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Consumer Behavior
Practice Oriented Perspectives

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CONSUMER BEHAVIOR - PRACTICE ORIENTED PERSPECTIVES

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Contributors

Christia Meidiana, Zuqnia Gita Ramadhani, Dian Dinanti, Senay Sabah, Farhana Ferdousi, Ibrahim Abosag, Zahy Ramadan, Blandina Šramová, Bogdan Onete, Jaime De Pablo Valenciano, José Ramos Pires Manso, Miguel Angel Giacinti Battistuzzi, Juan Uribe Toril, Juan Milán García

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Meet the editor



Şenay Sabah is an assistant professor of Marketing at the Faculty of Political Sciences at Ankara University, Turkey. She has an MBA and a PhD degree from Ankara University on Marketing. She teaches macromarketing, principles of marketing, marketing management, and marketing research. Identity and self-related consumer research, materialistic consumption, consumption behavior of football fans, narcissism-related consumption, and need/desire discussion and its relevance to consumption, disposal, and cognition are among her research interest. Assistant Professor Sabah has several conference proceedings, book chapters, and other papers on these issues.

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Preface

No time in the history, consumption is considered to be as important as in today's world. It defines who we are, how well/perfect we perform our multiroles within the society (buying the most expensive clothes means being the best mom for instances), what symbolic meanings we attribute to our belongings, and how rich/clever/fashion conscious or innovative we are. Due to multidisciplinary and multimethod character of the concept of consumer behavior, it is appropriate to study it accordingly in order to understand the subject with its different aspects and holistically. Especially with the cultural, social, and technological changes within today's world, this issue becomes prominent. This book, with its seven chapters, is a modest try for that end.

The first chapter is called "Consumer Behavior in New Era." In this introductory chapter, the meaning of consumer behavior in today's world according to several disciplines is discussed. It is assumed that in today's world consumption gains so much importance that has never happened before. Beside the multidisciplinary character of the issue, it is argued that it can be understood through multimethodology and method also.

The second and third chapters are about the technological change and its effects on consumer behavior. The second chapter is "The Mystique of Customers' Saturation in Online Brand Communities." In this chapter, the author sheds light on a popular subject in the consumer behavior era, which is "online brand communities," but with a different perspective relying on both marketing and information system literature. Doing so, the author focuses on the possible negative effect of those communities that is customers' saturation. The study provides an early understanding about the customer saturation in online brand communities developing five related propositions. While reading the chapter that provides a comprehensive relevant literature, the reader may go through those propositions.

The third chapter, "Consumer between WEB 2.0 and WEB 3.0," discusses the changes in the consumer behavior era with the development of Internet technology. Accordingly, the paper argues that this technological improvement paves way to empowered, socially and interactively connected consumers. In other words, consumers are now actively seeking for the brands and products they need, want, and desire and developing an emotional bond with those brands using Internet and social media.

The fourth and fifth chapters discuss the social dimension of the consumer behavior. The fourth chapter, "Understanding Consumer Behavior toward Social Enterprise Products," discusses the importance of social enterprise concept. In doing so, it asks the question whether consumers' knowledge about those enterprises makes a difference on their buying behavior. Besides, "consumers' perceived ethical and environmental awareness or rational consideration" is also discussed. In the study, the author applied regression analysis in order to bring light to the subject.

The fifth chapter, "Measuring Public Acceptance Value of Rural Biogas Development through Logistic Regression and Willingness to Pay," discusses the acceptance of renewable energy technologies and the consumers' willingness to pay tendencies for those technologies. For this end, logistic regression is applied in order to study the acceptance of biogas farmers, nonbiogas farmers, and nonfarmers toward biogas technology.

The sixth and the seventh chapters provide some different examples for the consumer behavior concept. The sixth chapter, "Children's Consumer Behavior," considers the children as consumers that reveal an important issue for different disciplines such as marketing, psychology, sociology, and pedagogy. Accordingly, the chapter discusses the cognitive development of children within the preoperational period, considering both children and the parents' perspectives.

The last chapter "Explicative Factors Driving the Tomato Consumption in the Mediterranean Basin: A Panel Data Approach" studies tomato consumption behavior of different Mediterranean countries. With panel data method, the author tries to find out the most important explanatory factors regarding the tomato consumption within these different countries.

With different perspectives, theories, methodologies, and methods, these seven chapters try to study and discuss some important issues regarding consumer behavior literature. I am really excited with these different aspects of the issue shedding light on different spots of the elephant. I hope you also consider them useful and interesting.

Senay Sabah
Ankara University, Turkey

Introductory Chapter

Introductory Chapter: Consumer Behavior in New Era

Şenay Sabah

Additional information is available at the end of the chapter

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1. Introduction - Consumer Behavior in New Era

No time in the history, consumption is considered to be as important as today's world. It defines who we are, how well/perfect we perform our multiroles within the society (buying the most expensive clothes means being the best mom for instances), what symbolic meanings we attribute to our belongings, and how rich/clever/fashion conscious or innovative we are. Poor is not defined as being jobless anymore, but it is considered to be bad consumers [1]. Additionally, those who have enough money but do not consume trendy and new fashion products are socially disapproved.

Accordingly, consumer and the consumption behavior is today's one of the outstanding issues within the academic literature, and this is not true for just marketing context. The area is quite multidisciplinary, and several academicians in different disciplines study consumption-related subjects. From sociological point of view, a "consumption society" and "consumption culture" view is discussed widely in order to express the present society. In other words, despite the fact that production is the defining concept of the past society, for the present century, it is consumption [2]. Besides, consumption is no longer taken to be a destruction activity at all, but with the personal identity and symbolic meanings formation through consumption, it is considered to be a productive activity. Moreover, the very important economic concept and institution of today's world; shopping malls; and chain stores are considered to be the cathedrals of consumption [3] that make consumption a new age religion. Accordingly, do not surprise while it is argued in USA that Jesus come back as an iPhone form, or while a teenager in China sells one of his kidneys to buy a cellular phone.

Not only sociologists consider consumption centrally to their theorems, but also for anthropologists, it is accepted that consumption and its forms such as exchange and giving presents are valid for all societies including the primitive ones. Besides, consumer behavior is a culturally motivated aspect and may have different meanings and trends for different cultures. Moreover, goods, services, and consumption itself may mean different for different cultures. Different

cultures may have different consumption-related rituals that need to be studied on. As a result, consumption behavior needs to be also held within the anthropological perspective.

According to economists, especially behavioral economists, the rational human/consumer behavior idea is depleted for a long while. Partially, rational consumer behavior is affected from so many factors including the effect of sellers, marketing managers, etc. This is important because they consciously manipulate this behavior to make people buy the product that they want them to buy. Accordingly, since human/consumer is considered to be partially rational or not rational at all, her/his consumption practices are needed to be re-considered.

In the meantime, “consumption” is a curial concept, so as the consumer behavior. Since the “Black Box,” we still do not know enough what is going on within the consumer brain and how this process goes on. Besides, with the improvement of technology and the rise of social media, consumer behavior has definitely changed. First of all, the “conspicuous consumption” of Veblen [4] gains more importance with the social media. Consumers if they do not consume products just to take their photos and share in Instagram, showing-off in the social media is a strong motive. Moreover, the relation between consumption and self is widely accepted. This relation may be extended through the virtual world with avatars that are the symbols of selves in the virtual world. For this purpose, the consumption and the possession practices of avatars also become relevant for consumer behavior literature. From psychological point of view, this may be explained through narcissistic behavior. Besides other consumption-related subjects in psychology, recently, overconsumption is regarded as a psychological disease, and therapy groups are being considered for this issue. Another extensively discussed topic related to consumer behavior within psychology literature is “self.” So many theories are proposed related to this subject, but Belk’s Extended Self Theory is important to mention [5]. Simply, according to this theory, our selves may be “extended” through so many things including possessions. As a result, theory brings light to the relation between self and consumption.

There are many other disciplines that are interested in the consumer behavior literature such as history, architecture, geography, etc., but there is no need to glance over all of them to claim the multidisciplinary character of the subject. Besides, the subject is studied via both qualitative-oriented and quantitative-oriented methods based on different epistemological assumptions (positivist, interpretivist, postmodern, or critical). This multimethod character of the subject paves way to explain and “verstehen” it.

Due to this multidisciplinary and multimethod character of the concept of consumer behavior, it is appropriate to study it accordingly in order to understand the subject with its different aspects and holistically. Especially with the cultural, social, technological, etc., changes within today’s world, this issue becomes prominent. In other words, despite the intensive literature on the subject, there is still a need for such studies. This book is a modest try for that end. Accordingly, in this book also, the concept is tried to be held within different perspectives, frameworks, and methodology. I hope at least some of these studies fit to your taste and draw your attention.

Author details

Şenay Sabah

Address all correspondence to: sabah@politics.ankara.edu.tr

Faculty of Political Sciences, Ankara University, Turkey

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Consumer Behavior and Technology

The Mystique of Customers' Saturation in Online Brand Communities

Zahy B. Ramadan and Ibrahim Abosag

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Abstract

Most research studies in the area of online brand communities have largely studied the positive aspects of online brand communities, ignoring the negative influences, mainly the growing threat from customers' saturation within these communities. Given the lack of understanding on the concept of customer saturation in online brand communities, this study establishes the necessary early understanding on this important concept by combining various streams of marketing and brand literature as well as information system. This study enhances understanding through the development of five propositions focusing on the role of customers' saturation on (1) customers' experience within online brand communities, (2) brand relationship, and (3) the co-creation of value. The discussion and review of the current literature produces five important propositions. The propositions develop the direction that customer saturation in online brand communities is likely to impact three key areas.

Keywords: saturation, online brand community, brand relationship, customer experience, co-creation of value

1. Introduction

Establishing and maintaining close interpersonal relationships is an essential need for humans [1]. However, close interpersonal relationships are not limited to the type of dyadic relationships in which people choose to engage with and maintain. The brand relationship literature has shown that people choose to enter relationships with brands just as they do with other people [2, 3]. Consumer's behavior theories have also shown that people form self-brand connections [4]. Brands are found to help customers articulate their identities [5] and form relationships with them as they offer two main resources [6]. First, brands offer

the actual benefits that are realized from using the product or service. Second, brands offer something special or unique about the customer to others around his/her social circle [7]. Therefore, brands can offer social capital/resources in different forms including status created by brand possession and recognition by others as well as brand's self-expressiveness allowing customers to express their identity.

In 2013, approximately 86% of marketers were using social media as a key component in their marketing initiatives to connect with consumers who themselves are becoming reliant on the social platform to learn and interact with brands [8]. Nonetheless, an evaluation needs to be conducted on the risks that social media presents as there appears to be evidence that people are becoming overwhelmed with the fast paced world we are living in today [9].

Despite the increasing number of studies on brand relationship on online brand communities [10, 11], there seems to be no attention paid to the growing serious challenge arising from customers' saturation in online brand communities that impose direct risk to consumer's behavior, brand relationship, and value creation in these communities. This is mainly due to the mainstream academic research that has focused on the positive sides of online brand communities while missing the potential risks this channel might present as it gains in popularity and becomes saturated. This chapter provides thorough examination of the literature on customers' saturation in online communities and its relation to brand relationship and firms' ability to create and maintain value through their online brand communities. Due to the limited understanding in marketing on customers' saturation in online communities and its negative effects on brand relationship, the chapter combines consumer's behavior insights from the literature on brand relationship and customer saturation (mainly developed from the information system (IS) literature). The aim of this chapter is to enhance our current limited theoretical understanding on the relationship between customers' saturation in online communities and brand relationship, and ultimately firms' abilities to engage customers in continuous value co-creation.

2. Customer saturation

Saturation is defined as a communication overload [12], driven by information quantity [9, 13, 14] and the high number of the channels or communities people engage in [15]. Consequently, there is a threshold to the number of relationships, consumers can maintain with other entities such as fellow online members or brands [16, 17]. In the social psychology literature, saturation refers to *"the communication overload experienced by group members in centralized positions in communications networks"* [12]. Saturated members of online brand communities have to compensate for the side effect of the *"message dense"* online community by filtering and blocking the information source as well as investing less time in it [9], resulting in less engagement with the brand and driving potentially members to switch communities influencing consumer's behavior. Recent developments in social media show that there are two types of saturation as reviewed in the information management literature: message unit saturation and channel saturation [15]. Message unit saturation refers to *"the number of messages received on a channel, at the point of overload for the receiver"* while channel saturation refers to

“the number of different methods of receiving input” [15]. In [15] view, these two saturation types are correlated as the number of messages a person reads is influenced by the number of channels he is receiving the messages from. However, given the lack of understanding in the marketing literature and the serious effect of saturation on customers' experience in online brand communities, there is an urgency to provide overarching understanding of the effect of saturation on brand relationship.

3. Online communities

With the advent of information technology and the Internet, online communities started gaining popularity among users. With their fast proliferation, scholars became interested in the different aspects that online communities present. While the focus started first on the technical aspect of these communities [18, 19], much of the literature covered the socio-psychological dimension [20–22]. It was only in 1997 [23] that online communities started to being looked at from a commercial perspective [24–27].

The term “online community” implies by itself a real social presence taking into account the effects on members'/consumers' attitudes and behaviors [21, 28]. Wellman and Gulia [29], Haythornthwaite et al. [30], and Preece [20] defined online communities from a social perspective as being a relational community concerned primarily with social interaction among its members. Others such as Hagel and Armstrong [23] established a more commercial view of online communities, which they saw as a potential business model and a new platform for marketers to influence consumer's behavior. Through this commercial view, online communities were seen as a source for stronger brand-consumer relationships [11, 24, 31] and higher revenues [32–35].

4. The development of brand relationship in online communities

With the rapid commercialization of the Internet, companies started to establish their online presence through standard websites [36]. However, content-oriented websites realized that the addition of an online community feature would influence consumers' behavior through attracting further users, hence make their site more profitable [35, 37]. These online communities' users were found to be viewing four times as many pages each session, were twice as likely to return, and were responsible for two-thirds of all purchases at commercial sites [37, 38]. The degree of the online communities' success on inducing consumer's behavior through increasing website traffic and user loyalty led the interest in forming the commercial viewpoint where online communities are both socially and economically successful [37, 38].

Commercially oriented online communities generate value through increasing sales [32, 34] and increasing website traffic [39]. They can lead to stronger brand-consumer relationships [24, 31, 40], higher advertising and transaction fee revenue [33], a better product support and service delivery [41], a more effective market segmentation [42], and new product development [43–48].

Firms are increasingly implementing an online community strategy aiming at generating greater revenues and profits. These firms found that the more actively people use an online community, the more they tend to visit the site that maintains it and buy goods and services there [34, 35]. For example, participants in online communities on eBay were found to be spending 54% more money than nonmembers [49]. Online communities can also be profit centers through monthly fees charged on members using the community as well as from the direct advertising that comes from within the community and on the same site hosting it [33, 39].

Online communities change the balance of power in commercial transactions toward the customer through the reduction or elimination of the information advantages that vendors enjoy [23], which on the other hand impacts the consumer's behavior in decision-making. Nonetheless, customer demand expanded for the organization's products and services through the expansion of online brand communities' usage [34, 48] as well as from the positive word of mouth generated by members of the online community [50] through cultivating consumers' ownership experience in brand communities [31].

5. Value co-creation

Despite the shift of balance toward customers [51, 52], firms that are not embracing the social conversation with their consumers or fail to manage their online brand communities and their presence on social media may in the long-term lose market share and competitiveness [53]. The majority of firms nowadays are focusing on driving further the engagement with their consumers to build on the latter's social recommendations with their peers [49, 54]. While the values of online brand communities to firms are well established [55], the literature on online brand communities has not examined fully the intermediary role these communities play between brands and customers. Importantly, as social networking sites use their platforms to monetize the generated data from all the social conversations into value co-creation activities [56, 57], brands that need to pay attention to the growing threat customer saturation can cause to such activities as well as to their online brand perception and engagement. Thus, customers' experience in online brand communities becomes essential to the success of the brand-consumer relationship and its ability to influence consumers' behavior by engaging customers in value co-creation [58, 59]. However, customers' experience and satisfaction in online brand communities are largely influenced by the degree to which customers/members feel saturated.

6. The degradation of the customer's experience in online brand communities: the saturation issue

Over 50% of the world's population is under 30 years old, with 96% of them already have joined a social network [49]. On Facebook alone, approximately one billion pieces of content are shared on a daily basis [60]. As brands are using consumers to become message senders

in this platform, users are also starting to be viewed as spam sources where most of the posts are considered to be irrelevant and pointless, increasing further the information overload [61].

Similarly in a marketing context, while more information may lead to better decision [62, 63], studies by Jacoby et al. [64, 65] demonstrated that the quantity of brand information, through the number of bands and number of their attributes affects, negatively affects brand choice decisions, leading to poorer decision-making and dysfunctional performance [66]. On that end, Shenk [9, p. 400] argued that *"as the amount of information and competing claims stretches toward infinity, the concern is that we may be on the verge of a whole new wave of indecisiveness paralysis by analysis."* Through this it is argued that while technology can speed up efficiency and productivity, it will limit rational thinking [9] and lead to choice overload [67, 68].

Information overload has also been demonstrated to affect the quality of the information, whereby Keller and Staelin [69] found that when the quantity of the information increases, information quality and hence decision accuracy was negatively affected. The perception of the system's quality (provider of the platform for the online community) is also affected where it is usually viewed as the source of the information overload problem [70].

Customer saturation can be generated as well from time pressure and is closely related to information load as when the time required to process information exceeds the available time, information overload occurs [71]. Time constraint refers to the problem of time availability. Time pressure has been studied under different contexts but mainly on decision-making [72, 73]. Time constraint occurs when people feel that they have less time, thus the feeling of not being able to do the tasks they actually want to do [73]. Time availability has been looked at mainly through a monetary value as a measure of search costs, whereby the less time available, the more the value of time [74, 75]. The value of time is measured as perceived time availability, thus depends mainly on the subjective feeling of the person.

On the basis of above facts we describe customers' saturation as being the feeling of annoyance and discontentment customers have, which is mainly caused by the sheer volume of information they need to process (whether the flow of information is brand-consumer, consumer-brand, or consumer-consumer generated) under a perceived growing time pressure that reduces their ability to comfortably engage with the community. Given that there are no direct marketing studies on the effect from saturation on users' experience and behavior of online communities', theoretical examination of consumer's behavior insights from different disciplines in relationship to customer saturation and its potential impact on customer online experience needs to be made.

7. Propositions development

Despite the limited studies that have tackled specific issues on information overload and its diverse effects on other variables such as online members' participation [76], member choice quality [67, 68], and reaction [9], the saturation effect on brand relationship is yet to be understood and researched within a specific marketing focus. In order to progress understanding

on the effect of saturation on customer-brand relationship and firms' abilities to co-create values with their customers, the following discusses propositions that are important to future theoretical and empirical studies.

7.1. Saturation and customers' experience in online communities

Customer experience in online brand communities is primarily influenced by the nature of interaction within the community (see [77]), the quality of information exchanged (see [19, 77]), similarities between members [78], and the system quality. These key components of customer experience are essential to customers' commitment to the online brand community and the success of brand engagement and relationship on these communities [79].

Social interactions between members are essential for the existence of online communities themselves [80]. Online communities are defined as being relational communities concerned primarily with social interaction among their members [20]. Online communities are governed by social exchanges involving the production and consumption of thoughts and opinions, and meeting personal and shared goals [21, 81]. Members' interaction leads to "*sociation*" which involves sharing common resources such as experiences [25]. Social interaction is particularly vulnerable to the effect from customer saturation. The high processing effort or communication load can lead to unsustainable interactions within the online community and hence to ending the participation [76].

Information quality refers to the "*quality of the information provided by the online services*" [82, p. 123]. In an information system, information quality is a key success determinant as users depend on it in the absence of face-to-face contact [82, 83]. From an online brand community point of view, consumers initially join online communities primarily because of an interest in brand-related information [84], which will make a community viable over time [85, 86]. Information quality has been widely empirically studied focusing on dimensions such as accuracy, timeliness, completeness and relevance (see [18]), perceived usefulness and perceived importance. Within online context, the quality of the information is used to evaluate the website's effectiveness and for consumers to compare different products that will lead to a purchase decision. Furthermore, online personalization in online communities provides accuracy and timely information to customers leading to additional sales generation [87] and loyalty toward a retailer. Thus, the quality of the information becomes a crucial factor effecting the consumer's behavior when making their decisions [88].

Information quality is also a main influencer of members' return or continuous visits to online communities [19, 42]. In order to remain sustainable and successful, online communities have to have high quality content [89]. Furthermore, in online brand communities, information is considered to be the main source of value that is accumulated in the community and accrued to its members [77, 90]. People use online communities to build relationships and share personal information about themselves [91]. This self-disclosure is directly related to the quality and credibility of the shared information [92].

The perceived level of the value of the information affects the relationship between members and the community [77, 90]. Exerting a high control over communication content in an online

community can limit the perceived value of the shared communication and hence reduce members' commitment to the community [24]. Information quality had a statistically significant effect on community commitment [93]. Furthermore, if the quality of the information is low, members of an online community might hesitate using it and might leave it for another community [31]. Low quality of information shared within online brand communities can further negatively contribute to the consumer's behavior leading to more annoyance. Thus, low information quality undermines members' experience within the online brand communities. Less relevant information increases members' feeling of being overloaded with low quality of information that then has to be filtered, thus occupying important time and emotional space while weakening members' experience within the community.

