



Tap versus bottled water consumption: The influence of social norms, affect and image on consumer choice



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ABSTRACT

What drives consumers to choose bottled water instead of tap water where the latter is safe, accessible, costs far less, and in spite of its environmental impacts? This research investigates the influence of hitherto unexplored psychological drivers in an attempt to generate a more holistic understanding of the phenomenon, and strategies for designing more effective consumption reduction campaigns. Using data from an internet survey of Swiss and German respondents ($N = 849$) we investigated the role of, social norms, affect and image on water consumption. Results suggest that these psychological factors play a role in water consumption choice. Convenience was the only contextual predictor - the inconvenience of transporting bottled water has a negative effect on its consumption, and a positive effect on tap water consumption. Although concern about the effect of bottled water on the environment was not a significant predictor of tap water consumption, we found that for some people, a link exists between environmental concern and consumption choice. Ways through which consumers may be more effectively influenced towards environmentally-friendly consumption are discussed.

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1. Introduction

Bottled water¹ represents one of the fastest-growing drinks market in the world and recent projections indicate that it is likely to overtake soft drinks and become the largest beverage category by volume. Even in countries where tap water is perfectly safe, bottled water consumption is still high. This raises questions regarding why consumers with perfectly safe tap water, that costs far less, opt for a more expensive and environmentally-deleterious option like bottled water. Recent data show that the 2015 annual consumption of U.S. residents stood at 44.3 billion litres, an increase of more than 47% compared to 2005 consumption (Rodwan, 2016). Across the Atlantic, residents of Italy, Germany and France have the highest bottled water consumption: up to 188.5, 177.3 L and 139.3 L per capita (Rodwan, 2016). What drives consumers to choose bottled water, despite access to a cheaper and equally high-quality option, is the subject of this investigation.

It takes about 3 L of regular water to produce 1 L of bottled water (Pacific Institute, 2007). This translates to more than 100 billion

litres of water being wasted every year in the production of bottled water (van der Linden, 2015), at a time when the global water situation is described as being in crisis and many in the developing world have no access to any form of safe water. The World Health Organisation estimates that only 24% of the population in Sub-Saharan Africa has access to safely managed, uncontaminated water (WHO & UNICEF, 2017). The energy demand for bottled water production is also enormous: per litre of water produced, bottled water requires 2000 times more energy than tap water (Gleick & Cooley, 2009). The fossil fuel consumption and CO₂ emissions at various stages of the supply chain from the manufacture of plastic bottles to their transportation, and the pollution caused by improper disposal of plastic bottles, also have enormous environmental impacts. Unlike developing countries where tap water can present health risks, this option is safe and widely accessible in developed nations (Ward et al., 2009; Wilk, 2006). So, what drives bottled water consumption in such situations?

Previous research shows that water consumption behaviour is influenced by both contextual (i.e. objective characteristics e.g. cost) and psychological factors (Dolnicar, Hurlimann, & Grün, 2011; Ross, Fielding, & Louis, 2014; Russell & Fielding, 2010). Thus, home ownership, higher income, living in an urban area, the presence of children under 5 years in the household and the convenience of bottled water transportation due to car ownership were correlated

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¹ In this paper, bottled water refers to both still and sparkling water.

with higher bottled water consumption (Johnstone & Serret, 2012; OECD, 2014; Yoo & Yang, 2000).

Psychological factors, on the other hand, refer to subjective individual characteristics which influence individuals' perceptions e.g. values (Perlaviciute & Steg, 2014). Previous studies have identified a number of psychological factors influencing water choice including concerns about chemicals e.g. chlorine, fluoride, and lead and beliefs around the health benefits of minerals in bottled water, (Doria, 2006; Doria, Pidgeon, & Hunter, 2009; Levallois, Grondin, & Gingras, 1999; Platikanov et al., 2017; Ross et al., 2014; Santos & van der Linden, 2016; Saylor, Prokopy, & Amberg, 2011; Turgeon, Rodriguez, Thériault, & Levallois, 2004; Ward et al., 2009). A growing body of evidence also suggests that tap water consumption is significantly correlated with consumers' trust in water suppliers (Doria et al., 2009; Ross et al., 2014). Parag and Roberts (2009) argue that decisions to replace tap with bottled water are emanate from a lack of trust in the institutions responsible for tap water provision; evidence of which was seen in the increase in bottled water consumption that accompanied the sharp fall in public trust of the Sydney water Board following the 1998 *Cryptosporidium* and *Giardia* outbreak in Sydney, Australia (Stein, 2000). Institutional trust is therefore a significant determinant of bottled water consumption.

