global south. *Antipode*, 39(3), 430–455.

- Beverage Marketing Corporation. (2018). *Press release: Bottled water staying strong*. U.S. and International Developments & Statistics. <https://tinyurl.com/y2d4bn9z>
- Bevitalia. (2019). *Annuario del bere Beverfood 2018–2019*. Edizioni Beverfood.
- Black, R. (2009). Acqua minerale di Sangemini: The Italian mineral water industry finds a place at the table. *Journal of Modern Italian Studies*, 14(2), 184–198.
- Carlucci, D., De Gennaro, B., & Roselli, L. (2016). What is the value of bottled water? Empirical evidence from the Italian retail market. *Water Resources and Economics*, 15, 57–66.
- Carrozza, C., & Fantini, E. (2016). The Italian water movement and the politics of the commons. *Water Alternatives*, 9(1), 99–119.
- Doria, M. F. (2006). Bottled water versus tap water: Understanding consumers' preferences. *Journal of Water Health*, 4(2), 271–276.
- Evans, D., McMeekin, A., & Southerton, D. (2012). Sustainable consumption, behaviour change policies and theories of practice. In A. Warde & D. Southerton (Eds.), *The habits of consumption, COLLeGIUM* (pp. 113–129). Helsinki: Helsinki Collegium for Advanced Studies.
- FAO. (2015). *Towards a water and food secure future. Critical perspectives for policy-makers*. Rome: Food and Agriculture Organization.
- Graziano, P., & Forno, F. (2012). Political consumerism and new forms of political participation: The Gruppi di Acquisto Solidale in Italy. *The Annals of the American Academy of Political and Social Science*, 644(1), 121–133.
- Hand, M., Shove, E., & Southerton, D. (2005). Explaining showering: A discussion of the material, conventional, and temporal dimensions of practice. *Sociological Research Online*, 10(2), 1–13.
- Harvey, D. (2003). *The new imperialism*. New York: Oxford University Press.
- Hawkins, G. (2017). The impacts of bottled water: An analysis of bottled water markets and their interactions with tap water provision. *Wiley Interdisciplinary Reviews: Water*, 4(3), e1203.
- ISTAT. (2019). Le statistiche dell'Istat sull'acqua. *Anni, 2015–2018*. <https://tinyurl.com/y3wwe44w>.
- Jack, T. (2013). Nobody was dirty: Intervening in inconspicuous consumption of laundry routines. *Journal of Consumer Culture*, 13(3), 406–421.
- Jaffee, D., & Case, R. A. (2018). Draining us dry: Scarcity discourses in contention over bottled water extraction. *Local Environment*, 23(4), 485–501.
- Jaffee, D., & Newman, S. (2013a). A more perfect commodity: Bottled water, global accumulation, and local contestation. *Rural Sociology*, 78(1), 1–28.
- Jaffee, D., & Newman, S. (2013b). A bottle half empty: Bottled water, commodification, and contestation. *Organization & Environment*, 26(3), 318–335.
- Johnstone, N., & Serret, Y. (2012). Determinants of bottled and purified water consumption: Results based on an OECD survey. *Water Policy*, 14(4), 668–679.
- Legambiente. (2018). Acque in bottiglia. Un'anomalia tutta italiana. www.legambiente.it/acque-in-bottiglia-unanomalia-tutta-italiana/
- Leiserowitz, A. A. (2006). Climate change risk perception and policy preferences: The role of affect, imagery, and values. *Climatic Change*, 77(1–2), 45–72.
- Marotta, S. (2014). On the critical relationship between citizenship and governance: The case of water management in Italy. *Urbanities*, 4(2), 39–50.
- Martinelli, L. (2011). *Imbrocciamola! Dal rubinetto alle minerali, piccola guida al consumo critico dell'acqua*. Milano: Altreconomia.
- Miao, S., et al. (2018). Income groups, social capital, and collective action on small-scale irrigation facilities: A multigroup analysis based on a structural equation model. *Rural Sociology*, 83(4), 882–911.
- Mylan, J., & Southerton, D. (2018). The social ordering of an everyday practice: The case of laundry. *Sociology*, 52(6), 1134–1151.
- Oncini, F. (2019). Feeding distinction: Economic and cultural capital in the making of food boundaries. *Poetics*, 73, 17–31.
- Orlove, B., & Caton, S. C. (2010). Water sustainability: Anthropological approaches and prospects. *Annual Review of Anthropology*, 39, 401–415.