The quality of the experience in online brand communities is affected by similarities between members. Individuals with strong relationships and social ties have a higher similarity feeling [94] and tend to interact more frequently with each other [95]. This sense of group identification and membership is based on a social capital that members invest in [96]. In an online community, these individuals are predisposed to a higher level of understanding and interaction [26]. Conversely, affection similarity—the tendency for persons who associate to have a level of similar attributes within a group [97]—is deduced through emotional engagement and interaction [98].

System quality (the online community's platform) is a key success determinant of information system (IS) [18] as it acts as a facilitator to effectively convey the shared information [99]. System quality is widely discussed in the online community literature (see [19, 99]). System quality is a measure of information processing, covering the reliability of the computer system holding the information, the online response time, and the ease of use of the system [100]. The higher quality of the system used by the online brand community, the more likely that customer experience is more positive. We argue that these components of customers' experience in online brand communities are essential for maintaining a positive experience that is important for sustaining strong brand relationship on these communities.

Proposition 1: Customers' experience in online brand communities positively enhance and strengthen customer-brand relationship.

However, Proposition 1 would be undermined by a strong presence of customers' saturation in the online brand community that would negatively affect customer experience. In an online brand community, it is argued that the more actively members participate and add to the information load, the greater rate the community loses members [101]. Hutter et al. [102] confirmed this by empirically demonstrating that annoyance negatively affects commitment to an online brand community leading to negative word of mouth. Moreover, sustainable interaction in online communities can be constrained by information overload [76]. The high processing effort or communication load will lead to unsustainable interactions within the online community bringing an end to customers' participation [76, 103]. Therefore, the following is proposed:

Proposition 2: Customers' saturation negatively influences customers' online community experience.

7.2. Customer saturation, brand relationship and value co-creation

Developing a relationship with consumers has never been more crucial and valuable for firms than today. While brand-consumer relationship building is essential for driving loyalty and consumer engagement (see [78, 104], which leads to greater market shares [105] and higher consumer retention [106], the relationship model in an online socially connected setup becomes much more vital for firms to integrate within their overall marketing planning model [49, 107, 108].

The true value of the brand relationship is argued to be rather in the co-creation process based on the active participation of consumers [45, 109] and their experience [110, 111]. While some studies have started to focus on the consumer's experience in brand relationships [112, 113], the literature is still fragmented on the overall brand-consumer relationship [2] from both a value co-creation and consumer experience approach [114, 115]. Value co-creation within the brand relationship literature is enhanced by the encounters or engagement between the brand and its consumers [110] and can be under different forms such as being based on an emotional engagement or new product design [116, 117]. Nonetheless, we argue that online brand communities, within which strong brand relationship exists, help the co-creation of value allowing customers to engage more fruitfully. Therefore, we propose the following:

Proposition 3: Brand relationship in online brand communities positively increases value co-creation.

It is well established that brand association in social networking sites taking the form of both direct and indirect endorsements [49, 108] becomes part of people's digital identity [60] and the brand becomes tied or closely related to the characteristics of the people who associated themselves with it [118]. Yet, brand association and customers' identification with the brand in online communities may be threatened by high level of saturation amongst members of the community. Customers that are saturated and overloaded with a firm's communication practices can have a desire for revenge [119] or avoidance [120]. The desire for revenge can be translated in negative word of mouth [119, 121] and public complaining in online communities [122]. As for the desire for avoidance, it can lead members to reduce their relationship with the brand and withdraw themselves from any interaction with the firm in the online community [123]. In both desire cases, it is expected that the result will lead to a decline, disengagement then dissolution of the consume relationship with the brand [124, 125]. We, therefore, argue the following:

Proposition 4: Customers' saturation in online brand communities negatively affects customer-brand relationship in these communities.

7.3. Customer saturation and value co-creation

Marketing is translated into conversations within the same scale of mass marketing [126]. These conversations are mainly driven through consumer-to-consumer interactions and engagement around a shared consumption activity around the brand [43] within norms of reciprocity [127] leading potentially to value co-creation [32, 47, 128]. Consumer engagement, a key driver in building and enhancing brand-consumer relationship, nonetheless has also

been under-researched in online brand communities [129], especially in relation to value co-creation.

Value co-creation stems from the different social and brand interactions within online communities. With the sheer amount of information and online conversations, the online community becomes a source of consumer's behavior insights that firms would be interested in analyzing to increase their customer satisfaction and develop new products and services [32, 44, 47]. The co-created value is dependent on the firm's objective, which leverages its online community members as a resource, co-producer, product tester, or product user [47]. In addition, the co-created value within online brand communities would seriously be susceptible to the level of customers' saturation. We argue that saturation can directly and significantly reduce customers' and firms' abilities to engage in a meaningful co-creation of value as well as indirectly through weakening brand relationship, which can ultimately make co-creation of value meaningless to customers. Therefore, we propose that

Proposition 5: Customers' saturation in online brand communities negatively influences the co-creation of value.

8. Conclusion and future research

Customer saturation is an important area that has not been theoretically or empirically examined within the marketing literature. Given the lack of understanding on the concept of customer saturation in online brand communities, this study started by establishing the necessary early understanding on this important concept by combining various streams of marketing literature. It is clear from the existing literature that customer saturation in online brand communities is likely to impact three key areas, namely customer experience in these communities, customers-brand relationship with these communities, and customers' abilities to engage in value co-creation within these communities. The discussion and review of the current literature produces five important propositions (see **Figure 1**). These propositions are significant in that the current literature lacks any empirical examination of these. Thus, future studies should pay attention to these research propositions and aim at examining these within online brand communities.

Since the above literature discussion shows that customer saturation has two sources, mainly information overload and time pressure, future studies should consider the following: firstly, explore the concept of customer saturation and its underlying dimensions. The two identified types of saturation, information overload and time pressure, may not be the only dimensions of customer saturation. Thus, exploring the concept in more depth should help the understanding of the effect of saturation on online brand communities and brand relationship within these communities.

Secondly, customer experience in online brand communities is essential to the success of these brand communities. Therefore, future studies should carefully examine the type of customer experience that is affected by saturation. In the above literature discussion, we identified four

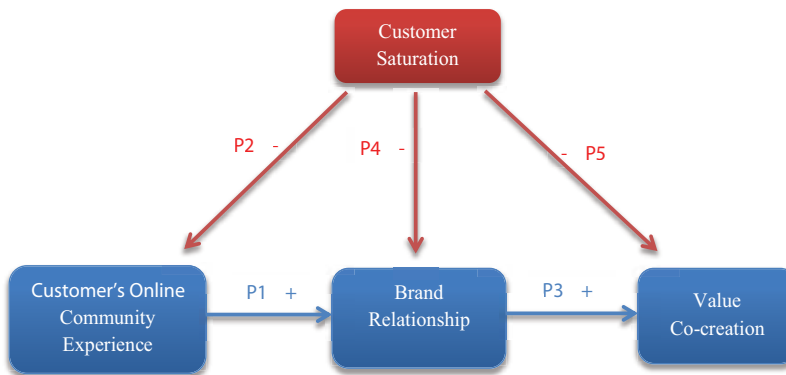


Figure 1. The conceptual model on the role of saturation in online brand communities.

types of customer experience (social interaction, similarities with members, information quality, and system quality) directly linked to customer experience in online brand communities. Future studies need not only to examine the relationship between these types and customer saturation, but further explore other types of customer experience in online brand communities that may exist, yet have not been identified in the literature, and may be influenced by customer saturation. In addition, the further examination of the effect of customer experience on brand relationship in online brand communities under the influence of customer saturation is needed.

Thirdly, while there are existing studies that examined the relationship between brand relationship and value co-creation (see [110]), examining the relationship between these two variables under the influence of customer saturation within online brand communities will not only contribute to the literature on these two variables but will significantly contribute to the growing area of online brand communities. Needless to say that direct examination of the impact of customer saturation on brand relationship and value co-creation is important.

Overall, the current understanding on customer saturation is very limited. Branding and brand literature lacks such understanding. While there are few studies that look at the negative impact of brand relationship in online brand communities (see [102]), the negative impacts of customer saturation need more attention from scholars in this area.

Author details

Zahy B. Ramadan¹ and Ibrahim Abosag^{2*}

*Address all correspondence to: ia9@soas.ac.uk

¹ Lebanese American University, Beirut, Lebanon

² SOAS University of London, London, United Kingdom

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Consumer between Web 2.0 and Web 3.0

Cristian Bogdan Onete, Irina Albăstroiu and
Răzvan Dina

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Abstract

Along with the digital technologies' advance over the last decade, more sales and marketing channels have emerged, causing consumers to change their habits and purchasing behavior. This paper appears in the context of such an issue and aims both to present the increasingly omni-channel nature of the consumer behavior and to identify and emphasize the needs and expectations of the customers, in line with the development of the Internet. Therefore, the paper presents the evolution of the modern consumer considering the Web conversion from a static environment to an interactive community. During the two intertwined phases of Web development presented in this paper, namely Web 2.0 and Web 3.0, customers have evolved from a highly informed and socially connected to a more empowered and engaged customer, defined by the ability to adapt and apply new technologies to meet their specific individual needs and seeking for an even emotional bond with brands. The paper also exposes how the social media landscape has generated a power shift from the business organizations toward the consumer and how social media can be a powerful tool with which consumers can react if they feel that their rights are aggrieved by business organizations.

Keywords: Web 2.0, Web 3.0, consumer behavior, omni-channel, social media, consumer protection

1. Introduction

In a world where consumers became dependent on Internet, buying experiences suffer a profound transformation. Consumers have to cope with the abundance of products and services delivered through all the communication channels provided by the Internet. In this context, customer behavior has suffered a profound change due to the accumulated experience resulting from his relationship with the Internet.

Due to the appearance of Web 2.0, time when the user became a direct part of the relationship between the one who posts the information and the recipient by being able to say their opinion

about what was posted, the customers became more powerful and the seller more careful with his public messages.

Web 2.0 became a two-edged weapon both for the consumer and the product/services deliverer. The use of this weapon can bring both benefits and damage, depending on how it is used. The business organizations can do much easier to promote their activity, but at the same time, if they do not adapt their messages correctly to the expectations of consumers, they may have loss of image. In the same time, costumers have the big advantage of full information, but they can be easily influenced by the opinions of other customers to choose something they do not need or fit with their expectations.

Another consequence of the emergence of Web 2.0 is the way in which consumer organizations and consumer movements act. Their activity became more informal, but at the same time, they have more tools to inform and influence the decisions of the two partners of economic transactions. Now, the way how the costumer can be defended against the purchase of a non-compliant product can be done even before the purchase.

If Web 2.0 helps the world to be connected and the people to relate each other, the next step is to integrate the resources resulted from this interconnection to the business environment to obtain business value. It is not enough to have the possibility to access information, and it is more important to do it faster and efficient and to relate more than one keyword when you search something. Thus, the possibility of finding information in a context integrating data, concepts, and applications is defined by Nova Spivack as Web 3.0 concept [1]. At the same time, products and services cannot be studied inherently but in relation to the environment they come from; for this reason, it is necessary to analyze the relationship between the consumer, the community, and the environment, taking into account the socio-economic and scientific aspects of the product impact on the consumer [2].

In this paper, we try to highlight the transformation that occurred in consumer behavior through the use of Web 2.0 and all the application that arose from this concept. Thereby, we want to emphasize the transformation of the consumption habits and the way the purchase decision first became more rational, but once the marketing techniques were adapted to the new technologies, it became emotional.

Currently, the purchase decision is no longer a matter of need, it is influenced more by the environment to which the buyer relates because of the Web 2.0, a technology that is more and more present in our life.

Another aspect is the fact that Web 2.0 gives the consumer the possibility to defend his rights against the abuse of the sellers.

2. Omni-channel consumer behavior

Progress in information and communication technologies has led to significant changes in the purchasing behavior of consumers who want the simultaneous use of online and offline channels within the same buying experience. This process is associated with the cross-channel

term, which describes the experience of a customer who used a combination of different channels for the same purchase process (for example, a client can create and print a configuration of a desired product on a company's website and then go to the physical store to make the purchase, or a customer can choose the product from a retailer's catalog and then buy it directly from the company's website). However, today's novelty is the increasing number of channels and the diversification of devices used to access them, such as desktop computers, smart phones, tablets, interactive terminals, and smart TVs. Companies need to find ways to capitalize and take advantage of all these meeting points with the potential customer [3]. Thus, the retailer's concern is not only about managing the various channels available to customers, such as brick-and-mortar shops, websites, mobile applications, social media channels, TV ads, call centers etc., but also to maintain consistency between the different channels that facilitate interactions with customers.

Consequently, the ability to simultaneously use multiple channels for consumer interaction with the brand or business (for example, using the mobile phone to access the Internet in the physical store to search for product information) is the dominant feature of the **omni-channel** phenomenon based on well-established multichannel infrastructure. Thus, "**omni-buyers**" use the available sales channels (offline and online) at the same time, but the omni-channel term refers not only to the simultaneous use of channels but also to the experience deriving from their integrated combination. The dual treatment of traditional and online trade justifies the need to develop and implement omni-channel strategies, with a focus on the consistency of assortments, information, pricing, and promotional actions. Thus, retailers must integrate channels into their strategy in order to help consumers move easily between all these environments and offer them a superior and consistent purchasing experience.

In particular, the Internet induces important changes not only on the buying process but also on how consumers communicate with retailers, thus facilitating a hybrid buying process by allowing consumers to obtain information, test products, and make transactions using different channels (online stores, online communities, social networks, mobile applications, etc.). For instance, even if users regularly use websites for browsing and searching, they often do not complete this purchase process in the online environment as well. Instead, some consumers visit the physical store to inspect their products and decide on the product offline, in the brick-and-mortar store, then buy via a website that offers the desired product to the smallest price.

On the other hand, there are opinions that users are actively selecting the information they obtain from different media channel searches and then choosing to make purchases through any sales channel, which is best suited for the closure of the most convenient transaction at that time [4]. Consumer makes effort to search for **information** on the Internet, and the desire to buy is closely related to the search effort. This effort is directly proportional to the consumer's experience, and the consumer will continue to buy as long as it has been satisfied with past choices. The experience in the online environment defines these preferences. This type of consumer is comparing, looking to make the best choice, the safest, and eventually buying in the hope that will not be disappointed.

Thereby, what is very important in the online environment is the quality of the information that is made available to the consumer. Online consumers want speed, flexibility, and the touch

of a button to answer their needs. Everything is just one click away, but online environment is leaving us to decide what is useful to us, where it is worthwhile to waste time, what to read, what to listen, and most importantly, where to spend money.

Also, **omni-buyers** want to use their own device to search, compare products, and seek advice or search for cheaper alternatives during the purchase process to take advantage of the benefits of each channel [5]. The **omni-shopper** no longer accesses the channel but rather is within it or in several, simultaneously, thanks to the possibilities offered by technology and mobility. Additionally, technology has blurred the boundaries between online and offline shopping and is the key for creating an integrated sales channel experience. These technologies (for example, mobile devices, interactive digital display, in-store technologies, augmented reality, location-based services, etc.) appeared both online and offline, mixing all channels together and providing a perfect integrated consumer experience, while empowering retailers with valuable tools. However, retailers need to focus on relevant and useful technologies for their customers, ensuring that these tools really add value to consumer.

3. The empowered consumer in the Web 2.0 era

Omni-channel consumers usually think they know more about a purchase than sellers and have more control over the sales process [6]. This control is given access to multiple sources of information facilitated by the Internet, in general, and Web 2.0 applications, in particular. Web 2.0 exponentially increased the transactional nature of the Web and changed the way people express themselves, conduct business, learn about different subjects, shop, form communities, collaborate, and share their personal information. Web 2.0 is about users and content instead of surfing on the Internet. In the first Web development phase, suggestively called the Web 1.0 phase, the user consumes content created by someone else, and in the second phase, the Web 2.0 era, the content is created by the user. Web 2.0 designates the dynamic, interactive, and collaborative Web and refers to key concepts such as user empowerment, active participation, crowd sourcing, radical transparency, and rich user experience that are made available on the Web [7]. Gradually, the Web evolved to become a channel, and as it did, customer 2.0 took shape. This type of consumer uses technology to search for information, offer opinions, and explain experiences.

The concept of **social media** is often associated with the term Web 2.0, given that social media tools have emerged and developed in this second phase of the evolution of the World Wide Web. The social media refers to the means of communication (technologies, applications, and results) that provide digital interaction between individuals and offer the opportunity to share experiences and information through blogs, forums, social networks, portals, wikis, podcasts, user-generated content (UGC) sites, and virtual worlds [8].

Social media involves **interaction** between users and, at the business level, is the interaction between brand and customer. Social media communication is a type of viral marketing as well as an informal way of exchanging information among consumers about features, how to use products, and ownership of certain products or services. In spite of controversy over the fact

that the digital media discourages real human interaction, leading to global social problems, which some consider to be a form of “involution,” more and more companies are investing time and resources in promoting through these channels not only because the company sells and promotes its products and services this way, but also because it creates long-term relationships with the consumer. Using social media means enables people to participate in the promotion, sale, purchase, comparison, selection, and exchange of products and services in both online and offline markets as well as within communities [9].

Social media has transformed the Internet from a platform for information to a platform for **influence** [10]. Consumers’ views in the social media are becoming increasingly important in terms of consumer buying behavior. The process by which consumers decide to submit reviews and comments influences the decision of consumers to choose and buy a product. Through the social media, people can convey their own thoughts, opinions, and feelings that can easily become accessible to the global community of Internet users. Communication through social media is one of the most influential sources in making a buying decision. For example, even a small amount of negative information from a few postings can have substantial impacts on consumer attitudes [11]. Also, people take a large amount of reviews as an indicator of the popularity or value of a product and/or service. However, not all comments are equally created. There are high-quality reviews, often made operational as relevant, comprehensive, and accurate information related to a product that exerts a great influence on product valuation and purchase intent. On the other hand, poor-quality views have more or less likely effects to occur depending on several receptor-related factors, such as previous engagement and experiences. For example, the quality of communication through social media exerts greater influence, when consumer involvement is higher.

Consumers are no longer passive recipients of merchant communications and offers; they create content on blogs, add comments on forums, engage in social networking discussions, and contribute to product ratings. Social media have turned consumers into **active communicators** and **content creators** [12]. They also began to assume, and in many cases, take over tasks (such as “4P”) traditionally associated with marketing. This shift of power, in the digital economy, from the seller to the buyer gave rise to the reverse marketing phenomenon, characterized by [13]:

- Reverse product design—more and more sites allow customers to design and configure their own products. The concept of “personalization” or “co-production” appears, whereby not only the marketing message but also the product/service is personalized, and the client engages in its conception. Customers are willing to pay more for “personalized” products/services built on customer instructions and requests. This issue is related with the concept of the “**prosumer**”, defined as a customer who produces some of the goods and services he consumes. But this requires an updated database, dialog with each client, customer differentiation according to needs and values, and technologies for personalized product development;
- Reverse pricing—the Internet allows customers to switch from price accepting to creators through business models based on auctions and price offers;

- Reverse advertising—the old broadcasting is replaced by the narrowcasting, namely sharing the message only to those interested in a particular product or service. Moreover, permission marketing relies on a desired and anticipated interaction on both sides, relevant to the user and even rewarded by the company. Also, point casting is a service that is used today, whereby customers choose the ads they are interested in and want to see, advertising being initiated and accepted by customers;
- Reverse promotional campaigns—customers now request coupons, vouchers, and promotional offers with intermediaries;
- Reverse distribution channels—companies create and manage multiple distribution channels, requiring bid changes based on the particularities of each channel, of which Internet involves bringing offers and products to the customer, not bringing the customer to the shop;
- Reverse segmentation—the Internet allows the customer to get informed but also to inform companies about what it likes and dislikes, helping marketing specialists develop suitable deals for each customer segment and pay attention to the four Cs (the customer, costs, convenience, and communication).

Therefore, consumers distribute contents, are pricing decision makers by posting and reacting to prices, create ads about the brands they love, and use video sharing sites to broadcast it. Changes in the business environment—new social media systems, consumer empowerment, new wave of technology and globalization—will continue to lead to a profound mutation in marketing practices. Consumers are both creating and destroying value by modifying, changing, and repurposing the offerings of organizations and then sharing this knowledge across a range of social media. Through the social media, the consumer can provide the highest value to a business by significantly influencing the buying behavior of the online communities to which it belongs and by assuming the role of **co-creator** of the products and services.

Customer empowerment has resulted in a change of the roles adopted by customers during their purchase experience and has given rise to **value customer co-creation**, a concept referring to the active role assumed by the consumers that create value together with the firm. Through co-creation processes, companies seek to increase consumers' commitment to their brands and offerings. Especially, Web 2.0 technologies can provide new ways of interactions and communication of customers with firms and with other customers and enable development of specific platforms for the value co-creation practices [14]. Web 2.0 changes the nature of Internet use from a one-way broadcast business-to-consumer medium to three-way communication of business-to-consumer, consumer-to-consumer, and consumer-to-business. This type of communication facilitates information seeking and sharing, consumer confidence in brand, and commitment and involvement of the consumer [15]. For example, companies can use online communities to get to know customers and their needs while gathering product, service, and marketing feedback. These brand communities can be useful to capture ideas even for entirely new product lines.