However, a close look at data reveals significantly high consumption of bottled water even in countries not characterised by the issues described above. European consumers, for example, consume large quantities of bottled water despite being generally satisfied with the quality of their tap water, trusting institutions responsible for water provision, and perceiving no health risks from tap water (OECD, 2014). A recent study of German consumers found that more than 80% were extremely satisfied or satisfied with their drinking water quality (Profile of the German Water Sector, 2015), yet German bottled water consumption is the second highest in Europe (Rodwan, 2016). A similar scenario characterises the Swiss population where more than 65% are satisfied with tap water quality (OECD, 2014). This implies the existence of other drivers of bottled water consumption, besides those presented in the literature cited above. To delineate these factors, we directed our investigation towards factors known to influence consumer behaviour e.g. image, social norms and affect, but which have not been investigated with specific reference to water consumption choices.

1.1. Image

Personal and product image are important factors in consumption choice. People often choose products whose image conforms to their view of themselves or whose image they respect, admire or aspire to (Allen, 2002; Barker, Tandy, & Stookey, 1999). Historically, mineral water was sourced from underground in spas and was almost exclusively accessible to only the rich or people of high social status (Ferrier, 2001). Access was therefore a status symbol. Today, some of this symbolism of status and wealth persists in the form of exclusive shops for bottled water costing as much as €50 for a 37 mL bottle (Brei & Tadajewski, 2015).

It is not possible to talk about the image associated with bottled water without acknowledging the role of advertising in crafting this image. Past and present advertising has employed symbolisms of youth, vitality, trendiness, and nature, implying that drinking the bottled water magically transfers these qualities to the consumer (Brei & Tadajewski, 2015; Olson, Poling, & Solomon, 1999). It is plausible that for some segments of the consumer market, consumption decisions are based, to some extent, on aspirations for these qualities. Not only does the image associated with bottled water affect consumption choices, the image one wishes to portray

of themselves also plays a major role. For instance, in social contexts, people are more concerned about appearing friendly and likeable and honest because these qualities make them a more desirable partner for socialising (Nezlek, Schütz, & Sellin, 2007). Individuals can, therefore, influence their likeableness by what they choose to consume personally or what they offer guests.

Thus, both the image associated with bottled water, and the image consumers wish to portray of themselves, have the potential to influence water consumption decisions.

1.2. Norms

The rules that societies establish to define appropriate behaviour are important determinants of consumer choice (Higgs, 2015). Norms significantly influence consumer choice not only because norm-congruent consumption enhances group affiliations, it also helps to avoid undesirable social judgements and embarrassment (Fehr & Fischbacher, 2004). Crescive norms are norms that are practiced by members of particular social unit but which may not be known to non-members (Solomon, Bamossy, Askegaard, & Hogg, 2007). With respect to water, for example, the crescive norms within societies may prescribe the type of water considered appropriate for occasions, to accompany particular foods, or that is to be offered to different guests, invalids and infants (Brei & Tadajewski, 2015).

1.3. Affect

Our everyday experiences leave little doubt that affect can influence the decisions we make. Defined as the positively or negatively valenced subjective reactions experienced as either negative or positive feelings, affect often reflects learned meanings (Wyer, Clore, & Isbell, 1999, pp. 1–77). For example, if one experiences a positive reaction the first time they consume a particular food, they are likely to have the same feeling during later consumption episodes or even from just seeing pictures of the food again. This initial positive reaction may be due to expressions one observes from others during consumption or associations one makes with occasions where the item was first consumed or is frequently consumed.

The role of affect in consumer choice has been recognised for several decades now. Wright (1975) showed that consumers sometimes rely on previously formed evaluations stored in memory in a process called affect-referral. Later, Schwarz & Clore (1983, 1988) put forth a suggestion based on the notion that feelings are sources of information. For example, people interviewed on a sunny day reported being in a better mood and being happier with life than people interviewed on rainy days. Similarly, people who had a good mood induced by finding a dime on a copy machine reported being happier and more satisfied with life than individuals who hadn't found a dime. This suggests that people use their feelings as a heuristic so that instead of evaluating their life as whole, for which too many facts would be needed, subjects evaluated the target (life as a whole) in light of their present affective state. In other words, people base their evaluations of objects on their affective reactions at the time of judgment; and even though these affective reactions may have been caused by external stimuli, they are interpreted as feelings about the object being evaluated. Forgas (1995) suggested that affect is used a heuristic when people are unable or unmotivated to think through other information available (see also (Pham, Cohen, Pracejus, & Hughes, 2001; Shiv & Fedorikhin, 1999; Slovic, Finucane, Peters, & MacGregor, 2007).

However, relatively little is known about the role of affect in water consumption. Inferences can, nevertheless, be drawn from studies showing that people assigned greater weight to affective

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