- Price, J. C., Walker, I. A., & Boschetti, F. (2014). Measuring cultural values and beliefs about environment to identify their role in climate change responses. *Journal of Environmental Psychology*, 37, 8–20.
- Pullinger, M., et al. (2013a). *Patterns of water: The water related practices of households in southern England and their influence on water consumption and demand management*. Lancaster: University of Lancaster.
- Pullinger, M., et al. (2013b). New directions in understanding household water demand: A practices perspective. *Journal of Water Supply: Research and Technology – AQUA*, 2(8), 496–506.
- Race, K. (2012). ‘Frequent sipping’: Bottled water, the will to health and the subject of hydration. *Body & Society*, 18(3–4), 72–98.
- Reckwitz, A. (2002). Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory*, 5(2), 243–263.
- Rodwan, J. G. (2017). *Market report findings: Bottled water 2017*. Staying strong. International Bottled Water Association. <https://tinyurl.com/yyfqxptp>
- Russell, S., & Fielding, K. (2010). Water demand management research: A psychological perspective. *Water Resources Research*, 46(5), 1–12.
- Schatzki, T. R. (1996). *Social practices: A Wittgensteinian approach to human activity and the social*. Cambridge: Cambridge University Press.
- Shove, E. (2010). Beyond the ABC: Climate change policy and theories of social change. *Environment and Planning A*, 42(6), 1273–1285.
- Stein, P. L. (2000). The great Sydney water crisis of 1998. *Water, air, and soil pollution*, 123(1), 419–436.
- Swyngedouw, E. (2005). Dispossessing H2O: The contested terrain of water privatization. *Capitalism Nature Socialism*, 16(1), 81–98.
- Ternes, B. (2018). Groundwater citizenship and water supply awareness: Investigating water-related infrastructure and well ownership. *Rural Sociology*, 83(2), 347–375.
- Torretta, V. (2013). Environmental and economic aspects of water kiosks: Case study of a medium-sized Italian town. *Waste Management*, 33(5), 1057–1063.
- Van Der Linden, S. (2015). Exploring beliefs about bottled water and intentions to reduce consumption: The dual-effect of social norm activation and persuasive information. *Environment and Behavior*, 47(5), 526–550.
- Warde, A. (2005). Consumption and theories of practice. *Journal of Consumer Culture*, 5(2), 131–153.
- Wilk, R. (2006). Bottled water: The pure commodity in the age of branding. *Journal of Consumer Culture*, 6(3), 303–325.
- WWAP (UNESCO World Water Assessment Programme). (2015). *The United Nations world water development report 2015: Water for sustainable world*. Paris: UNESCO.
- WWAP (UNESCO World Water Assessment Programme). (2019). *The United Nations world water development report 2019: Leaving no one behind*. Paris: UNESCO.
- WWF. (2019). Good water management. *The Heart of Europe’s Drought Response*. wwf.panda.org/knowledge_hub/?350831/Good-water-management-The-heart-of-Europes-drought-response

Filippo Oncini is Marie Curie Fellow in the Sustainable Consumption Institute at the University of Manchester with a project on the organisation of food support provision in Greater Manchester during Covid-19 times. His research focuses on food inequalities, food poverty, cultural consumption and cultural stratification. His work has appeared on leading journals including *Poetics*, *Sociology*, *Sociology of Health and Illness*, *Geoforum* and *European Societies*.

Francesca Forno is Associate Professor of Sociology at the University of Trento. Her interests include civic participation and social change. She has published and done research on political consumerism, collaborative consumption, grassroots initiatives on social eco-innovation and

alternative food networks. Her work has appeared in leading journals including, among others: *The Annals of the American Academy of Political and Social Science*, the *Journal of Consumer Culture*, *Southern European Society and Politics*, the *International Journal of Consumer Studies*, *European Societies*, the *British Food Journal* as well as in collections of essays published by Oxford University Press, Wiley-Blackwell, Zed Books and Routledge.