Nowadays, marketing is turning again, responding to the new dynamics in the social environment. We are witnessing at the beginning of the **value-orientation marketing**, completing the product-centric marketing and customer-centric marketing. Companies are expanding their

focus from product to consumers and then to their concerns. Instead of treating people as mere consumers, marketers treat them as human beings in their entirety, with mind, heart, and soul energies. Consumers seek not only functional and emotional satisfaction but also the fulfillment of the human spirit through the products and services that they choose. In a confusing world, they seek to find those companies that are addressing the most profound human aspirations. Individuals have an underlying need for an emotional bond with high-involvement products that they buy [16]. Nowadays, social media has become one of the main ways to create this bonding. Social media eliminates barriers, allowing brands to develop stronger bonds with the consumer much like a human relationship [17].

Every business has to find ways to reach the consumer. Business owners and marketers need to understand the psychology behind the consumer. Having a presence across multiple channels and more crucially, listening to and interacting with customers within their own environment need to become the norm. The key concerns in understanding the person who uses the product or service as being part of a particular context in which technology is increasingly present. Also, this new consumer approach results from the creation of stable and sustainable relationships that highlights an emotional dimension. Feelings and emotions contribute to creating links between the organization and consumers. Such bonds can be harder to create, but they are even harder to break.

4. Pillars of Web 3.0 and implications for consumer behavior

Web 2.0 has reached the maturity stage, and the evolution continues to **Web 3.0**, considered an integral part of what the Internet of the Future will mean, which will be defined mainly by two developments (or revolutions), namely the development of the Semantic Web and the Internet of Things. Web 3.0 is intended to evolve out of upgrades and extensions to existing Web functionalities.

The **Semantic Web** (an extension of the Web to which Tim Berners-Lee, the current Web inventor, has been thinking for over 15 years) would allow machines to understand information on the World Wide Web (semantics, as a branch of linguistics, is studying the meanings of words). Thus, the Semantic Web would greatly facilitate the decision-making process for the consumer, by providing more relevant information. The Semantic Web allows the formal description of existing resources on the Internet (Web pages, text and multimedia documents, databases, services etc.) and the rapid and accurate identification of resources relevant to the user. The main applicability could be within the search engines. The current search engines work on string matching—identify words specified in a syntax in a body of target documents, so that only documents that contain at least one of the words in the syntax are returned. For example, by executing a search for a syntagma in one of the search engines known today, the search engine would return the documents in which the syntax words entered in the query were identified. Instead, a **semantic search engine** would take into account the meaning of the entire syntax, so it would understand the concept, not the corresponding string, and would only return the relevant results. We can take this reasoning further and imagine a semantic

search engine that actually answers users' questions. Semantic technology will create a meaningful format around human online interactions and human interests.

A major evolution in the years to come will also be the progressive connection of computers, machines, and many physical objects, giving rise to the **Internet of Objects** or **Internet of Things**, a concept and a paradigm that involve the ubiquitous presence of a large number of smart devices and active objects. These are capable of interacting and cooperating with other devices and objects through wire and wireless connections and unique addressing schemes in order to create services and applications tailored to users' needs. Nowadays, we have connected devices that meet our daily needs, "smart objects" that monitor our homes, cars, work environment, and physical activity. These devices have gained crucial importance in our life. Hereby, we are entering into a new era, one in which the Internet of Thing (IoT) will replace the traditional Internet that we know today. Businesses have embraced this trend very quickly, as the stakes are high: greater connectivity, easy access to data, and interconnected ecosystems. All this translates into lower costs and higher efficiency in optimizing resources. In the consumer segment, IoT solutions that are currently in development are "smart home" devices (which automate a series of home processes such as lighting, heating and water systems), wireless wearables, and portable devices, such as fitness bracelets and intelligent watches, that track and record physical activity like exercise, eating, sleeping, or behavior like reading, commuting etc. The use of IoT devices in everyday life will allow companies to get a clearer view of their clients' behavior. IoT finds its applicability in facilitating the personalization of the advertising message and the product/service, allowing customized recommendations (suppose your air conditioner has been broken and you have to buy another one. Depending on the previously stored data about the features of the product, the location, and the temperatures in that area, the website can make recommendations. In the same way, it can send you a newsletter with steps to follow to stay hydrated in the summer time) and quality services (devices will be able to communicate their status to the central system on a continuous basis. So stores can send a team to repair or to change the product if it can no longer be repaired, allowing for advance planning and optimization of these activities). The targeted daily or demographic routines, shopping preferences, and buying habits can all be traced and used to tailor and make marketing campaigns more relevant.

One of the main benefits of the Web 3.0 for consumers is that their interactions with their devices and applications will be **personalized**. Web 3.0 will be driven by data containing user identity, profile, and preference information, including location and behavior patterns. Also, 3.0 technologies will create **smarter** and more **effective** Web programs that could drastically reduce the time needed to compile and send optimal information, helping consumers quickly find what they need.

5. Implication of a connected world

Consumer behavior is constantly changing, being very different from a decade or two ago. The explanation would be the fact that over time, the basic values that consumers respect today, compared to what they have been respecting in the past, have changed.

Looking at the past, 30–40 years ago, people used to buy their goods from the neighborhood store, where they met and talked with acquaintances about these goods. The variety of products and services available was limited, consumers were obliged to fit into the budgets they demanded, and the payment was made in cash. There were not too many pre-cooked foods or foods containing food additives, and household and electronic products did not have as many technical features as today's products. The change of the form of payment, by credit, has created profound social problems, problems arising from the fact that the meaning of the contracts that consumers sign is not fully understood by the consumer, this having hidden clauses, or consumers are not aware of the whole concept of credit. Consumers are deluded by the misleading advertising that inoculates them the idea that they can buy now, going to pay later, without explaining the additional costs of these purchases.

At present, the range of goods and services is much higher, offers appear at every step, goods and services can be purchased directly from home, orders can be places for products that do not exist on the local market, and it is safe to say that the offer is unlimited. But, at the same time, the risks of purchasing products with a low quality are higher. The cash payment is no longer necessary, which can lead to a loss of control over the budget the customers has. The customer is purchasing goods and services that include characteristics with no urgent business but which gives them the impression of a higher social status. In this way, the concepts regarding the quality of the goods are changed.

The consumers appreciate cheap things, easy to get, and for which, they do not have to lose a lot of time, but at the same time, it has to give them the impression of a higher social status. The mass production serves these wishes. The individual mobility (the car), the international tourism for holidays, and the rising demands regarding the standard of consumption designed as normal or regular lead to a drastic reduction of resources, which cannot be restored [18].

Structural changes in the supply of products and services are the result of the impact that technical progress has on society but also of developments in the factors that make up the demand. Thus, the behavior of all who can be considered customers, industrial units, service providers, governmental and nongovernmental institutions, and individual consumers record spectacular changes as a result of the evolution of the value system and options for changing lifestyles.

One thing to note is that business organizations have changed their optics in terms of ethical and social responsibilities. In the past, consumers' needs were not always satisfied through observance of ethical principles on the part of producers and distributors, which led to consumer dissatisfaction. Thus, there has been the need to establish rules and principles to be respected by all those involved in the process of creating and delivering products and services. For this reason, business organizations have been forced to assess their negative ethical and/or social implications of noncompliance with such principles.

At present, those organizations that are faithful to the observance of an ethical code, so that they do not only act to achieve their own interests, are much appreciated by consumers, demonstrating that they are also concerned about the well-being of the community as a whole, not just of their own interest. This has even created a competitive advantage over those who do not implement such principles in their business model [19].



Figure 1. The main factors involved in consumer protections policies adapted after [20].

Due to these considerations, the society as a whole, and in particular consumers, felt the need to set up bodies that would protect their interests, to press on the decision-makers, both at government level and within business organizations, to enable them to properly inform the characteristics of products and services so that through their actions, they educate consumers.

In conclusion, due to the changes that have occurred in the way international transactions are made as a result of the globalization of the economy, and at the same time of the emergence and development of e-commerce and new information technologies, consumer protection becomes a necessity in contemporary society and undergoes continuous transformation. Therefore, the consumer protection policy involves several factors of influence both from the governmental and nongovernmental spectrum, each having its role and specific functions, as shown in **Figure 1**.

6. Social media and consumer protection

The Internet has become a very profitable channel for organizations to lead their business and gain competitive advantages in a technology-oriented market [21]. The social media is made up of easily accessible Web-based tools through which people interact, participate, create, recommend, valorize information, and react online to everything that happens around them. They provide a dynamic virtual environment where users are engaged in continuous traffic, generated by information and interactivity.

The social media allows users to connect with each other in a variety of ways, leading to the formation of groups based on geographic regions, common interests, occupations, or graduate education institutions [22]. They provide important opportunities for communication within these groups of people. An advantage of social networking sites, like Facebook, is that it helps to resume contact with people that have not been in contact for many years, but it allows people from the group within to create new relationships. Also, throughout the friends' statuses, they can find out what activities they have done, what impressions they have on the products they have purchased, or about the services they have been offered. Through the photo galleries posted by consumers, people can confidently form a view on those affirmed by the ones who posted, making it possible to add comments and forward the information posted.

The way people share both personal content and the news about professional activities has led to a transformation of the way people communicate nowadays. This is because the social media uses widely accessible technologies, which also include mobile communications.

Regardless of age or occupation, technology has become very important in people's lives. The social media has made borders disappear and enabled cultural exchanges to be made much easier, and so new concepts and principles have been integrated into the collective mentality. Social media can change perceptions, motivate members of society, and help them ally more easily.

Through the social media, consumers have gained a very strong weapon in their struggle to defend their rights, so the balance of forces is beginning to bend in their favor. People need to learn to use the social media to their true potential.

For organizations that wanted to have a closer connection with their customers, this change meant there was a way to listen and hear what customers say about their organization and products. They could start a conversation and develop a virtual, meaningful relationship with the people directly concerned. However, for those who wanted to control the transmitted message, this change involved the rethinking of the entire communication strategy—which was not desirable at all [23].

Also, with the help of social media, people can exchange opinions, can orient themselves to better choices, and make better decisions based on correct information. Misinformation is the mother of failure, and when a group, a neighborhood, a city, an area, or a country chooses to believe in something that is true or untrue, you will not be easily able to change their opinions about that.

Because the information that circulates in the online environment can be quickly and easily found, it can always be used to promote or defame a brand. Reviews, opinions, comments, or images transmitted through social media can have a strong influence on those who receive the message. Thus, social media has become a powerful force in the hands of consumers, allowing them to more easily defend their rights and find out more quickly whether they are deceived or not.

With the emergence and existence of social media platforms and applications, the balance between the power of organizations and consumers is beginning to lean toward consumers.

Social media has triggered online campaigns by consumers that can strongly influence consumers and, at the same time, transform them into a group of influence. By changing the paradigm on how organizations do business by focusing on consumers, they try to gain as much information as possible about the consumer's needs. On the other hand, from the consumers point of view, they have to face the avalanche of information coming from all the media, both traditional (TV, radio, print) and online. In this environment, which may seem hostile, the consumer has to spot the useful information and make the right decision about the purchase of the product/service that is needed.

Faced with this attempt, the consumer needs a governmental organization already in place, or it needs to be contributed to the creation of such independent bodies to defend their interests as customers. On the one hand, the state through its institutions must, and sometimes does, protect consumer's interests according to the legislation.

Through the applications and platforms provided by the social media, the formation of such groups has become much easier and can be done much without the members knowing themselves beforehand and without having to gather themselves in a certain place. The only thing they have to do is express their dissatisfaction on one of the existing social media platforms and try to convey the message to as many members as possible. If dissatisfaction is real and is shared by a large number of people, then the effect of "snowball," a very common effect on social media platforms, will make its presence felt.

If a negative campaign on a product or service produces the expected effect and reaches an appreciable number of people, then it is very difficult for organizations to react. The costs for both material and image repair of the damage will be very difficult to recover. Organizations will be forced to make great efforts to repair their image to consumers and will have a significant decline in sales.

In the past, the consumer did not have any direct defense against abuses to which he could be subjected by suppliers of goods and services. All he could do was call on a state body to make it right. Although in many cases it was gainful, the process was long and tedious, requiring quite a nervous consumption, and the consumer felt alone and without direct support. At the same time, he could not make his issue public, so that others could not do the same and, at the same time, raise his chances of success.

With the development and mass use of social media tools, the consumer has found that they are not only useful for communicating or entertaining but also in order to defend themselves against the abuse of product and service providers. Thus, consumers have begun to look at social media both as a weapon in their fight for righteousness and as a platform from which they present their wishes and problems with their suppliers of products and services.

The force of such consumer groups can be so great that it can bring great damage to those against whom it focuses the attack. The respective business organizations will have large image losses, will be forced to make great efforts to recover their lost image as outlined above, and financial losses will arise both because of declining sales and because of the lost image repair costs.

Once a negative social campaign has been launched, that is, once the conversation has been launched, there is a possibility that the image of the organization may suffer, but the effect would not have been so devastating if it neither had been sustained and amplified by the existence of discussions on the different platforms and applications offered by the social media nor would there be unconvinced opinions that need to be countered, but the organization, through a well-established strategy, can influence and induce those ideas that have a positive influence on consumers.

Be aware that an organization's brand is owned by consumers and employees. Influence must reverse itself on everyone; both consumers' opinion and employee actions of an organization can raise or destroy a brand. Thus, a business organization must be aware of this and convey the right message to attract and consume both the value of its brand and its employees.

Opinions, comments, or images transmitted through social media can have a strong influence on those who receive the message. There are also cases where a message is being sent, but due to the use of wrong channels or because the message is not clear, the desired effect is not obtained. That is why it is good to have a prior research before sending a message that can have a strong influence on the public.

We can look at social media platforms as places where consumers present their problems and are thus heard more quickly by those who offer them products and services, can defend their rights, and can form themselves in consumer protection associations.

Social media can be used to defend or support the 21st century consumer. With tools and platforms that are cataloged to be part of the social media, the consumer can more easily present all the problems encountered and thus find a faster solution.

However, social media should not only be seen as a consumer defense tool but can also be used by organizations or authorities to improve the products and services they offer, for a better relationship with consumers or for better regulation of different areas of activity.

7. Conclusions

Based on the findings from the relevant literature, this chapter provides an overview from the evolution of the Web and describes how individual consumer behavior has been influenced in correlation with Web 2.0 and Web 3.0 phases, with emphasis on the changes induced by **social media**.

As shown above, the power shift from sellers to buyers has become obvious along with the transformation of the Web into a social platform. With the growth of online participation, consumers exert greater influence over the products and brands and are wielding greater control over the commercial marketplace. Moreover, the companies need to be aware that digital technology is a powerful tool in influencing and changing consumer behavior. In a world where new technologies pop up all the time, the companies that put consumer needs first are in a position to win. The priority for retailers no longer lies in increasing the number of

their clients, but rather improving their experience—whether is online, in store, or across different channels. The key is engaging the consumer on a personal level about their brand and understanding how the consumer feels about the brand.

Conclusively, it can be said that companies must embrace the future of a more customer-centric marketplace and to adapt to the customer-first reality of the digital age. Ignoring consumer empowerment neglects changes that business organizations, especially marketers, have to undergo to be stronger players, missing out on opportunities to connect with a new generation of consumers who value convenience, personalization, collaboration, and value co-creation.

Author details

Cristian Bogdan Onete*, Irina Albăstroiu and Răzvan Dina

*Address all correspondence to: bogdan.onete@com.ase.ro

Bucharest University of Economic Studies, Bucharest, Romania

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Social Dimension of Consumer Behavior

Understanding Consumer Behavior toward Social Enterprise Products

Farhana Ferdousi

Additional information is available at the end of the chapter

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Abstract

Social enterprise is an emerging global trend to solve society's major problems through the means of business. After microfinance, Yunus Social Business (Bangladesh) is now getting worldwide attention for its distinctive principles and application. This study attempted to investigate the impact of consumer knowledge and understanding about the social enterprises on their buying behavior. Moreover, consumers' perceived ethical and environmental awareness or rational considerations have also been investigated. Descriptive statistics shows that 26% respondents have clear understanding about social enterprise and 80% respondents believe that social enterprises can contribute to achieve sustainable development goals (SDGs). Findings of regression analysis show that consumers' purchase decisions are not influenced by their prior knowledge about social enterprise, ethical perception, and attitude, rather their decision is highly influenced by the information available on the product (P value.001, β .602) and rational behavior that are stimulated through the rational pricing and availability of the product (P value.000, β .258). Thus, the study draws conclusion that to get increased consumer response, social enterprises should provide adequate information about their social and environmental mission and must maintain highest quality and ethical standards to create a trusted brand for all ethical, ecological, and rational consumers.

Keywords: social enterprise, consumer behavior, ethical consumer, ecological consumer, rational consumer, sustainable development goals

1. Introduction

In the age of rapid globalization, profit-seeking motive of private enterprises has given birth to several issues, that is, rising inequality among people, increasing vulnerability toward human and animal health, degradation of environmental conditions through violating environmental laws, excessive carbon emissions, etc. In such circumstances, growth of social enterprises has become a rising global phenomena to address several social and environmental problems.

Social enterprise is a new form of business entity, which not only operates a business but also pays attention to reducing society's major problems such as unemployment, malnutrition, poverty, education, environmental pollution, etc. through the means of business. Although the concept is being familiarized by two prominent social entrepreneurs, Nobel Laureate Professor Muhammad Yunus (founder of Grameen Bank) and Sir Fazle Hasan Abed (Founder of BRAC), mass people, from the viewpoints of consumer, are still not familiar with the term, especially when they buy products that are provided by such social enterprises.

Bangladesh is a very small country with huge population. However, Bangladesh has a strong worldwide reputation for social enterprise [1]. A recent study conducted by British Council demonstrated that 150,000 social enterprises currently operating in Bangladesh have already reached ~207,397 beneficiaries. The survey found that 90% of social enterprises are working with individuals from socially and economically disadvantaged communities, creating employment opportunities especially for disadvantaged groups. Bangladeshi social enterprises are generating annual turnover of Tk 2.1 million on an average, and nearly three-quarters of the enterprises expect a substantial increase in turnover in the next financial year. To increase the social impact of such enterprises, supporting consumer behavior is expected. But studies on consumer behavior usually focus on traditional enterprise's goods. Very few studies are available in academic world, which addresses the responses toward the goods produced and marketed by the social enterprises. Therefore, this study will try to address the following research questions: (i) What does the consumer know about social enterprises? (ii) What does the consumer perceive about social enterprise products? (iii) Does consumers' perception lead to purchase intention? (iv) How does consumers' purchase intention influence their actual purchase? Thus, to explore consumer responses to the social enterprise products, the study, in particular, will be carried out

1. To examine consumers' prior knowledge about social enterprise products;
2. To investigate their perception and attitude toward social enterprise products;
3. To examine behavioral intention to buy social enterprise products; and
4. To assess their actual buying behavior toward social enterprise products.

2. Conceptualization of social entrepreneurship, social enterprise and social business

The study conducted by Panayiotis H. Ketikidis [2] showed that social entrepreneurs are conceptualized as:

- Individuals who spot problematic aspects of the society, trying to resolve them, creating better social conditions [3];
- Individuals who enter the business world with the social impact as their primary motive [4, 5];
- A mean in order for an investment to be transformed into social good [6];

- Young and altruistic individuals urge to fight injustice [5]; and
- Innovative directors, socially responsible administrators of nonprofit organizations and philanthropists [4].

The study, however, argued that social enterprises are ventures that are created by social entrepreneurs [7]. Nobel Laureate Professor Yunus identified social enterprises as ventures that are not only created by social entrepreneurs but also are following clear guidelines of “social business.” According to him [8], it is a business designed to meet a social goal (for example, Gramee Danone, whose goal is to improve the nutrition of poor families in the villages of Bangladesh). A social business is a business that pays no dividends. It sells products at prices that make it self-sustaining. The owners of the company can get back the amount they have invested in the company over a period of time, but no profit is paid to investors in the form of dividends. Instead, any profit made stays in the business to finance expansion, to create new products or services and to do more good for the world.

3. State of social enterprise in Bangladesh

There are numerous definitions of social enterprise and the related concepts of social business and social entrepreneurship. The debate is particularly live in Bangladesh [1]: for Professor Mohammed Yunus, a key element of social business is that investors receive only their original investment back, without additional dividend or capital return; Professor Rehman Sobhan focuses on ownership of enterprises, arguing that a significant portion of equity in a social business should be owned by poor people, in particular employees; BRAC, founded by Sir Fazle Hasan Abed, operates a hybrid model, which combines conventional development, health, and education program with social enterprises and more commercial activities such as BRAC Bank. A social enterprise is fundamentally defined as a business venture trading for a social purpose. Its main aim is to mitigate a social problem, a market failure, or an inequality in distribution [9, 10]. They create jobs for disadvantaged groups, empowering women, and addressing social exclusion throughout the country. British Council [11] in their research report stated that social enterprises are businesses, which trade for a social purpose, reinvest surpluses into their social objective and make themselves accountable for their actions, rather than simply maximizing profits for owners and shareholders. Their survey included 149 social enterprises from Bangladesh based on three criteria: organizations that placed social/environmental mission above or alongside profit-making, organizations using profit/surplus to further organization’s mission, and organizations with less than 75% of income from grants.

Boston Consulting Group (BCG) and Yunus Center’s combined [12] report clearly articulated the position of social business, which is given by Nobel Laureate Professor Muhammad Yunus. Since mass people in Bangladesh as a consumer are not widely familiar with Yunus Social Business, this study relates a term ethical/fair trade market to disseminate it from economic (traditional) market and thereby gets more response from consumers. Thus, this study explains that social enterprises are those who have applied business models (**Figure 1**) with the prime objectives of reducing social problems through inclusive market mechanism

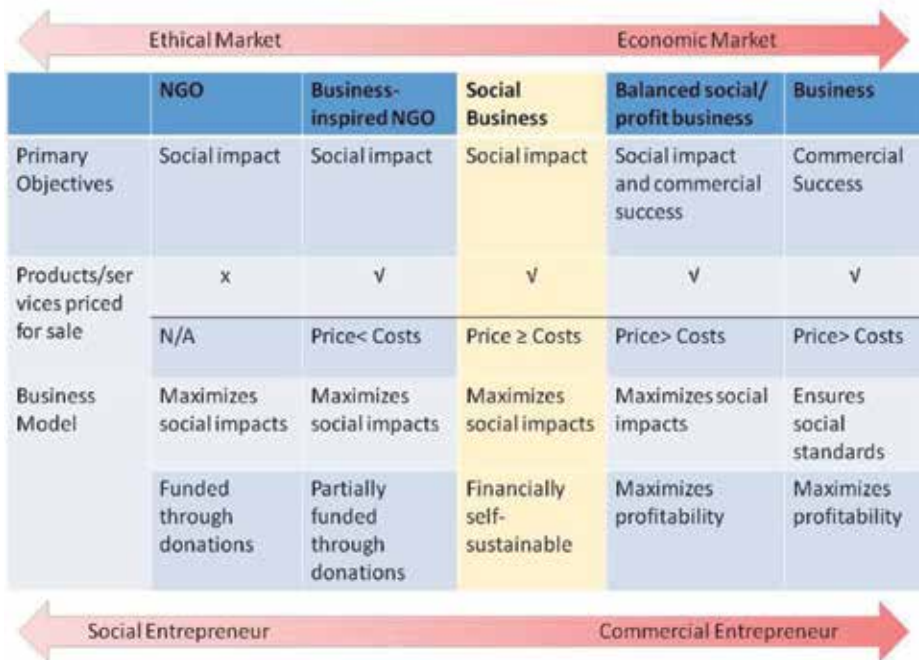


Figure 1. Social enterprise business model and market positioning (modified from Ref. [12]).

(that is, unemployment, market access of poor consumers, and investment opportunity for poor entrepreneurs), environmental solutions (through organic and ecological products) and ethical market mechanism (fair trade) without putting main emphasis on profit maximization rather focusing on reinvestment of profit.

This study applies all the available terms related with social enterprises from the perspective of ethical market consideration of being responsive to society, environment, and economy as well as for sustainable development and does not usually depend on donation or charity fund. A summary of leading social enterprises in Bangladesh is given in Table 1.

	Name of the enterprise	Problem addressed	Solution offered
1	Grameen Danone Foods (2007)	Child malnutrition Poverty reduction	Affordable yogurt fortified with micronutrients
2	Grameen Viola Water (2008)	Arsenic contaminated water in rural areas	Clean water through village tap points
3	BASF Grameen (2009)	Risk of malaria in parts of the country	Affordable and long-lasting mosquito nets
4	Grameen Intel (2009)	Inefficient use of fertilizers Lack of adequate maternal health care	Poverty and the under employment

	Name of the enterprise	Problem addressed	Solution offered
5	Grameen Yukiguni Maitake (2010)	Poverty and the underemployment	Employment for the poor through mung bean cultivation
6	Grameen GC Eyecare Hospital (2007)	Limited access to specialty eye treatment for the poor	Affordable eye care examinations and surgeries for the rural poor
7	Grameen Caledonian College of Nursing (2010)	Shortage of nurses and lack of access to medical care among poor and rural communities	Nursing educations for underprivileged girls
8	Grameen Shakti (1996)	Lack of electricity Unhealthy living environment	Clean energy with: <ul style="list-style-type: none"> • Solar home system • Cooking stoves • Biogas plants
9	Grameen Distribution (2011)	Lack of access to basic products in rural areas	Social and consumer products are distributed door-to-door in rural areas
10	Grameen Fabrics and Fashion (2012)	Poverty and underemployment	Employment for the poor through local production of such item as mosquito nets
11	Grameen Poshra	Lack of market access to urban people	The marketplace for promoting the products made through the social business initiative
12	Grameen Telecom Trust (2010)	Unemployment of Grameen Bank borrowers' children	Provide technical and financial assistance to facilitate business promotion through social business
13	Grameen Shakti Shamajik Byabosha (2011)	Unemployment of Grameen Bank borrowers' children	Similar to Grameen Telecom Trust
14	Grameen Trust (1989)	Unemployment of Grameen Bank borrowers' children	Similar to Grameen Telecom Trust
15	Grameen Kallyan (1996)	Unemployment of Grameen Bank borrowers' children	Similar to Grameen Telecom Trust
16	BIJOY (Bangladesh Institute of Job Opportunities for the Youth)	Lack of skilled worker	Provide vocational training for occupational skills development among youth and support them in finding and retaining jobs in foreign labor markets
17	CLICK Shastho	Lack of health-care facilities in rural people	Alleviate health-related sufferings and reduce mortality in underserved communities of Bangladesh through an innovative entrepreneurial health worker model
18	Rural Sales Program (Joint Initiative of Bata and CARE Bangladesh) (2004)	Women empowerment	In this program, a rural sales force comprising of destitute women is created; these women are called Aparajitas, a Bengali word that stands for "women who never accept defeat." Under this initiative the selected women act as sales representatives in selling a diversity of products such as footwear, consumer goods, food products, spices, etc. to rural buyers

	Name of the enterprise	Problem addressed	Solution offered
19	Waste Concern (1995)	Waste pollution and poverty	Contribute to waste recycling, energy, poverty reduction through job creation and sustainable development
20	Phulki (1993)	Childcare problem for working women	Create a harmonious work environment for women and implement child care programs
21	Hathay Bunano	Rural/destitute women empowerment	Rural Center Model creating flexible employment opportunities for the poor
22	Bengal Meat (2005)	Unsafe meat production	Poverty alleviation of poor livestock producers by providing access to local and international markets
23	BRAC (1972)	Lack of education, health-care facilities, rural unemployment and lack of access to finance among the poor	Providing access to education among poor children, providing community health-care facilities, creating employment among rural women and providing microfinance
24	Better Stories	Lack of start-up ecosystem	Create leaders through green ethical and responsible businesses by addressing three verticals: better strategies, better entrepreneurs and better schools
25	SPARK Bangladesh	Lack entrepreneurial capacity building and training	Aims to improve the lives of people living in poverty by accelerating start-up social enterprises and supporting them as they grow their businesses and make greater changes in their communities
26	BRAC Aarong Dairy	Rural dairy producer lack access to market	Creation of market for dairy producers in remote villages

Source: Refs. [1, 11–13].

Table 1. Social enterprise initiative in Bangladesh.

4. Review of literature and theoretical framework

This study assumes that social enterprise market is closely related with ethical market. Nicholls [14] defined ethical markets as aggregated consumer-provider (demand-supply) exchange transactions of goods or services that have—as one of their defining product characteristics—a normalized notion of social and/or environmental benefit. To put it more plainly, ethical markets are economic spaces where consumers buy products that have added social or environmental value above other goods or services.

Nicholls [14], assuming the social enterprise market belongs to the ethical market trajectories, established a forward-looking model of social enterprise within the ethical markets. He also provided a social enterprise value chain, which integrates both ethical approach (fair trade) and green approach of consumer behavior (**Figure 2**).

This study is based on the assumption that social enterprise consumers differ from traditional consumers and put more emphasis on ethical/social and environmental performance of the product.



Figure 2. Social enterprise value chain (modified from Nicholls [14]).

Figure 3 shows that some unethical behavior of present commercial enterprises, especially those in developing countries, where most of the policies and regulations are loosely enacted, leads to a shift in public perception toward ethical market development. At the same time, rising inequality resulted in two groups of consumers; one, wealthy and educated-conscious consumers who expect their desired brand will not only make profits but also will create social as well as environmental brand reputation and another group, poor marginalized consumers who are excluded from many goods and service markets due to their limited means. These circumstances influences some investors to respond toward socially responsible investment which has added social and / or environmental return. But small portion of profit that are invested in the name of corporate social responsibility (CSR) are inadequate to address the core problem of the society and are often created debate over its real purpose; i.e., investment in publicity or replacement of advertising expenditure. Moreover, government and non-governmental organizations (NGOs) also expect increased social and/or environmental return from their welfare activities but their efforts are often subject to donor-aided projects



Figure 3. Market potentials for social enterprise.

availability which suffers from lack of operational sustainability. This kind of donor-driven funds, now-a-days, are also reducing worldwide. Therefore, ethical market development initiative failed to develop a sustainable market yet which further encourages some social entrepreneurs to bring about a new forms of enterprising initiatives that is selfless, social problem oriented and capable to maintain operational sustainability which is widely getting popular as social enterprises.

This study classifies consumers into the following three segments: ethical, ecological, and rational (**Figure 4**). Ethical consumers make purchase decision based on ethical judgments. For example, products made or distributed fairly and/or by autistic, poor, minority or ethnic group, and disadvantaged women would influence ethical consumer to purchase product.

Ecological consumers make purchase decision based on environmental performances of the product, such as organic food, recyclable product, renewable energy-related product, etc. that are less harmful for the environment as well as for human beings.

Rational consumers make purchase decision based on exchange value/utility. Most of the traditional buying decisions are based on utility (product quality, performance, perceived benefit, etc.).

However, there is no single “ethical consumer” or “ethical market,” but rather a whole range of different ethical consumption demographic groups operating within and across product markets and sectors. Researchers have noted the “30:3 phenomenon,” where more than 30% of consumers declare themselves ethical in surveys, but ethical markets are typically 3% (or less) of total trade by product or sector [14].

Another study [15] identified three categories of ethical consumers as follows:

- Distancers: these consumers adopt a negative screening approach and avoid or boycott products they perceive to be unethical.
- Integrators: these consumers attempt to integrate ethical purchase behavior fully into their lifestyle and have a holistic view of their own ethical actions.

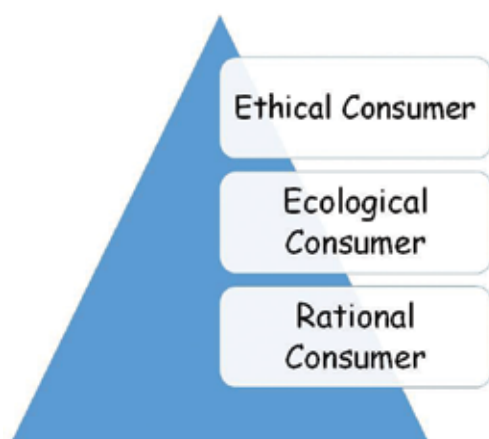


Figure 4. Classification of consumer.

- Rationalizers: these consumers limit their ethical purchases to extreme cases and distinct parts of their life and, while showing concern for issues, rarely sacrifice quality, choice, or pleasure.

Therefore, this study expects that social enterprise consumers will belong to the intersections of ethical, ecological, and rational consumers' segmentation (**Figure 5**) and will not only respond to fair trade products but also expect their products would not harm the environment. In addition, stimulation in terms of price, perceived benefit and convenience will also transform some rational consumers to be social enterprise consumers. Based on the above theoretical conception, this study builds following hypothesis:

H1: Consumers' perceived ethical awareness will lead to (a) intention of buying and (b) actual buying of social enterprise product.

H2: Consumers' perceived environmental awareness will lead to (a) intention of buying and (b) actual buying of social enterprise product.

H3: Stimulating consumers toward social enterprise product will lead to (a) intention of buying and (b) actual buying of social enterprise product.

Growth of social enterprises has a quest for solving social problems; therefore, consumer of social enterprise's products hold positive behavior when they evaluate their purchase decisions. Although consumer helping behavior is relatively neglected by marketing researchers [16], but the intangible rewards of helping disadvantaged people are somehow likely to play at least some role in motivating consumers to buy [17]. Based on the literature, following hypothesis has been constructed:

H4: Consumers positive attitude toward social enterprise product will lead to (a) intention of buying and (b) actual buying of social enterprise product.

There are many ways on how consumers seek for knowledge and evidence, which suggest that consumers are seeking knowledge by reading the product label [18, 19]. If the consumer has knowledge and clear understanding about the social enterprises, then their awareness level would increase and thus would, potentially, promote favorable attitudes toward social enterprise products. This study applies similar context in designing knowledge of the consumer.



Figure 5. Potential consumer for social enterprise products.

Two dimensions have been used as follows: (1) information regarding social enterprises available through social and developmental works, communication through social media, government service rule, newspapers, magazines and other personal observation and (2) consumer self-knowledge about social enterprise products information available either on the product itself or through previous purchasing experiences. Based on the available literature, following hypothesis has been developed:

H5: Consumers those who have clear knowledge about social enterprise products will have more positive intention (a) to purchase social enterprise products and (b) will increase their actual buying.

H6: Labeling and certification-related information on the social enterprise product itself will (a) positively influence consumers' buying intention and (b) will increase consumers' actual buying.

Based on hypothesis, this study develops following conceptual model (**Figure 6**):

Many researches in the field of consumer behavior have tried to make a link among consumers' prior knowledge regarding the objects, feeling about it, commitment that they are willing to make (verbal commitment or intention) and what commitment they do make (actual commitment) [20]. Researchers following this paradigm further assert that an individual's behavior is highly dependent upon his/her knowledge, affect and intention [21]. Tricomponent attitude model (ABC model) and theory of reasoned action (TORA) also support the paradigm.

In the language of ABC, behavior (B) is "an interactive product of attitudinal variables (A) and contextual factors (C)" where attitudinal variables might include a variety of specific personal beliefs, norms and values as well as general "predispositions" to act in certain ways. And contextual factors can potentially include a wide variety of influences such as monetary incentives and costs, physical capabilities and constraints, institutional and legal factors, public policy support, interpersonal influences (social norms, for example) [22]. This study also used

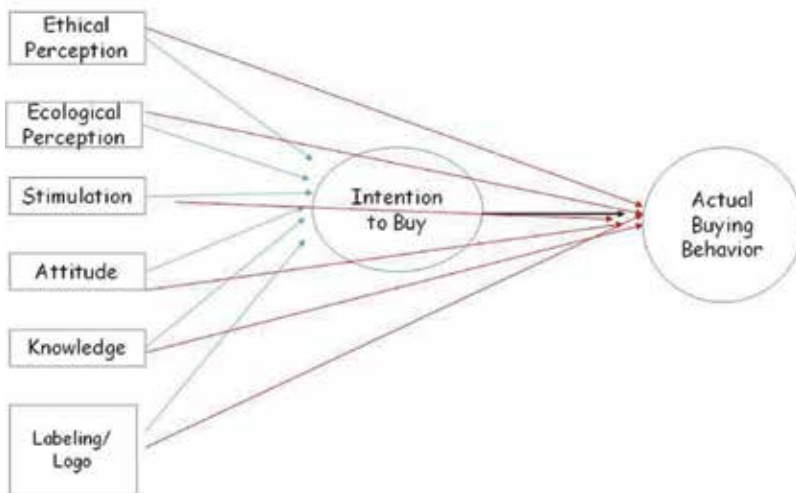


Figure 6. Conceptual research model.

consumers' behavioral intention as a function of consumers' ethical perception, ecological perception, knowledge and attitude toward social enterprise products as well as stimulation as contextual factors. The components of the TORA model are (a) behavior, (b) behavioral intentions, (c) attitude toward the act and (d) the subjective norms, that is, peer pressure. The model constructed for this study is in line with the above-mentioned literature as the model (Figure 6) also showed a link among social business consumers' actual buying behavior with buying intention and attitudes.

5. Research methodology

This study has used both qualitative and quantitative research techniques. Since available literatures provide inadequate information about social enterprise consumer behavior, in-depth interviews were conducted with key social enterprise practitioners in order to construct some concept and statement in the questionnaire. During the survey, the study has used a judgmental/purposive sampling technique to collect the data. Since mass people are not familiar with the term social business or social enterprise, the purposive sampling technique is most suitable where researcher applies his/her own judgment to select appropriate respondent [23]. A total of 600 structured questionnaires have been distributed among consumers who have access to at least internet; Yunus Center's social business design lab, social business organizations or universities where there is a separate center for social enterprise or social business are in vogue through several academic and extracurricular activities, and 429 completed questionnaires have been finally used for this study. Before data collection, questionnaires have been pre-tested, and final data collection started from December 25, 2016 and continued up to January 15, 2017. A 5-point Likert scale has been used to design perceptual statement; nominal or suitable categorical scale has also been used for other parts of the questionnaire and was pursued through a face-to-face interview as it ensures maximum response rate.

Although some NGOs and a handful of organization are self-declaring themselves as a social enterprise, only Professor Yunus has established the concept striking on "social business" with clear definition and explanation. Four flagship Grameen companies are investing rigorously with the purpose of social business. They have two kinds of social businesses: type 1 social business is the joint venture with other domestic or foreign companies those who are producing products for society's destitute people. This type of social enterprise does not operate for profit purpose. Type 2 social business is equity investment by the Grameen companies for supporting emerging youth entrepreneurs whose family was the member/borrower of Grameen Bank. The product of those microentrepreneurs is sold in the market for profit purpose. Grameen Poshra is the marketplace for promoting the products made through the social business initiative. Since the initiative is yet in infant stage, complete consumer response is very difficult.

Therefore, this study, considering ethical issues (that is, products produced and promoted with highest integrity and fairness, supporting sustainable and equitable social entrepreneurship development), includes all the products that are traded fairly, made for the destitute people and by the poor microentrepreneurs, as the social enterprise products. The study also included

products made by the handicapped people although promoted by the commercial enterprise. However, the study tried to investigate whether consumers' perceived interest in ethical and ecological market might have a link with the intention to buy social enterprise product. Therefore, the questionnaire has been designed to address consumers' demographic information along with their level of knowledge and understanding about social enterprises. It also has assessed consumers' perceived ethical, environmental, and societal aspects, and attitude toward social enterprise market. The final part of the questionnaire has examined whether their intention to buy social enterprise products and repurchase intentions are strongly influenced by any stimuli or not.

Five in-depth interviews have also been conducted as follows: two among the CEOs of social enterprise who are actively investing and promoting social enterprise goods, one with the distribution channel member of Grameen Poshra and two interviews were conducted with social business project managers/team leaders. The interviews were semistructured and open-ended and rest for 45–60 min.

Descriptive statistics, correlation and regression analysis have been conducted to analyze the data. Data analyses have been conducted based on SAS 9.1.3 version.

Regression model

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon \quad (1)$$

$$Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \epsilon \quad (2)$$

where Y_1 is consumers' purchase intention; Y_2 is consumers' actual buying behavior; X_1 is the perceived ethical value of consumers; X_2 is the perceived environmental value of the consumer; X_3 is the stimulus that influence consumers; X_4 is the attitude of the consumers; X_5 is the knowledge about social enterprise products; X_6 is the product labeling information; X_7 is consumers' intention to buy social enterprise products; β_0 is constant terms;

$\beta_1 - \beta_7$ are beta coefficients; and ϵ indicates error terms.

Consumers' purchase intention includes four statements, which were primarily taken through 5-point Likert scale. Then to construct the variable, total values of four statements have been taken. Similar measurement approach has been applied to all variables having more than one statement. Consumers' actual purchase behavior was measured through using five statements. Ethical perception includes four statements, attitude three statements, stimulation four statements, environmental/ecological perception two statements and labeling has a single statement. Finally, knowledge was measured through five different statements indicating levels of social enterprise-related knowledge.

6. Findings and analysis

Among 429 respondents, 70% of respondents belong to male and rest 30% belong to female category. About 95% of the respondents' age is below 46. Nearly 50% of the respondents come from middle- and 30% from upper middle-income families. Half of the respondents belong

to students' categories and rest of the respondents from various occupational backgrounds. Nearly 67% respondents reported themselves as single and rest 33% as married.

To analyze prior knowledge about social enterprises, respondents were asked whether they have heard about social enterprises or not, what is their perception toward common definition of social enterprise and what should be the reasons for social enterprise development and growth. Their responses are given in **Figure 7**.

More than 26% of the respondents have clear understanding about social enterprises-related terms. More than 24% respondents have moderate understanding about the term or at least they can figure out the term in their own way. Nearly 40% respondents need clarification about the term as they have heard about it but need more information and knowledge for better understanding yet. Only 6% respondents know nothing yet and 2% respondents even do not care about such enterprises (**Figure 8**).

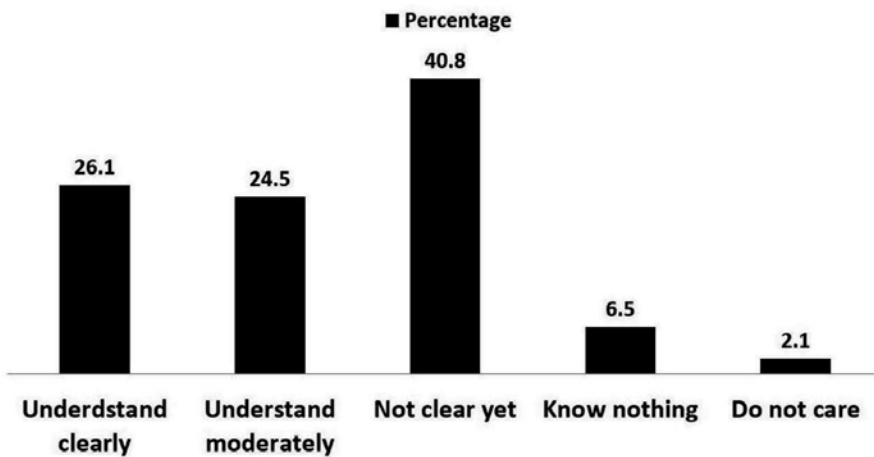


Figure 7. Respondent knowledge about social enterprises.

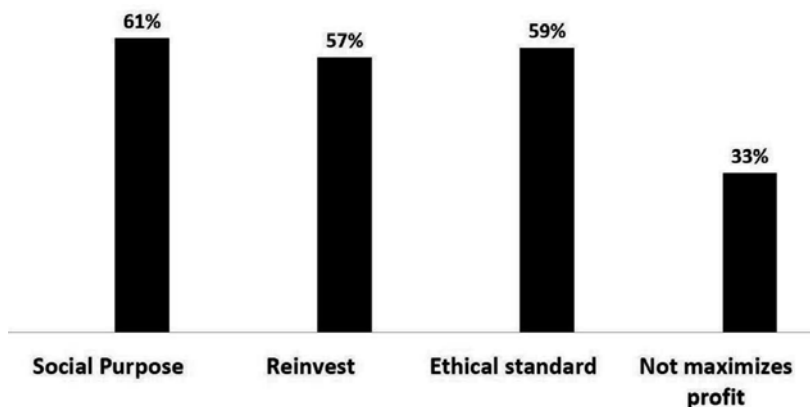


Figure 8. Perception of respondent toward social enterprises.

Majority of respondents agree with the given characteristics of the social enterprises, which demonstrates that social enterprises are businesses which trade for a social purpose, reinvest money and maintain highest ethical standard, but not all respondents agrees with profit-earning criteria. In response to the question “why should we develop social enterprises,” majority of the respondents focus on helping disadvantaged entrepreneurs and then achieving SDGs (Figure 9). The survey also finds that nearly 80% respondents expect that social enterprises will contribute to sustainable development. However, 79% of the respondents believe that social enterprises can contribute to ethical market development. Although 67% respondents firmly believe that buying social enterprise products mean responding toward ethical market, but 46% respondents agreed on the fact that social enterprise products are traded with highest ethical standard. Less than 20% respondents have doubt over the ethical transaction of social enterprise products.

Findings of regression analysis (model 2) show that consumers’ purchase decisions are not influenced by their prior knowledge about social enterprise, ethical perception and attitude rather their decision is highly influenced by the information available (logo/certification) on the product (P value.001, β .602), rational behavior that are stimulated through the rational pricing, and ease and availability of the product (P value.000, β .258). These two variables are significantly related with consumers’ intention to purchase (model 1) and actual purchase behavior (model 2), although β coefficient moderately changed in both cases. Therefore, both hypotheses 3 and 5 are supported by this model. Although perceived environmental value and purchase intention were not significantly related (in model 1, P value $>$.05), during actual purchase, environmental awareness is being considered (in model 2, P value.009 and β .267). But ethical perception is not related with their purchase decision in either of the two models. Rather clear information, declaring the product has obvious social and environmental benefit, is highly associated with both consumer purchase intention (model 1) and actual purchase decision (model 2), and hypothesis 6 is accepted.

The findings of an experiment conducted in Korea also showed that displaying the social certification logo on product labels always affected participants’ purchase intentions for products

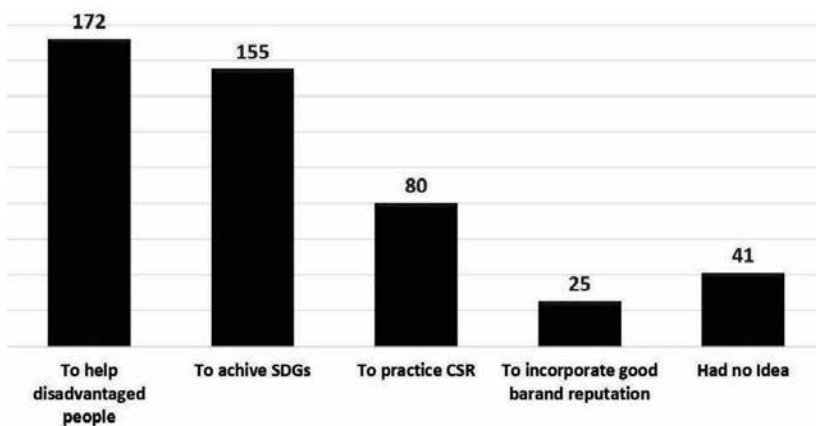


Figure 9. Reasons of social enterprise growth.

positively, even when the label also disclosed the information that the product might be produced by employees who belong to socially vulnerable groups toward whom the participants had negative general attitudes [24]. The present study demonstrates 47% increase in consumers' intention to purchase and 60% increase in actual buying behavior if social enterprise products are identified with clear information on the product label or on the container.

In-depth interview with the social business team leader from Grameen Telecom Trust and the managing director from Grameen Krishi Foundation also highlights on the necessity of appropriate packaging, container and labeling information.

One interviewee said "without providing attractive container for honey, consumer will not buy anymore."

Another interviewee gave an example, "while I was trying to buy notebooks for my son which was made by blind people, my son strongly protested and raised complain that the color and design was not attractive."

Thus, social enterprise products must gain competitive advantage over the traditional enterprise products to stay in the market. Moreover, rational consumers when make purchase decision usually consider affordability, convenience and availability along with quality, features, and design of the product, which is also supported by the interviewees for this study.

"We are planning to build a coordinated corporate office where along with social business corporate activities, all kinds of social business goods will be displayed to provide more access to consumers."

Thus, hypothesis 3 is accepted for significant P value (0.000) in both of the model. Thus, the statistical evidences demonstrate that for getting better market response, social enterprises must have to compete with similar other traditional products. Although consumers expect their product would be ethically/fairly traded and environmentally not harmful, while they buy, they make a rational choice. Interview of the distribution channel member promoting social enterprise products also emphasized on similar aspects.

She said "many participants in design lab visit our products with great sympathy and enthusiasms but finally very few consumers make purchase."

Therefore, social enterprise products have to compete with similar other traditional products in terms of quality, features, availability, prices, etc. and would be expected to launch promotional activities to some extent like traditional commercial enterprises. The managing director of Grameen Krishi Foundation, who has a long experience and expertise in managing social business ventures and provides consultancy to many social business initiatives by various other Grameen companies, also expressed the similar points of views.

Managing director of Grameen Telecom Trust, who not only initiated many joint venture projects to expand social businesses but also promoted the goods produced by the social business ventures through Grameen Poshra, mentioned that since the term "social enterprise" is yet to be familiarized, consumers' self-knowledge may not be translated into their product purchase decision.

Moreover, a handful of producers those who are selling products for the social purpose are not self-declaring about the purpose. During the survey, the respondents were also asked if they notice any social enterprise product, whether they would buy it or not when compared to other traditional products. Although a significant number of respondents (55%) were positive while expressing their opinion, 31.2% of the respondents remained undecided and 19% respondents remained negative. Regression analysis also did not find any significant relation in either two of the models, and hypothesis 5 were rejected (**Table 2**). Thus, prior knowledge about social enterprise initiative are not that much important as providing quality products, with adequate information through logo/certification along with other characteristics that could satisfy real needs of the consumers. Therefore, social enterprises must have to compete with traditional commercial enterprises in terms of product quality, features, design, container, packaging and various forms of promotional activities to increase sales of their products rather than simply thinking of it as an altruistic exchange. **Table 2** also demonstrates the value of R^2 , which were not very high but their analysis of variances were highly significant in both of the models. The results of correlations were also in line with the theory, and VIF results found no multicollinearity problems (correlation results are not shown in the article). Reliability of the constructs was also tested and the results are above 0.7, which is widely accepted and suggested by Nunnally [25].

Model 1					Model 2					
Dependent variable: purchase intention					Dependent variable: actual purchase behavior					
	Unstandardized coefficients		Standardized coefficients	t	Sig.	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta			B	Std. error	Beta		
(Constant)	3.061	0.96		3.188	0.002	4.65	1.045		4.449	0.000
Knowledge	0.119	0.121	0.041	0.987	0.324	-0.244	0.13	-0.072	-1.874	0.062
Ethical awareness	0.042	0.055	0.037	0.759	0.448	-0.028	0.06	-0.021	-0.465	0.642
Environmental awareness	-0.14	0.095	-0.07	-1.482	0.139	0.267	0.102	0.115	2.612	0.009
Attitude	0.396	0.067	0.288	5.926	0.000	0.119	0.075	0.075	1.593	0.112
Logo	0.471	0.165	0.141	2.848	0.005	0.602	0.18	0.156	3.352	0.001
Rational behavior	0.293	0.056	0.271	5.278	0.000	0.258	0.062	0.207	4.185	0.000
Purchase intention						0.378	0.052	0.328	7.221	0.000
ANOVA	F	Sig.	R ²	Adjusted R ²	ANOVA	F	Sig.	R ²	Adjusted R ²	
	31.532	.000 ^a	0.310	0.300		40.115	.000 ^b	0.400	0.390	

Table 2. Regression results.

7. Conclusion

Growth of social enterprise is an emerging trend worldwide. The socioeconomic scenario of Bangladesh is in a right position to capture the opportunity for creating social enterprise ventures. Climate change vulnerability, environmental degradation, poverty, malnutrition, unemployment, unethical business practices due to flexible and inequitable applications of laws and order situation along with reduction of global concessional or donor funds, etc. are now creating global attention for business with social or environmental solutions. Moreover, governments and commercial enterprises' failure to address such social and environmental challenges also attract worldwide attention for engaging social business. Many countries of the world already initiated several legal measures to accommodate social enterprise ventures either separately or integrated within the present forms of enterprises. But in Bangladesh, there are no provisions for recognizing social enterprises as separate forms of business. Therefore, separating social enterprise products with clear certification/logo is not possible due to legal barriers or limitation. However, several Grameen companies are relentlessly putting their efforts in creating numerous social business models within their self-created principles/definition. They created more than 10,000 joint ventures with local microentrepreneurs to help them grow up by increasing sales. They also created many social business ventures by their own initiative as well as with many foreign investors following the principles of social businesses.

From the above study, it can be seen that nearly 80% respondents expect that social enterprises will contribute to sustainable development. However, 79% of the respondents believe that social enterprises can contribute to ethical market development. Although 67% respondents firmly believe that buying social enterprise products mean responding toward ethical market, but 46% respondents agreed on the fact that social enterprise products are traded with the highest ethical standard. Moreover, as people are now more aware about the product quality, safety, and the growing capacity of dual career couple family to spend more on safe and quality products, social businesses can easily target those consumers who are ready to spend more for ethically and ecologically produced products.

One of the interviewee expressed "since Bangladeshi customers are suffering from mistrust on traditional vendors, social business vendors can easily position their market in to the ethical/fair trade market."

Managing director, Grameen Krishi Foundation, also told in his statement "in developed countries, product quality assurance is adequately maintained and monitored by appropriate authority, and businesses have a culture to follow that. But in Bangladesh which is sometimes very difficult as cultural habits are very difficult to change."

Based on the findings, it is argued that since consumers lack clear understanding about the social enterprise products, if environment-friendly, organic and safety product quality are ensured and declared through proper certification, social enterprise product could be the option for building such trust among consumers. Finally, a large number of consumers will response toward social enterprise products. The findings of this study are also similar with this expectation.

As the regression results showed that consumers' purchase decisions are not influenced by their prior knowledge about social enterprise, ethical perception and attitude rather their decision is highly influenced by the information available on the product (P value.001, β .602), rational behavior that are stimulated through the rational pricing and availability of the product (P value.000, β .258). Therefore, for developing market for social enterprise products, it is imperative to provide adequate legal framework for certification based on some predefined social business criteria. In Sri Lanka, which is very close to Bangladesh in terms of socio-economic and geographical perspectives, social enterprise vendors sale their products in a separate marketplace under the banner "Good Market" where both buyers and sellers meet twice a week. Similar footsteps might be recommended for Bangladesh as well. If all fair trade products, organic products and products made by the disadvantaged people are sold in a separate marketplace as a social enterprising initiative, clear and bold response from the consumers would be worth mentionable.

8. Future research

Although social enterprising initiatives in Bangladesh have started for several years, consumers' awareness is still in very elementary stage. Moreover, the absence of legal formation of social enterprises and difficulties to identify social enterprise product from traditional products have limited the scope of this study. Therefore, true response from the consumers in the absence of any labeling information was very difficult to be demonstrated. However, further studies might include more participation from the consumers, as the social enterprise movement will continue to get appropriate legal framework which will ensure availability of more informed consumers.

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Author details

Farhana Ferdousi

Address all correspondence to: dfferdousi@gmail.com

Southeast University, Dhaka, Bangladesh

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Measuring Public Acceptance Value of Rural Biogas Development through Logistic Regression and Willingness to Pay

Christia Meidiana, Zuqnia Gita Ramadhani and
Dian Dinanti

Additional information is available at the end of the chapter

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Abstract

The development of renewable energy technologies (RETs) in rural areas requires acceptance of technical solutions by key stakeholders, such as consumers and decision-makers, as well as energy providers. This study aims to identify the current status of public acceptance of RETs, especially biogas technology, the associated influencing factors, and the villager's preference of role to biogas management. Questionnaires were distributed to the respondents in Bendosari village to collect the required data for logistic regression and measurement of willingness to pay (WTP). Bidding game format was used to assess the WTP of three different groups, that is, biogas farmer, non-biogas farmers, and non-farmers. Three regression models were generated from the analysis, describing the factors influencing the public acceptance of each group toward biogas technology. The determinants of one group differed from the other group, reflecting the customer behavior in deciding toward certain goods which is biogas technology in this case. Measurement of public acceptance in percentage indicates the high acceptance and low acceptance of biogas technology for biogas farmers and for other two groups, respectively. This is affirmed by the result of the WTP-ATP comparison where WTP is lower than ATP and indicates that biogas technology has no important value for most non-biogas farmers and non-farmers. Furthermore, the preference of role as a consumer in biogas technology development is higher than as provider or co-provider. Biogas technology in rural areas is more sustainable when most farmers have roles as a co-provider.

Keywords: social acceptance, logistic regression, willingness to pay, rural biogas

1. Introduction

In Outlook Energy Indonesia 2013, it is estimated that the average growth of national energy demand is 4.7% per year from 2011 to 2030, indicating that the energy demand in 2030 will be 2.4 times higher than that in 2011. If this condition is not anticipated properly, the energy security may be influenced, leading to energy crisis. Therefore, the Government of Indonesia (GoI) is working on a solution for declining fossil fuel dependents and promoting utilization of renewable energy (RE) resources such as wind, sun, geothermal, biogas, and water [1]. Related regulations were endorsed in national and regional as well as public level to support the development of RE. In national level, regulation no. 79/2014 on National Energy Policy was enacted to target increase of RE share in final energy consumption up to 23% by 2025. Currently, the share of RE is only 5%. The policy is in line with the National Action Plan on greenhouse gases (GHGs) emission reduction which is targeting 26% emission reduction by 2020.

Renewable energy (RE) development is promoted as a promising method to solve problems of rural energy provision and to improve the rural household life because it can reach the remote areas far from the grid network. GoI realizes that many advantages can be achieved from RE utilization. GHGs emission reduction, fossil fuel dependency reduction, and energy security reinforcement are the benefits of RE [2]. In the regional level, provincial government ratified Regional Action Plan on GHGs in 2012 as a derivation of the higher Action Plan, while at the municipality public level, Government of Malang introduced some policies and programs on RE, especially biogas, since it has high potentials. The government is encouraging the renewable energy development, especially in rural areas where the renewable energy sources are relatively adequate. One of the REs, which is potential to be developed in Malang Regency, is biogas, especially from manure waste. In Malang Regency, there are 315,326 cows raised by the farmers who used it for biogas production. There are approximately 60,000 anaerobic digesters (ADs) constructed in the region (Veterinary Board of Malang Regency, 2016). It is targeted that 10.81% final energy consumption will be from biomass including its derivation (biogas) by 2020. Biogas development shows increasing trends in Indonesia since it has public, economic, and environmental benefits [3]. Community awareness, increase of green energy, promotion of sustainable development of village, acceleration of environmentally friendly agriculture, rural household savings improvement, and rural energy equity as well as the quality of rural life increase [4–7]. This condition is supported by some factors such as shift of final energy consumption from conventional energy dependence to public renewable energy empowerment to save energy and environment protection initiatives [8, 9]. However, the development of renewable energy in rural areas is relatively slow because it involves high initial cost spending mostly on energy generation, research and development, and implementation [10–13]. Therefore, an integrated rural biogas planning is needed to solve the rural energy provision problems.

Rural biogas development was initiated in 2013 in Bendosari village as a pilot project of rural biogas development in Malang Regency to support the national target of GHG reduction and public program of self-sufficient energy village (SSEV) as well as target of Village Midterm Planning 2013–2019. It is targeted that 1051 households will be provided by 200 communal

units of anaerobic digesters (ADs) by the end of 2016. However, there are currently 77 ADs (39%), which are constructed. According to a preliminary survey in 2015, the reasons for slow biogas development in Bendosari village are lack of knowledge and farmer's perception of high cost and low level of service of biogas technology.

In this study, farmers' perception refers to the term people's perception as proposed by Ajzen (1991). People's perception of the ease or difficulty of performing the behavior [14]. This perception may influence the response, which is actualized through certain behaviors. In this context, behavior refers to the behavior of the respondents, namely farmers and non-farmers. Biogas and non-biogas farmers are producers and consumers for AD, while non-farmers are consumer for biogas. Consumer's buyer behavior may influence many factors such as cultural, sociodemographic, and psychological backgrounds. Sociodemographic factors such as age, gender, and income may influence consumer behavior and public acceptance. For example, Refs. [15, 16] affirmed that such factors are important in the case of congestion charge. Meanwhile, psychological background comprises perception, knowledge, motivation, beliefs, and attitudes.

Public acceptance is important in renewable energy development. Liu et al. [17] explained that gap between public acceptance and renewable energy quota increases target, which could be a hindrance in the government's target achievement. Low public acceptance leads to failure of renewable energy development. Schweizer Reis [18] affirmed that public acceptance may be described in two different ways, which are passive or active response. Passive response is expressed by state of agreement, while active response is stated by state of involvement. Both definitions are used as reference to measure public acceptance to use or to buy biogas as renewable energy. Willingness to use or to buy may be viewed as active public acceptance for rural biogas development in which the community involve actively through payment for biogas usage or contribution for anaerobic digester (AD) construction. Stren [19] stated that willingness to pay (WTP) may be described as behavior of pro-environment of an individual person in order to improve the environmental condition. According to Ref. [20], an individual's behavior is determined by the individual's behavioral intention. It defines the intention to engage in the behavior, which is called behavioral intention to consume biogas as a renewable energy. The intention is set by certain reasons. Therefore, it is called as reasoned action. Hansen et al. [21] have proposed initially this theory, which is extended by Ajzen [22] as described in **Figure 1**.

The contingent valuation method (CVM) was applied in this study to elicit people's willingness to pay (WTP) for biogas technology. CVM is one of the two common approaches that can be applied to estimate WTP. It is a direct approach [23], while the other is an indirect approach in which WTP can be estimated by observing the behavior of consumer. Dichotomous choice CVM was employed to estimate the WTP of the respondents to accept the biogas technology.

Generally, the value of WTP for renewable energy (RE) reflects individual's preferences to use the RE [24]. Some previous studies have attempted to measure the value of WTP and to determine the influencing factors of public acceptance. Hansla et al. [25] showed that value of WTP for green electricity is proportional to a positive response toward green electricity. The

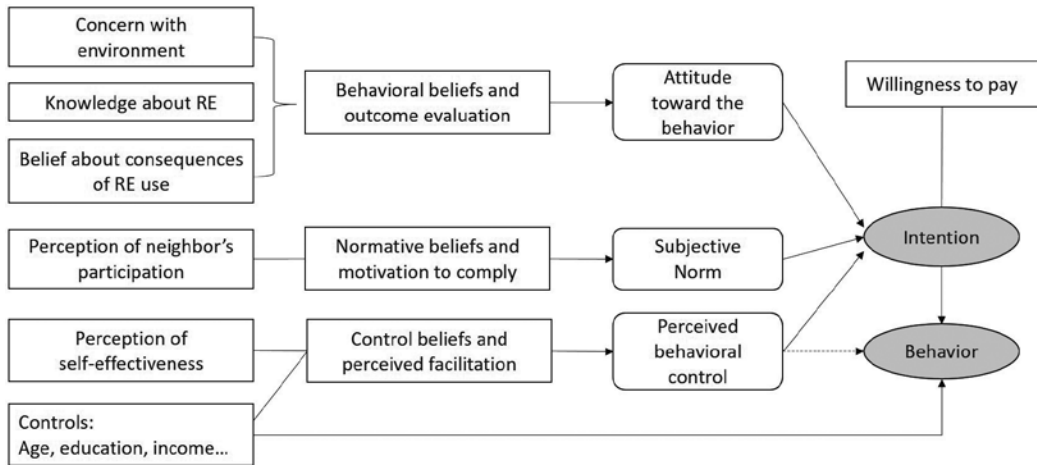


Figure 1. An analytical framework based on the theory of planned behavior [21].

response reflects the relative good awareness of consequences of environmental problems. The determinants for RE public acceptance are public conditions such as individual factors [26] including sociodemographic conditions [27, 28], economic characteristics, ways of living [29], income, household size [30], and personal experience [31]. Knowledge and people’s perception play an important role also in public acceptance. These factors are observed in this study by conducting a survey of households. This survey, having potentials in supporting the biogas development in rural areas focusing on public acceptance, would provide sufficient data to understand how biogas as a new renewable energy is perceived at the public level, as done with the research presented in this chapter. Therefore, the objective of this chapter is (a) to observe public acceptance of rural biogas, (b) to examine households’ preferences of role for biogas management, and (c) to find out determinants of biogas development in rural areas.

Public acceptance is measured based on current involvement of rural biogas actors in Bendosari village, that is, biogas farmer, non-biogas farmer, and non-farmer. It is expected that biogas farmer’s acceptance will maintain the sustainability and non-biogas farmer has higher acceptance to increase the biogas utilization since this group has potentials. Meanwhile, non-farmers are expected to use biogas as energy sources. These rural biogas users are categorized as (a) producers because they only produce biogas without consuming only; (b) co-producers because they produce and use biogas for domestic use; and (c) consumers because they use biogas without producing it. The two first categories could be biogas or non-biogas farmers.

The chapter is structured as follows. The next section outlines the methodology applied in the chapter. This is followed by sections on the design survey for village identification and data collection including questionnaire survey as well as data analysis. This section is followed by willingness-to-pay (WTP) results for households expecting to choose their role in biogas management. The last section has conclusions drawn about the value of WTP, the public acceptance of biogas management and the determinant factors, and the preference of role in biogas management.

2. Methodology

2.1. Area of the study

Bendosari village was selected as a pilot project for biogas development program in Malang Regency in 2005 due to the fact that it has livestock potentials. The geographical setting, which is a hilly landscape and the mild climate condition in Bendosari village, is appropriate for developing agricultural sector, especially husbandry. The village is located about 32 km west from Malang city and covers an area of 269.23 ha, comprising five smaller units called Dusun as described in **Table 1**. Furthermore, **Table 2** presents the social and economic conditions on the village. The farmer is the main source of livelihood in the village, having an income ranging between Rp 600,000 and Rp 3,500,000 per month. The average expense for fossil fuel (gas) is Rp 35,000 per month, and cow ownership is 3.6 cows/household (HH). However, the number of anaerobic digesters decreases gradually as many of them were damaged. Currently, biogas utilization rate is only 10.84%, indicating that only 77 of 710 farmers have used manure waste as feedstock for AD to produce biogas. Biogas is utilized only for cooking. Some farmers spread fresh manure over the field for fertilizer, but most farmers dispose manure waste to the ditches or streams, leading to water pollution and odor. The anaerobic digestion process in Bendosari village is illustrated in **Figure 1**. All biogas farmers (77 farmers) use fixed dome type with the various capacities ranging between 4 and 8 m³. Bendosari village is located adjacent to the forest. Therefore, some households search for wood in the forest for cooking. The number of illegal tree cuttings by the villagers increases since 2012 as the fuel price increases. Therefore, the public government promotes biogas management in the village to decrease the number of illegal logging cases.

2.2. Description of the manure waste

The characteristic of manure waste determines the biogas production. **Table 3** describes the manure waste characteristic in Bendosari village. Production of manure waste is 25.8 kg/head/day, resulting in total manure production of 63,855 kg/day. This manure is mixed with

No.	Dusun	Number of		
		Biogas farmers	Non-biogas farmers	Non-farmers
1.	Dusun Cukal	39	231	215
2.	Dusun Dadapan Wetan	12	90	22
3.	Dusun Dadapan Kulon	20	207	135
4.	Dusun Ngeprih	1	28	31
5.	Dusun Tretes	5	77	72
	Total	77	633	475

Table 1. Population in Bendosari village.

Parameters	Unit of measurement	Value
Average household size	Number of persons	4.3
Average cattle herd size owned	Number of animals	3.6
Average cooking energy demand (LPG)	Kg/hh	5.3
Average number of cooking times/household/day	Frequency	2.4
Monthly income	Rp/hh	600,000–3,500,000
Monthly LPG cost for cooking purposes	Rp/hh	35,000
Monthly savings	Rp/hh	50,000–1,500,000

Table 2. Socioeconomic and demographic conditions.

certain amount of water to attain a slurry concentration enabling stirring and flowing to AD. It is assumed that adding water decreases the dry matter content from 85 to 9.5%. This value is adopted from the previous study [32]. Totally, 2475 cows are raised by 710 households (HH). This number determines the biogas production, which is 278 m³/t ODM with methane concentration of 52%.

A typical AD in the Bendosari village is a fixed dome type with the capacity ranging from 4 to 10 m³. The price of AD is proportional to the AD capacity (Table 4).

2.3. Data collection

Data were collected during primary survey through observations, interviews, and questionnaires and secondary survey by collecting official information from related planning documents to technical reports. Table 5 shows the data collection method for getting primary data.

2.3.1. Population

Outlining of population is important to determine the sample, especially if there are more than one population. In this study, population is stratified into different groups based on the

Parameters	Unit of measurements	Values
Average manure production	kg/d	25.8
Total manure	kg/d	63,855
Input manure for existing AD	kg/d	7946.4
Dry matter	%	9.2
Organic dry matter (ODM)	%	85
Biogas yield	m ³ /t ODM	278
Methane concentration	%	52

Table 3. Manure waste description.

AD size (m ³)	Required number of cow (head)	Manure mass for feedstock (kg)	Price (Rp)
4	3–4	20–40	4500.000
6	5–6	40–60	6000.000
8	7–8	60–80	8000.000
10	9–10	80–100	11000.000

Table 4. Size of anaerobic digester in Bendosari village.

Method	Data	Remarks
Observation	<ul style="list-style-type: none"> a. Village characteristic b. Location of farmer c. Location of AD 	Data collection through rapid rural appraisal (RRA)
Interview	Biogas management <ul style="list-style-type: none"> • Number of cows • Pasture system • Biogas production method • Household characteristic • Economic condition • Public condition • Demographic 	Data source: <ul style="list-style-type: none"> • Village initiatives (household biogas/BIRU) • Village cooperative <i>SAE Pujon</i> • <i>Village administrator</i> • <i>Community</i>
Questionnaire	<ul style="list-style-type: none"> a. Perspective on individual behavior <ul style="list-style-type: none"> • Environmental concerns • Knowledge about biogas • Beliefs about benefits of biogas • Beliefs about cost biogas b. Willingness to pay (WTP) c. Questionnaire for <i>Elicitation Methods</i> using <i>Bidding Game Format</i> d. Preference of role in biogas development 	Respondents are provided with questions to be answered related to their willingness to pay some amounts starting with the least up to the most amount. Yes/no questions must be answered beforehand. Only respondents with the yes answer are asked for the willingness to pay

Table 5. Methods for data collection.

status of biogas management, which are the biogas farmer, non-biogas farmer, and non-farmer (**Figure 2**). This stratification aims to divide a heterogeneous population (villager of Bendosari) into homogenous sub-population. Homogenous population avoids biased data collection [33].

2.3.2. Sampling technique

A questionnaire survey was conducted in August 2016 in Bendosari village. The questionnaires are designed, referring to the analytical framework presented in **Figure 3**. A stratified random sampling was used in the study. The number of samples were determined using

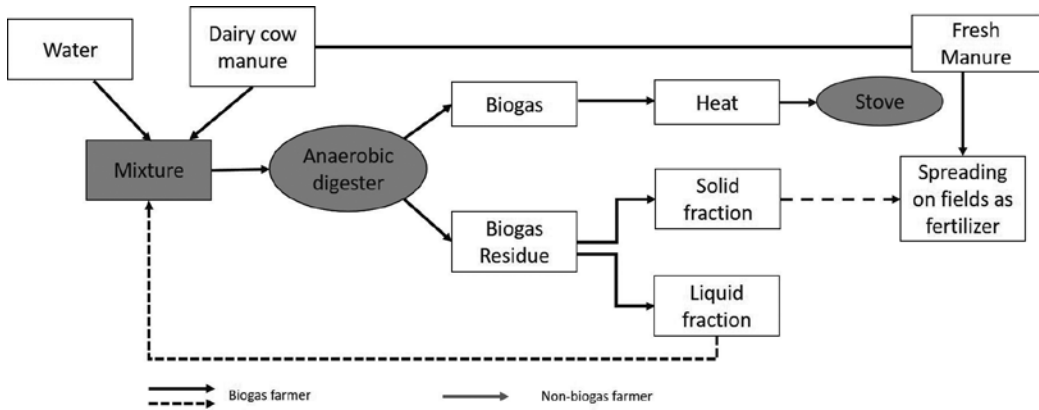


Figure 2. Biogas production system in Bendosari village.

Eq. (1), referring to each group of population discussed above. The stratified random sampling is the probability sampling method, enabling that every member in the population has the same opportunity to be chosen as a sample

$$n_i = \frac{N_i}{1 + N_i \alpha^2} \tag{1}$$

where n_i is the number of sample i , N_i is the number of population i , and α is the marginal error (10%).

The bidding game format was used to assess the WTP of biogas and non-biogas farmers as well as non-farmers. Nine independent variables were introduced in the equation and analyzed through a number of tests in multiple regression. The model resulting from the regression is used to calculate the probability of the respondents' preference of their role in rural biogas

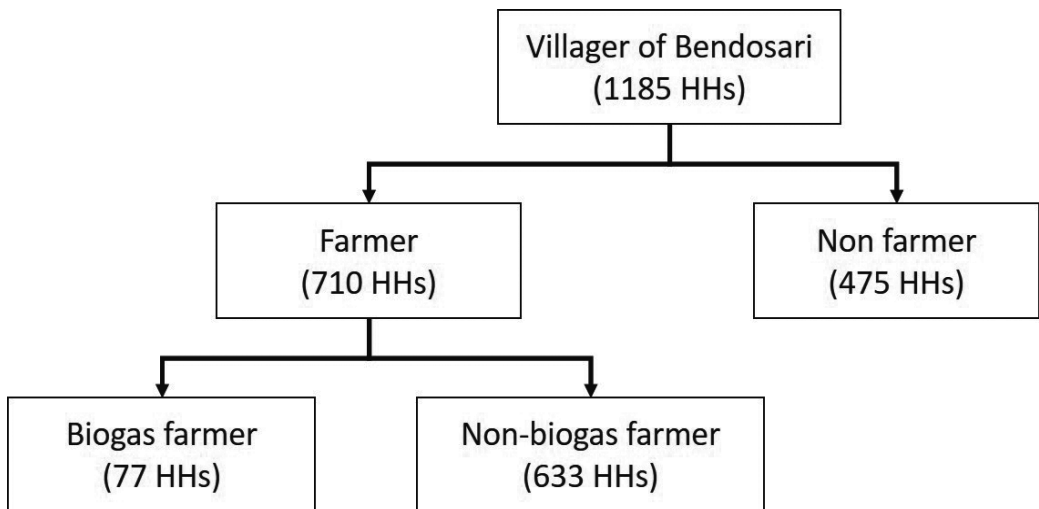


Figure 3. Stratification of population in Bendosari village.

development. The possible three roles are as provider, co-provider, or consumer. The value of probability indicates the public acceptance toward rural biogas development in Bendosari village. Eq. (2) is used to construct the regression model, while Eq. (3) is applied to calculate public acceptance

$$Z = \beta_0 + \sum_{i=1}^n \beta_i x_i + \varepsilon_i \tag{2}$$

$$P_i = \frac{1}{1 + e^{-z}} \tag{3}$$

where P is the probability, β is the vector of estimated parameters, x is an independent variable, and i is assumed normally distributed.

2.2.3. Questionnaires

In all, 213 questionnaires were distributed to public households (farmers and non-farmers), where 44, 86, and 83 are required for biogas farmers, non-biogas farmers, and non-farmers, respectively. They are provided by questionnaires comprising three sections. The first section included questions relating to respondents' socioeconomic characteristics. The second part included a description of the current situation regarding biogas technology implementation, existing problems, and stakes of the current biogas management in the village. The third part included questions relating to the perception, attitudes, and awareness of the respondents toward biogas management in general. The data are required for measuring the willingness to pay (WTP) and determining the factors in rural biogas development using logistic regression. The respondents distributed among *dusuns* are proportional to the ratio of the number of households in *dusun* and in the village as shown in **Table 6**.

2.2.3.1. Willingness to pay

Initially, all respondents were asked for their willingness to pay. The respondents who were not willing to pay were asked a follow-up question to establish their reasons for not wanting to pay. Respondents with 'yes' answer were asked furthermore for bidding. **Figure 4** describes the procedures for getting the information about the WTP.

No.	Respondent category	Number of samples					Total
		Dusun Cukal	Dusun Dadapan Wetan	Dusun Dadapan Kulon	Dusun Ngeprih	Dusun Tretes	
1.	Biogas farmer	22	7	11	1	3	44
2.	Non-biogas farmer	32	12	28	4	10	86
3.	Non-farmer	37	4	23	5	14	83
Total							212

Table 6. Number of samples.

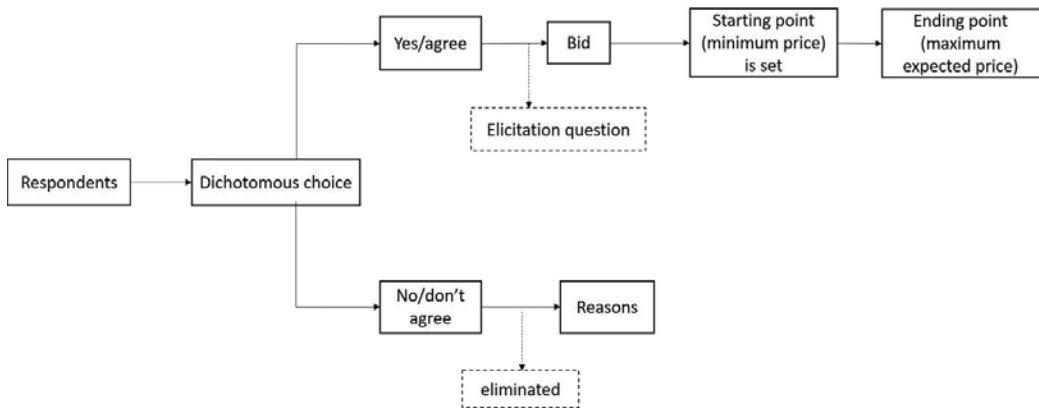


Figure 4. The structure of the question for WTP.

Three categories of respondents determine the amount of the first bid. Biogas farmers have already paid for the biogas technology. Hence, they were asked whether they were willing to pay more for better biogas technology. In contrast, non-biogas farmers have not used biogas technology and have not paid for it. Hence, they were asked whether they would be willing to pay for biogas technology. Non-farmers have the same situation as the non-biogas farmers. This group was asked whether they would be willing to pay for biogas distribution from the first and the second groups. The bid level is much lower than the other two groups since it refers to the conventional fuel expenses on a monthly basis. The cost for anaerobic digester construction and its regular maintenance are excluded from the amount that has to be paid.

2.2.3.2. Logistic regression

Logistic regression analysis was used to predict the preference of the role of each group (biogas farmer, non-biogas farmer, and non-farmers) using nine independent variables which are age, education level, income, concerns on environment, knowledge about biogas, perception about biogas benefit, perception about biogas cost, neighbor's interest on biogas, and self-perception about influence on people. These independent variables will be evaluated to measure the dependent variable, which is community acceptance on biogas. Variables are set as a dummy variable assigned with the value '0' and '1'. The criteria for values '0' and '1' are contextual with the questions given to the respondents. For example, for dependent variable, a value '1' is given if the answer is 'agree' and '0' is given if the answer is 'disagree.' Meanwhile, a value '1' is given if the answer is 'available' and '0' is given if the answer is 'not available' for the question of knowledge about biogas. Especially for sociodemographic data, that is, age, income, and education level, we set a certain value as a limit to group the data into two categories that can be valued as '0' and '1'.

2.2.4. Variables

Some variables have been chosen to answer the research objectives. The details of the variables are described in **Table 7**.

Criteria for determining the value of variables are explained in **Table 8**.

No.	Research objectives	Variable	Sub-variable	Method	Source
1.	Identifying public acceptance in Bendosari village based on community's perception on biogas development	<ul style="list-style-type: none"> Sociodemographic Perspective on individual behavior 	<ul style="list-style-type: none"> Age Education level Income Concern about environment Knowledge about biogas Beliefs about biogas benefit Beliefs about biogas cost Perception of neighbor's participation Perception of self-effectiveness 	Binary Logistic Regression	Ek [27] Modified from Liu et al. (2012)
2.	Identifying the value of <i>willingness to pay</i> and <i>ability to pay</i>	<ul style="list-style-type: none"> Range of nominal price of AD construction and biogas distribution fee Gross income Expenses 		Elicitation method (bidding game format)	Simanjuntak, Gusty Elfa M., (2009) Handayani (2013)
3.	Identifying the role of villager on manure waste utilization for rural biogas development	<ul style="list-style-type: none"> Preference of role on biogas development WTP value Distribution fee 			Liu et al. (2012)

Table 7. Variables for the analysis.

Variable	Group	Value	Remarks	Criteria	Variable
1.	Community acceptance on biogas (Y)	Biogas farmers	0	Not will to pay	
			1	Will to pay	
	Non-biogas farmers	0	Not will to pay		
		1	Will to pay		
	Non-farmers	0	Not will to pay		
		1	Will to pay		

Variable	Group	Value	Remarks	Criteria	Variable		
2.	Age (X1)	Biogas farmers	0	Non-productive	<15 years and >64 years		
			1	Productive	15–64 years		
		Non-biogas farmers	0	Non-productive	<15 years and >64 years		
			1	Productive	15–64 years		
		Non-farmers	0	Non-productive	<15 years and >64 years		
			1	Productive	15–64 years		
3.	Education level (X2)	Biogas farmers	0	Having basic education	≤Junior high school		
			1	Having more than basic education	>Junior high school		
		Non-biogas farmers	0	Having basic education	≤Junior high school		
			1	Having more than basic education	>Junior high school		
		Non-farmers	0	Having basic education	≤Junior high school		
			1	Having more than basic education	>Junior high school		
		4.	Income (X3)	Biogas farmers	0	Income/month	<Rp 2,000,000,00
					1	Income/month	≥Rp 2,000,000,00
Non-biogas farmers	0			Income/month	<Rp 2,000,000,00		
	1			Income/month	≥Rp 2,000,000,00		
Non-farmers	0			Income/month	<Rp 2,000,000,00		
	1			Income/month	≥Rp 2,000,000,00		
5.	Concern about environment (X4)	Biogas farmers	0	Without concern			
			1	With concern			
		Non-biogas farmers	0	Without concern			
			1	With concern			
		Non-farmers	0	Without concern			
			1	With concern			
6.	Knowledge about biogas (X5)	Biogas farmers	0	Without knowledge			
			1	With knowledge			
		Non-biogas farmers	0	Without knowledge			
			1	With knowledge			
		Non-farmers	0	Without knowledge			
			1	With knowledge			

Variable	Group	Value	Remarks	Criteria	Variable		
7.	Beliefs about Biogas benefit (X6)	Biogas farmers	0	Without knowledge about biogas benefit	<3		
			1	With knowledge about biogas benefit	≥3		
		Non-biogas farmers	0	Without knowledge about biogas benefit	<5		
			1	With knowledge about biogas benefit	≥5		
		Non-farmers	0	Without knowledge about biogas benefit	<4		
			1	With knowledge about biogas benefit	≥4		
		8.	Beliefs about Biogas cost (X7)	Biogas farmers	0	Affordable	<2
					1	Not affordable	≥2
Non-biogas farmers	0			Affordable	<1		
	1			Not affordable	≥1		
Non-farmers	0			Affordable	<2		
	1			Not affordable	≥2		
9.	Perception of neighbor's participation (X8)			Biogas farmers	0	Not having influence	
					1	Having influence	
		Non-biogas farmers	0	Not having influence			
			1	Having influence			
		Non-farmers	0	Not having influence			
			1	Having influence			
		10.	Perception of self-effectiveness (X9)	Biogas farmers	0	Not having influence	
					1	Having influence	
Non-biogas farmers	0			Not having influence			
	1			Having influence			
Non-farmers	0			Not having influence			
	1			Having influence			

Table 8. Criteria for dependent and independent variables.

3. Results and discussion

3.1. Public acceptance on biogas technology

Based on the survey, sociodemographic conditions are presented in **Table 9**. Most farmers (biogas and non-biogas) are 66–70 years old, and most non-farmers are 36–40 years old. Education level is mostly more than junior high school, indicating that approximately, community ability

Parameter	Unit/measurement	Group		
		Biogas farmers	Non-biogas farmers	Non-farmers
Age	Years	66–70 years	66–70 years	36–40 years
Education level	Years of education	12 years	12 years	12 years
Income	Rp/month	>Rp 1,000,000–Rp 1,500,000	>Rp 1,000,000–Rp 1,500,000	>Rp 1,000,000–Rp 1,500,000

Table 9. Sociodemographic of respondents.

to accept information as well as to support biogas development is relative high. Mostly, household income for biogas farmers, non-biogas farmers, and non-farmers is low, ranging between Rp 1,000,000.00 and Rp 1,500,000.00. Low income may affect the ability to pay (ATP) for AD.

The result from regression analysis shows that there are two variables influencing the decision of biogas farmers to pay, that is, perception on biogas cost and perception of self-influence on other biogas users. Furthermore, five variables influencing the decision of non-biogas farmers to pay biogas, that is knowledge about biogas, perception on biogas benefit and cost, neighbor's interest toward biogas utilization of people, and perception of self-influence toward other users. For non-farmers, variables of knowledge about biogas, perception on benefit, and cost are determinant factors in decision-making to pay biogas technology (**Table 10**).

Group	Individual self-perception	B	Sig.	Exp(B)
Biogas farmers	Cost	2.803	0.026	16.496
	Self-perception	2.830	0.016	16.943
	Constant	-5.309	0.009	0.005
Non-biogas farmers	Knowledge	1.637	0.033	5.142
	Benefit	1.604	0.036	4.971
	Cost	1.616	0.025	5.032
	Neighbor's perception	1.629	0.028	5.101
	Self-perception	1.659	0.021	5.256
	Constant	-6.849	0.000	0.001
	Non-farmers	Knowledge	4.493	0.045
	Benefit	5.345	0.010	209.524
	Cost	4.226	0.004	68.449
	Constant	-13.664	0.002	0.000

Table 10. Determinants of public acceptance toward biogas technology.

The results from regression analysis are presented as follows:

1. Regression model for biogas farmer:

$$Z = 5787 - 2832 \times 7 - 3255 \times 9$$

2. Regression model for non-biogas farmer:

$$Z = 3752 - 1724 \times 3 - 1847 \times 5 - 1489 \times 6 - 1698 \times 7 - 1299 \times 9$$

3. Regression model for non-farmer:

$$Z = 5750 - 4493 \times 5 - 5345 \times 6 - 4226 \times 7$$

The model is applied to calculate the probability of public acceptance toward biogas technology for each group using Eq. (2). Public acceptance is reflected by willingness or unwillingness to pay. The result shows that public acceptance toward biogas technology is relative low since the percentage of farmers who is willing to pay biogas technology is only 39, 12, and 33% for the biogas farmer, non-biogas farmer, and non-farmer, respectively (**Table 11**). The acceptance of biogas farmer is higher than other groups (non-biogas farmers and non-farmer). However, all percentages are relative low that all groups have low interest in supporting the biogas development. Samples unwilling to pay for biogas technology are excluded, and only samples agreeing to pay for are asked for their value of WTP. Based on the questionnaires, low WTP of biogas farmers is caused by their perception that biogas cost (AD construction cost) is higher than benefit, while low WTP of non-biogas farmers and non-farmers is caused by lack of knowledge about biogas, unaffordability, neighbor's interest, and perception of self-influence toward others. Value of WTP is required to identify because this value is compared to the ability to pay (ATP). If WTP is lower than ATP, it indicates that the product (biogas technology in this case) has no importance value for samples and vice versa.

3.2. Willingness to pay

Farmers' WTP of biogas technology is related to the minimum and maximum AD construction cost accepted as affordable which are zero and Rp 10.1 million, respectively. HIVOS, a

Group	Prediction	Prediction
	Willing to pay	Willing to pay
Biogas farmers	39%	39%
Non-biogas farmers	12%	12%
Non-farmers	33%	33%

Table 11. Prediction of public acceptance through willingness to pay.

Dutch NGO, gives financial support of Rp 2.0 million for each AD as shown in **Table 12**. WTP value varies with different incomes where WTP of farmers ranges between Rp 3.0 million and Rp 6.0 million and Rp 0.9 million and Rp 3.0 million for biogas farmers and non-biogas farmers, respectively, while WTP of non-farmers for biogas distribution fee ranges between Rp 20,833 and Rp 66,670. However, biogas farmers' WTP is higher than non-biogas farmers' WTP because they have got benefits of biogas technology. Based on the interview, biogas farmers can reduce fuel expenses for cooking up to 100% (**Table 13**).

According to [34], ability to pay (ATP) refers to net income calculated by subtracting expenses from gross income. **Table 14** shows that most WTP values are higher than ATP values. It means that biogas technology, as a product, has an important value that samples are willing to pay for it. During interviews, respondents are asked for their preference to play a role in biogas development in Bendosari village. There are three types of roles that can be chosen, that is, as a producer, co-provider, or consumer. Producer is a farmer producing biogas and using only for his family, co-provider is a farmer producing and distributing biogas for both his family and his neighbors, and consumer is a farmer or non-farmer only buying biogas for his domestic use.

No.	AD capacity (m ³)	Construction cost (Rp Mio)	Financial support from NGO (Rp Mio)	Cost paid by user (Rp Mio)
1.	4	6.3	2	4.3
2.	6	7.9	2	5.9
3.	8	8.8	2	6.8
4.	10	10.1	2	8.1
5.	12	11	2	9.0

Table 12. Cost for anaerobic digester construction.

Class	Income	Value of willingness to pay (Rp)		Class	Income
		Biogas farmers	Non-biogas farmers		
1	6,000,000–1,325,000	3,000,000–5,500,000	900,000–2,500,000		20,833–54,170
2	>1,325,000–2,050,000	2,400,000–5,000,000	600,000–2,000,000		33,000–63,340
3	>2,050,000–2,775,000	2,000,000–4,000,000	1,500,000–3,000,000		25,834–50,000
4	>2,775,000–3,500,000	3,000,000–6,000,000			25,000–66,670

Table 13. Willingness to pay by respondents.

Group	Income class	Ability to pay (ATP)	Willingness to pay (WTP)	Comparison	Preference of role
Biogas farmer	1	Rp 480,000	Rp 3,000,000–Rp 5,500,000	ATP < WTP	Producer
		Rp 540,000	Rp 3,000,000–Rp 5,500,000	ATP < WTP	Producer
		Rp 720,000	Rp 3,000,000–Rp 5,500,000	ATP < WTP	Co-provider
	2	Rp 735,000	Rp 3,000,000–Rp 5,500,000	ATP < WTP	Producer
		Rp 900,000	Rp 2,400,000–Rp 5,000,000	ATP < WTP	Co-provider
		Rp 900,000	Rp 2,400,000–Rp 5,000,000	ATP < WTP	Producer
	3	Rp 1,050,000	Rp 2,400,000–Rp 5,000,000	ATP < WTP	Co-provider
		Rp 1,200,000	Rp 2,400,000–Rp 5,000,000	ATP < WTP	Consumer
		Rp 1,200,000	Rp 2,400,000–Rp 5,000,000	ATP < WTP	Co-Provider
Non-biogas farmer	1	Rp 1,200,000	Rp 2,400,000–Rp 5,000,000	ATP < WTP	Producer
		Rp 1,500,000	Rp 2,000,000–Rp 4,000,000	ATP < WTP	Producer
		Rp 1,200,000	Rp 2,000,000–Rp 4,000,000	ATP < WTP	Co-Provider
	2	Rp 1,800,000	Rp 2,000,000–Rp 4,000,000	ATP < WTP	Co-provider
		Rp0	Rp 900,000–Rp 2,500,000	ATP < WTP	Co-provider
		Rp 50,000	Rp 900,000–Rp 2,500,000	ATP < WTP	Co-provider
	3	Rp 50,000	Rp 900,000–Rp 2,500,000	ATP < WTP	Consumer
		Rp 200,000	Rp 600,000–Rp 2,000,000	ATP < WTP	Consumer
		Rp 800,000	Rp 600,000–Rp 2,000,000	ATP = WTP	Producer
	3	Rp 900,000	Rp 600,000–Rp 2,000,000	ATP = WTP	Producer
		Rp 100,000	Rp 1,500,000–Rp 3,000,000	ATP < WTP	Co-provider
		Rp 250,000	Rp 1,500,000–Rp 3,000,000	ATP < WTP	Producer
		Rp 250,000	Rp 1,500,000–Rp 3,000,000	ATP < WTP	Co-provider

Group	Income class	Ability to pay (ATP)	Willingness to pay (WTP)	Comparison	Preference of role
Non-farmers	1	Rp 0	Rp 250,000–Rp 650,000	ATP < WTP	Consumer
		Rp 0	Rp 250,000–Rp 650,000	ATP < WTP	Producer
		Rp 150,000	Rp 250,000–Rp 650,000	ATP < WTP	Consumer
		Rp 300,000	Rp 250,000–Rp 650,000	ATP = WTP	Consumer
		Rp 350,000	Rp 250,000–Rp 650,000	ATP = WTP	Co-provider
		Rp 500,000	Rp 400,000–Rp 760,000	ATP = WTP	Consumer
	2	Rp 700,000	Rp 400,000–Rp 760,000	ATP = WTP	Consumer
		Rp 750,000	Rp 400,000–Rp 760,000	ATP = WTP	Consumer
		Rp 800,000	Rp 400,000–Rp 760,000	ATP > WTP	Consumer
		Rp 900,000	Rp 400,000–Rp 760,000	ATP > WTP	Consumer
		Rp 1,000,000	Rp 400,000–Rp 760,000	ATP > WTP	Consumer
		Rp 1,000,000	Rp 400,000–Rp 760,000	ATP > WTP	Co-provider
3	Rp 1,050,000	Rp 400,000–Rp 760,000	ATP > WTP	Producer	
	Rp 1,250,000	Rp 400,000–Rp 760,000	ATP > WTP	Consumer	
	Rp 500,000	Rp 310,000–Rp 600,000	ATP = WTP	Consumer	
	Rp 750,000	Rp 310,000–Rp 600,000	ATP > WTP	Consumer	
	Rp 850,000	Rp 310,000–Rp 600,000	ATP > WTP	Consumer	
	Rp 1,000,000	Rp 310,000–Rp 600,000	ATP > WTP	Producer	
4	Rp 1,200,000	Rp 310,000–Rp 600,000	ATP > WTP	Producer	
	Rp 1,200,000	Rp 310,000–Rp 600,000	ATP > WTP	Consumer	
	Rp 700,000	Rp 300,000–Rp 800,000	ATP = WTP	Consumer	
	Rp 900,000	Rp 300,000–Rp 800,000	ATP > WTP	Consumer	

Table 14. Classification of WTP and preference of role in biogas development.

4. Conclusion

Rural biogas development requires acceptance of the community which can be reflected through their involvement. Research objectives are set to find out the factors influencing the decision of involvement and to measure villager involvement in biogas development according to their preference of role in biogas development using regression analysis. There are three options of roles which are producer, co-provider, and consumer. The determinants for public acceptance toward biogas technology in one group differ from the other groups. Beliefs about cost of biogas and self-perception are important factors for biogas farmers, while knowledge, beliefs about cost and benefit of biogas, perception of neighbor's participation, and self-perception are the driving forces for non-biogas farmers. For non-farmers, knowledge and beliefs about the cost and benefit of biogas are the determinants.

The comparison between ATP and WTP comes to the result that all biogas farmers have ATP values higher than WTP where this condition describes that the product (biogas) has importance for consumer [35]. In this case, ATP is higher than WTP because biogas farmers have experienced the benefit of biogas and they want to sustain the technology although the price is unaffordable. Meanwhile, some non-biogas farmers (20%) have an ATP value which equals to WTP value, indicating that there is a balance between importance and cost. Eighty percentage of non-biogas farmers have ATP value lower than WTP value, indicating that biogas is important for them. Furthermore, three conditions exist in the non-farmer group where 44% have an ATP value higher than WTP value, 37% have ATP value equal to WTP value, and 19% have ATP value lower than WTP value. The percentage shows that the majority of non-farmers have ATP higher than WTP, indicating the low importance of biogas. The lack of knowledge about biogas is the main factor for this.

A preference of the role in biogas technology varies among the three groups. The percentage of the role for biogas farmers is 41, 53, and 6% as a producer, co-provider, and consumer, respectively. The percentage of the role for non-biogas farmers is 34, 44, and 22% as a producer, co-provider, and consumer, respectively. Meanwhile, the percentage of the role for non-farmers is 10, 81, and 1% as a producer, co-provider, and consumer, respectively.

Author details

Christia Meidiana*, Zuqnia Gita Ramadhani and Dian Dinanti

*Address all correspondence to: c_meideiana@ub.ac.id

Faculty of Engineering, Brawijaya University, Kota Malang, Jawa Timur, Indonesia

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Different Consumer Behavior Examples

Children's Consumer Behavior

Blandína Šramová

Additional information is available at the end of the chapter

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Abstract

Children's consumer behavior is a field that has lately been given attention by marketing, psychology, sociology, and pedagogy. The reason is the understanding that a child is an important part that has an influence on family's shopping. At the same time, there is a concern about the abuse of natural child naivety and trustfulness. That is why the experts turned their focus on the knowledge about child's cognitive development and all manners of consumer socialization and economic socialization. It is possible to accept protective measures to ensure the safety of the child consumer only when we know how the consumer develops. The chapter is therefore focused on these essential topics, and the research demonstrates the consumer and economic socialization of the children in preoperational period of the cognitive development from the perspective of the children and their parents.

Keywords: consumer behavior, consumer socialization, economic socialization, children, marketing, advertisement, media

1. Introduction

The marketing and media communicators' interest in child consumers has been increasing recently. The idea of marketing to young consumers is not new but the ways of integrating children into the marketing place are [1]. Marketing includes not only the product, its price, and point of sale but also the promotion and package design. According to Young, most of the people do not differentiate between advertising, marketing, and promotional activity [2]. In any case, the marketing in Western countries began to focus on children mainly in the 1960s [3]. This is understandable, given the fact that children and young people are known to be an important consumer group. Marketers began to be aware of the increasing children's power of persuasion on their parents' buying behavior. Children and the youth, not being a strong and economically powerful group, are attractive for the marketers for their ability to convince

and persuade their family environment. In developed economies, this fact is certainly tied to sufficiency of money in the families, to the vast range of merchandise available on the market, as well as to children's own financial resources (pocket money, gifts, and summer jobs).

However, it was not always the case when, for instance, advertisements for child toys were designed to fit adult TV viewers, not children (e.g., in 1950s, in Ref. [4]). It does not mean that children in that era did not influence the purchase behavior of their parents, and as the author points out, it rather means that marketers were to discover the marketing value of children later. This knowledge was displayed in massive marketing pressure, using children and youth, on consumer behavior in households. Cradle-to-grave marketing is therefore highly spread because marketers are aware that the sooner the child is "caught into their nest," the sooner they start to raise their future loyal customer [5]. This strategy proved to be cheaper than the strategy of building a loyal customer in the adulthood or in the senior age. In this context, marketers often use knowledge of cognitive and social development of child [6, 7] and the communication strategies are adapted to this knowledge (more in the theoretical foundations).

Therefore, this chapter is focused on the process of the child becoming a customer (i.e., how they learn the consumer behavior). We will discuss the main sources influencing a contemporary child in their socialization behavior, economical behavior, which psychological theories is marketing communication mainly based on, and so on. Moreover, the research part is focused on findings of the main social factors influencing the consumer socialization of preschool children. Knowledge of these factors serves us not only to concentrate better on the child consumer but also to protect them against the negative effects of consumerism. Literature provides a large source of studies warning against this negative influence on children. The negative effects mainly concern the relationship between food marketing and child obesity, between online activity and passivity in lifestyles, between game violence and aggression, and finally between commercialization of childhood and bad parent-child relationships [1, 8, 9]. However, we have to stay aware of the fact that correlational relationship between observed variables does not indicate causal relationship. Let us take the example of the relationship between obesity and food marketing. It is clear that adverts for products with no nutritional value are tempting for children. Nevertheless, children obesity is not influenced purely by food marketing but also by insufficient physical activity, undesirable eating habits prevailing in the child's family, and so on [10]. Noble et al. propose "the paradox of modern parenting," by which they mean that parents know what is good for their child but provide them with less healthy options [11].

A large part of the debate on marketing to children has focused on advertising which is propagated mainly by TV and online. Marketers find themselves in dichotomy in order to increase the focus on child consumer and to serve as an educator and adviser. Commercial organizations are integrated in programs focused on consumer literacy [12], they bear moral messages in social marketing, and so on.

Another reason why it is necessary to look at the child consumer is the fact that while the marketing develops, the consumer develops as well. Communication channels that were valid in the past are becoming outdated and no longer address consumers. Society-wide development

contributed greatly to this situation. The development includes globalization, open market, 24/7 online service, growth of social sites, new communication technologies that enable personalized marketing approach, and many more.

It is not possible to look at the child consumer through the lenses of adult consumer behavior, as the child has specific needs, requirements, values, and attitudes. Similarly, the characterization of consumer behavior of children and young people should reflect the present day, meaning the time where these individuals grow up and by which they are formed. It is known that each generation has its own unique collection of values and that they are shaped by cultural and political environment where they grow up and which is then reflected in their values, attitudes, and opinions. In this context, we talk about the generation's approach to the consumer behavior. The current generation of kids and youths has access to better health care, better education, higher quantity of toys, and better toys [13] and also to wide variety of professions, unlimited access of information, and fast connection to the whole world. This is the Generation Z (people born after 1993) also as called the Global Generation. This generation is consisted of so-called digital natives [14] that cannot live without new technologies. They are also often described as Gen Google as they use this site to look for any information and do not think about context and links between the facts and events. On the other hand, it is a generation that uses these modern technologies for their personal growth and education [15].

Brands are an integral part of contemporary childhood, especially in the case of Generation Z [16]. Thus, it is not surprising that the advertising budget of fast food and drink products aimed for children has increased in the past few years [17]. Studies show that a child is able to recognize the brands at a very early age (18 months–3 years) and later attribute a meaning to them [18, 19]. Orientation in brands increases more considerably when the child becomes a part of the social environment filled with their peers (e.g., in kindergarten). The influence of the peers is very strong and can be explained in the context of consumer culture theory. The pressure of the social group has an impact on how the child perceives what is cool and refuses the products that are labeled as “minging” by the group. Members of the Generation Z (especially young teenagers) are idealistic, ecologically and socially sensitive [2], what we can observe on various portals and social sites. They are not afraid to “fight” the political structures and those with power when they witness injustice done to someone else or to the environment.

One of the first social links is family. Thus, in consumer socialization process, it is important to observe the child-parent relationship. Parent-child relationships are less confrontational and more collaborative these days. Advertising reacts to that and puts the parent in a position of an adviser (e.g., when choosing a bank to open an account). Moreover, in some countries, we witness a decrease of commercials focused on products linked to obesity and unhealthy lifestyle (e.g., fast food, snacks, products high in sugar, breakfast cereals) and an increase of commercials promoting alternative products: fruit juice, water, fresh fruit, and vegetables [3]. However, the aforementioned decrease could be related to the restrictive measures in these countries. For instance, in the United Kingdom, there was no advertising of products high in fat, sugar, or salt on children's TV channels [3, 13, 20]. Where such restrictions are not in order, we do not observe a step forward in the process of promoting healthy lifestyle but quite the opposite [21]. Based on what we have mentioned so far, we formulated the following

research question: what are the main social factors of the consumer socialization of children in the preoperational period of development?

2. Theoretical foundations

2.1. Children, consumption, and consumerism

Consumer socialization is a part of the overall socialization that takes place in the development of the individual. Socialization is an expression of the gradual integration of the individual into the society by acquiring social norms and rules. Consumer socialization is a gradual learning of the rules, norms, and habits in consumer and purchase process. The result is a construction of consumer behavior patterns. According to Ward [22, p. 2], the consumer socialization is “the process by which young people acquire skills, knowledge, and attitudes relevant to their functioning as consumers in the marketplace.” While in overall socialization we talk about a person being a member of the society as the result of the process, consumer socialization results in the individual being a member of the purchase and consumer processes, thus a part of the marketing. Consumer socialization is important for understanding how the culturally induced social norms are perceived by the consumer and how the consumer adapts and transforms them into the consumer behavior.

According to numerous statistics, marketing focused on children is very financially lucrative. Income from the products designed for children and youth ranges in billions of dollars in the USA and pounds in the UK [8, 13]. Here, we also must take into notice the income from the products not directly issued for children (e.g., clothing, drinks, toys, fast food, sweets, magazines, movies, music and computer software, breakfast cereals, family cars, computers, house, holidays) but in the purchase of which they have an important say [23–27]. That is the reason why many studies over the years paid attention to the consumer socialization of children and adolescents [28–30]. Socialization is a life-long process touching equally the children and their parents [31]. The process of socialization demonstrated by the acquisition of new social roles and statuses that takes place in the development of the children is equally present in the adulthood. Even though we often find generalizing information in literature that should be true for every child, we should know that each child is unique [32] and that this fact is demonstrated in the consumer socialization.

Economic socialization is a part of the consumer socialization. It is important to notice the children’s knowledge, understanding, and behavior in the economic world. Economic socialization is a process which goes through stages as the child grows up and is not created only in the specific educational environments. In literature, the term “naive economics” is used, denoting the economics non-specialists [33]. Still, it is important to know that whether we want it or not, children are pulled into the macroeconomic world from the very early age. As they are a part of the family where they grow up, they share its social-economic problems such as unemployment, low income, inflation, economic crisis of the country, and so on. Furthermore, the family teaches them the value of money, how the bank account works, what the credit and debit cards are for, and so on. As was already mentioned above, a child from

economically advanced country plays an active part in the economic world because they have their own money they can spend. Whether the money come as a gift from the relatives, from holiday or part-time jobs, or in the form of pocket money is not important.

Economic socialization includes processes by which the individuals develop their competence in dealing with the economic world [34]. The author highlights that this competence is gained through their experience of using money to purchase items, as well as through persuading others to buy or exchange a product, so the child learns to better understand the importance of the budget. Therefore, economic socialization represents not only knowledge, but also behavior, opinions, and attitudes that are necessary for the world of economy [34]. Numerous evidence points to the fact that if a child learns to work with money (e.g., by having their own pocket money they can use according to their needs), they learn to understand the value of money [34, 35]. If they desire something they have to save up money for, they learn to put money aside for future purchases and not spend it immediately. Furthermore, a child owning a (fictional) credit card spends more money than if they have (fictional) money [35].

Evidence confirms the predictions that financial education depends on the social class, age, social-cultural background, and gender. The middle-class children are more familiar with banking vocabulary and professional prestige in comparison with children from the working class [34]. Girls are more active in shopping and activities linked to consumption than boys [36]. It is therefore in place to stress the importance of the economic education in the family environment, as well as in the school. This is what is missing in the Slovak educational system, although the public would welcome economics as a school subject.

A number of studies documenting children's economic socialization focused on how children understand the economic world of adults [34, 37, 38]. Moreover, we can find studies that were focused more on the explanation of the children's economic behavior through observing how children solve economic problems [39, 40]. However, P. Webley warns that little is known about bargaining, bartering, and swapping, which are present with children and are in direct connection to the economic socialization [41]. It is widely known that children exchange football cards, games, books, toys (e.g., from *Kinder Surprise*, *McDonald's Happy Meal*), or toy cars, sweets, and stamps and this custom perpetuates collecting, as well. Swapping is a typical activity of middle childhood but it can be seen in preschool age, too. There are three reasons explaining this behavior, according to Webley: (1) swapping is enjoyable; (2) friendship support; and (3) economic justification (it is better, cheaper, and so on) [41].

2.2. Theories and consumer development

In this section, we present the main theoretical concepts forming the basis of marketing communication focused on child consumer. Although theories such as Piaget's theory of cognitive development [6], behaviorist learning theory, theory of social learning [7], or cultural and historical approach according to Vygotsky [42] did not explain consumer development, their theories have found their place in the marketing theory.

Purchase and consumer processes are dependent on the level of mental and physical development. Thus, to understand consumer socialization of children and young people, it is

important to consider psychological developmental theories. These theories enable the understanding of development of children's abilities as consumers.

The cognitive-developmental approach of Swiss psychologist Jean Piaget is often applied to economic thinking of children [6]. Piaget explains the development of cognitive functions as the process of adapting to the outside world [6]. This process of adaptation is composed of two processes: accommodation (adaptation of the organism to the environment) and assimilation (organism adapts the environment to fit its needs). The author studied children's understanding of physical world through children's experiments via direct interaction with the environment. According to Piaget, there is a transactional process during the development, in other words, equilibration which links children's cognitive stages to their experience of the world [6]. This process produces a balance between the cognitive level of child at a specific moment of the child stage and their experience of the environment.

When we look at the development of the consumer and economical socialization through Piaget's theory, it is clear that the child embraces information and organizes it into particular contexts dependent of the level of child's cognitive development. We can say that the consumer behavior begins at birth and the consumer behavior patterns develop in stages. Piaget's theory denotes the following four stages of cognitive development:

1. *the sensor-motor period of development* lasts from birth to age 2. Children in this stage of development do not have symbolic representations yet but so-called schemas or mental structures that are based on children's actions. However, near the end of this stage, children start to develop a general symbolic function, which means that they know that a doll represents a person, for instance [34]. Children explore the world around them, thanks to grabbing and looking, and they become egocentric individuals [2];
2. *the preoperational period* (age 2–7) is typical of formation of the concept of the world surrounding the child, based on what the child likes. They look at the world from their point of view. Young points out that this stage is dominated by appearance [2]. Additionally, symbolic thinking and language develop [34]. Similar to the first stage, the child in this stage is egocentric and convinced that everyone has the same view of the world as they do. They are also convinced that everything is possible, even acting against the laws of nature. They perceive TV commercials as funny, entertaining, and trustworthy and demand the advertised products [5, 43];
3. A child in *the concrete operational period* (age 7–11) understands that other people may have different views on things. Thinking is in a concrete and demonstrative position. The child starts to apply negotiation and persuasion in social interaction with others. Children are critical and distrustful of advertisements [5]. New forms of advertising such as product placement, or suggestions from bloggers and vloggers, are however not perceived as advertisements by the children in this stage, so it can have control over them;
4. The last stage of cognitive development, *the formal operational period* (age 11 and older), is characteristic by the child being able to think systematically and to work with abstract terms. In other words, they are capable of all forms of abstract thinking. Even though residual

egocentric thinking is still present, allocentric behavior (i.e., behavior centered on others) starts to develop [2]. A child in this stage can already understand the persuasive content of advertisement. They tend to have a critical and even rejecting attitude toward traditional forms of advertisements (especially TV, billboards, and so on). However, new forms of advertising, like product placement in video games and recommendations from influential people (e.g., bloggers, vloggers, sportsmen, singers), have more power to engage children's attention. These means of advertising are used not only by commercial marketing but also by social marketing.

According to J. Piaget, all children pass through four stages of cognitive development in the same order but at different speeds [6]. Thus, the cognitive development approach to children stresses intraindividual difference as the child grows up [34], although it is criticized for not taking the individual variability into consideration. It is important to remember that individual variability is conditioned by the structure of the personality and also by the social and cultural environment where the child grows up.

The cognitive development approach can also be found in the context of the brand perception. A study from New Zealand showed that while 7- and 8-year-olds perceive the product itself (i.e., its perceptual features), and 10- and 11-year-olds orient themselves more on the brands (i.e., perception in symbolic level is in process) [44]. It is evident that the development of brand perception is closely related to the cognitive development. Therefore, we can easily understand how the brand perception develops in child from feature-based appreciation of logos and product features to the understanding of the brand symbols that are linked to certain social stereotypes.

Economic thinking, meaning the understanding of the world of economy, requires the logical structure of the mind that is dependent on the economic knowledge. Economic thinking develops in accordance with the development of the cognitive processes. Economic information that the child acquires during the development is organized into relationships by the child. Economic thinking is the basis of economic knowledge. To understand the world of economy, the child needs to reach the abstract level of cognitive processes. During the development of the children's economic socialization, the following information sources are essential: (1) active information (purchasing or choosing a school orientation); (2) entertaining information (advertising, news, films, TV series); and (3) social information (peers, friends) [45].

Behaviorist learning theory on the other hand stresses the effects of the environment on children's behavior [7], and the given model describes interindividual variations in children of the same age [34]. This theory explains the behavior of the individual. The child gains experience and skills through positive reinforcement of their behavior by being rewarded and through avoiding punishment (related to negative emotion) for their behavior. A functional behavior of children is imitated because it is reinforced.

Other authors add to the cognitive approach the impact of the social environment on the development of the individual, which also manifests in the acquisition of the consumer behavior. Some of the authors are [38] who argue that children are active agents in the process of learning the economic behavior. Moreover, economic socialization is the process by which

the child assimilates knowledge about the consumption practices and economic world. The understanding of the economic notions depends on the cognitive apparatus of the children, as well as on their methods of interpretation of the marketplace.

Another important theory explaining how the child learns to recognize the world and to integrate it into their experience and behavior is the theory of social learning [7]. Author describes the process on the basis of two key phenomena: observation and imitation. Children adopt new behaviors through imitating or modeling. They learn the consumer behavior through these processes, which is called observation learning. Children imitate the consumer behavior of the most relevant models: parents, siblings, peers, and idols from media. Children attempt to reproduce what they observe in their environment [46]. Learning through observation is a form of cognitive learning [47]. Social learning theory is therefore grounded in the knowledge of behavioristic learning theory which works with the notions of reinforcement and punishment. So, the children are active in the learning and the reinforcement of their new habits, new patterns of behavior. We witness a reciprocal determinism, which is when the environment affects the child and the behavior of the child affects the environment [7].

The social role theory [48] explains different position of the genders in dependence of the historical division of labor between women and men. From this viewpoint, the social roles that the individual holds during the socialization process in the life play an important role in the learning of the consumer behavior, as well. Thus, the child becomes a consumer by fulfilling their social roles (e.g., pupil, daughter, son, sibling, granddaughter, and grandson). The main sources of information in this educational process are believed to be parents, family habits, peers, advertising, and the products.

Yet another approach explaining how children become active members of the consumption is a view of participation of the children in sociocultural activities, especially of how they take part in the consumption activities. The emphasis is put on social and cultural environment that forms the individual in every regard with consumerism included [49]. Social and cultural environment denotes the environment in family, school, or religion, which forms the personality of the child, primarily their language and cultural meanings. The child becomes a part of the society where they gain skills from participation in everyday social life for the individual does not develop on their own, rather than in interaction with other people and environment.

In this context, L.S. Vygotsky's cultural and historical approach laid the basis of the study of the individual. He puts stress on the features, language, and culture playing key roles in the forming of awareness and thinking [42]. L.S. Vygotsky explains the developmental processes as the result of social interaction, history, and culture of the particular environment where the child grows up, while also considering the influence of the natural (i.e., evolutionary and biological) environment [42]. Through day-to-day activities, the child assimilates a conventional language to consumption and acquires a set of social standards relating to consumption [50]. The authors argue that it mainly means an understanding of the concepts of brand, price, quality, comparisons of products, mastered references, a search for identity, and membership within a group. Furthermore, the child in social and cultural environment learns consumption practices via interaction with other members of the society (relatives, peers, teachers, and

so on). The child compares their experience with others and not only in face-to-face relationships but also through institutional systems (i.e., distribution and retailing, carnivals, festivals, sales techniques, and so on) [51].

In marketing, we can see cultural differences of consumers in packaging, advertising, or taste, which as a result have an impact on different consumer experiences of children growing up in different social and cultural environments. Therefore, the child learns the consumer behavior through different kinds of guidance (parents, peers) and also through different forms of semi-otic tools (language, advertising, packaging, and so on) [51]. The child is not only a passive recipient of tidings related to consumer behavior but also an active individual learning and developing persuasion skills, language, and other social skills.

The answer to a question as to when does the consumer socialization begin must be from the birth. The child acquires the first consumer experience in the family through clothing, food, toys, TV, or shopping with parents. In some sense, the child is a part of the social behavior in family even before the birth. Future parents prepare for their role very responsibly. They take care to pick product and services for the future mother (workouts, DVDs, clothes, food supplements, and so on) and for the offspring (clothes, furniture in the baby's room, and so on). The parents can also choose to buy new, more spacious dwelling, or bigger and safer cars. Moreover, the child gains consumer experience not only from siblings (e.g., by playing the Internet games, seeing Internet advertising) but also from peers and relatives or family friends. Consumers often use the same brands as their parents used [52], where we can see a connection between the consumer model of the parents and their children. This fact is used by marketing communication in the so-called upbringing and care of the loyal customer. Here we can see the use of elements of nostalgia, that is, the return to the past, in commercials and packaging.

Evidence shows that similar to the influence of parents on the consumer behavior of their kids, the children have an impact on their parents, as well. Children influence the consumption of products for the family [53–55]. Their impact is notable in areas tied to new trends, technologies, products, and brands, because they have better orientation in these areas (also thanks to the peers and the Internet) than their parents do. Thanks to new technologies, the kids acquire technological skills faster and more efficiently, so their technological competence is higher than the competence of their parents. The children's influence on the purchase behavior of the parents can also be seen in the case when the parent buys the brands of daily-life products that they know their child prefers. This applies to other generations as well, as children are not only in contact with their parents and siblings but also with grandparents, aunts, uncles, and cousins. All of these groups influence each other's consumer behavior. The parents, close relatives, and mass media (primarily television) have the greatest impact on consumer socialization of the child [56], in contrast to adolescence, where other institutions move ahead, especially school, peers, social sites, bloggers, and vloggers.

To understand the consumer socialization processes, it is important to know how the consumer learning takes place. The society is diverse and the family is diverse too. These days, we do not have one family model traditionally based on blood or legal relations. In the current postmodern society, we meet different sorts of families. The traditional uniform model is no more. The family is now a kind of a "social network, that includes members from the formal

and/or informal family" [57, p. 55]. Additionally, the cross-generational co-living that was common in the past is now rarely encountered, especially in the socially and economically developed countries. This is reflected in the interaction of the family members. Family discussions and meals that can be tied to negotiations about consumption are sometimes replaced by the communication by phones, mails, or text messages. This phenomenon is translated into consumer socialization which is changing by the influence of the postmodern family co-living. Therefore, if we wish to discern the primary consumer socialization of the children that is realized in the family, we must take the family activities in the notice, specifically the family rituals related to consumption practices, consumption of media, and shopping practices. To be able of a proper focus on the children and young people, we must also know how they perceive marketing practices, in other words, how they consume the advertising and promotions.

The fundamental theoretical framework to our question of "What main social factors play a role in the consumer socialization of children in the preoperational period of development?" was the cognitive theory of Piaget [6], as well as the theory social learning [7]. The emphasis is put on the knowledge of the development of cognitive apparatus, on which the perception of media and the marketing message is dependent. Apart from the cognitive development of the individual, equally important is to consider the socialization process of the child which is underway through the observation and imitation. The child acquires consumption practices in interaction with other members of the environment. That is the reason why our research was also grounded in Vygotsky's cultural and historical approach [42]. To find the answer to our question, qualitative research design proved to be the most appropriate. Therefore, we chose the method of semi-structured interview conducted with children alone and their parents alone.

3. Research

The aim of the research was to find out the main socialization factors of the children's consumer socialization in the preoperational period of development (from 2- to 7-year-old) as well as how these factors are reflected in the consumer behavior. The reason is that consumer socialization is an important part of the child's consumer behavior. We wanted to discover how the children in that age understand the advertising; what influences them to choose the products; what is their level of economical socialization; what influencing strategies they use on parents in order to get certain product/brands; what are the family activities, daily rituals, shopping rituals, and so on. The consumer socialization was looked at from the child's and their parents' perspective.

Qualitative research design was used for the data collection. Research sample consisted of 45 children (26 girls, 19 boys) and their parents ($N = 45$) living in Slovakia.

The semi-structured interview was used with every participant as the research method [58, 59]. To achieve the objective of the research, a semi-structured interview with a child and a semi-structured interview with a parent were conducted. Interviews were individual, recorded on a voice recorder, and then transcribed into a text form. The length was approximately 30

for children and 20 min for parents. To determine the target areas, we used an exploratory research method with emphasis on capturing the range of relevant topics concerning the researched issue in view. In the research, we used the concept of thematic analysis as an analytical tool, created by Braun and Clarke [60]. They argue that thematic methods identify and analyze the data to find information or meaning related to the themes or patterns that correlate with research questions. Thematic analysis is based on coding and consists of six phases [60]. In phase 1, the data corpus was transcribed into written form. In phase 2, "initial codes" were generated, meaning that the themes were located and their relation to the research question was described. In phase 3, the meaning of the themes was explained [60, p. 20]. In phase 4, the themes were visualized in the candidate "thematic map." The research themes and thematic map (**Figure 1**) were established within a rough frame of asked questions and based on answers from the data corpus. In phase 5, "the "essence" of what each theme is about was identified [60, p. 20]. In phase 6, the report on the base of "final comprehensive analysis" was produced [60, p. 21]. We tried to provide "sufficient evidence of the themes within the data— i.e., enough data extracts to demonstrate the prevalence of the theme" (ibidem).

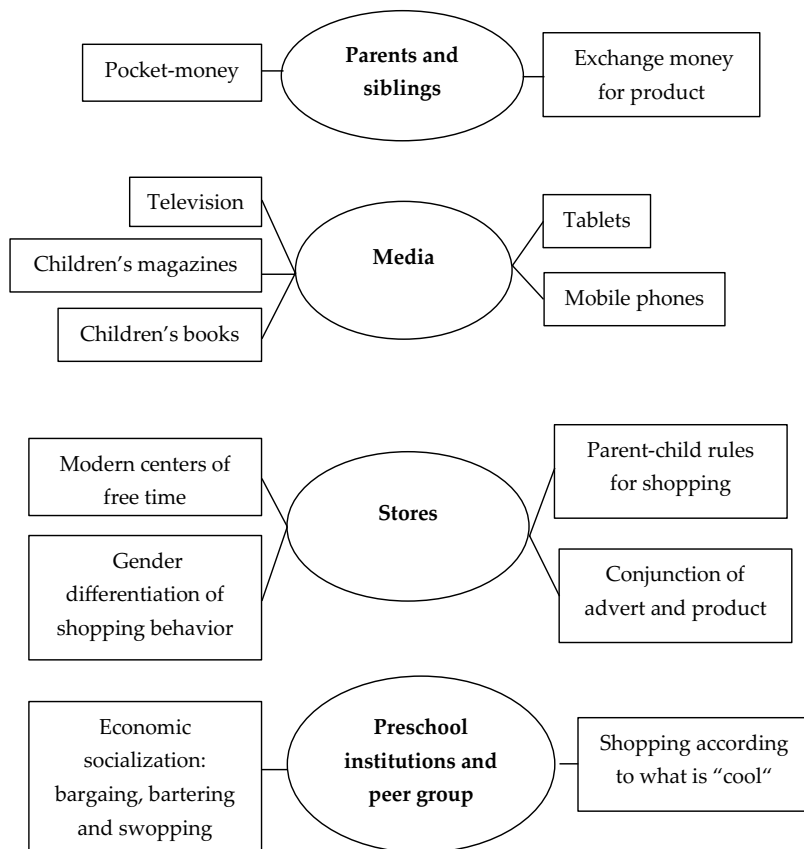


Figure 1. The thematic map of the main socialization factors of the children's consumer socialization in the preoperational period of development with four main themes and subthemes.

3.1. Socialization agents of preoperational period of development

The analyzed interviews with the children and their parents have revealed four key factors. According to the terminology of Braun and Clarke “main overarching themes” [60, p. 20]. These are themes that influence the consumer behavior of the children in the preoperational period of cognitive development: (1) parents and siblings; (2) media; (3) stores; and (4) pre-school institutions and peer group.

(1) Parents and siblings

Parents proved to be one of the main socialization agents of the children. This fact is in correspondence with the knowledge found in literature, and we find that parents and family are important economic socialization agents [61, 62]. They explain the basic terms of the consumer world to the kids, like what is money, what it can be used for, how do they get to it, what is the advertisement for, and so on. The children learn to understand the value of money; furthermore, they learn symbols, although it still remains in the abstraction level and they struggle to conciliate with the fact that they cannot have something they like and want (e.g., for the lack of money or correspondence to unhealthy lifestyle). This can be demonstrated by the statement of a 5-year-old boy: *“When I grow up, I will make a lot of money and will buy all the ice-cream from the store, even in the winter!”*

One of the important factors contributing to the economic education is the pocket money and allowances which have an educative role [63, 64]. Although this practice is recommended more in the adolescence [63], or from the age of 6 [63], the foundations are laid even before reaching this age. In our sample, we encountered a beginning of thinking about saving up for the desired product, which demonstrates the following statement: *“I have a lot of money in my piggy bank (from grandma, dad, and mom), and when I’ll have enough, I’ll buy the Butterfly Barbie”* (girl, age 7).

Some of the parents stated that they try to give earning opportunities for doing household chores but mainly to the older siblings of the children from the studied sample.

The older siblings pulled the children in the preoperational period to the commercial world more (e.g., by using video games, tablet, watching videos from popular vloggers), compared to the only children or those with younger siblings.

(2) Media

Media represent another very important part of the consumer socialization. Through the media, the child acquires models and norms, and the idea about how the world works, which is allowed and applauded not only in the society but also sanctioned on the other hand [5].

The young consumer is affected by the medial messages not only from the TV but also from billboards, posters, and websites. Media are extremely attractive to children even from the first moments of their lives [18]. Electronic media emit sounds, and images are colorful and moving; therefore, they naturally attract the attention of the children.

The children from our study are in contact with mass media that are usually represented by television and child magazines. That is reflected in the time distribution in the family. TV is

most often turned on in the morning before the departure for kindergarten, in the afternoon after returning home, and during the weekend mornings when the children-oriented programs air.

The content of magazines and children's books is consumed in the presence of the parents or older siblings, usually in the afternoon or the evening. *"What I like the most is to draw in and read "Macko Pusik" (Eng. Pusik the Bear, children magazine; author's note) with my brother" (girl, age of 6). Commercial*s have high viewership. *"We have to pay attention to the commercial breaks. Then we switch programs, because those commercial that are in the TV don't have a good impact on kids. They are loud, belligerent, and misleading" (mother of 3- and 4-year-olds).*

Parents often delimited children's commercials watching, and they admitted however that TV, tablet, or games on the mobile phone are used to entertain the children while the parents work or want to have a rest. This is a risk factor, as children spending more time in front of the television or computer tend to be more materialistic and have lower self-esteem [65].

The children viewed the advertisement as funny and entertaining, which corresponds to the statement of a 4-year-old boy: *"It's funny when they chase each other in the commercial, and make funny fools of themselves."*

(3) Stores

The third theme emerging from the interviews was stores. There, the child meets with the media messages from clothing, magazines, packaging, or store shelves. All parents declared that shopping malls are big traps where the supply and advertising make the bargaining (related to the consumerism) with children harder. The parents stated that the children accompany them in most of the daily purchases of the basic products. The girls were more active and demanded more the products they had already seen in the commercial or a nice packaging in the shop captured their attention. This finding corresponds to Watiez's [36] findings, when the girls took a more active part in the activities related to the consumption, compared to the boys. Some parents stated to have arrangements with their children where they agree to buy one product the child wants (usually sweets) and nothing more. However, the parents also admitted that sometimes they are unable to refuse additional demands of their children and eventually buy what they want. Another group of parents that does not have rules about shopping admitted to often deal with conflicts with the children in the shop, because the child demands certain product and the parents are unwilling to buy it. In situations like these, the children prefer to pick the product they like and that they previously saw in the commercial or that is being promoted in the store by other people. *"I like when I can taste some cookie that the ladies in the shop offer, and then mommy buys it for me" (girl, age of 5).*

TV commercials are trusted by the children, and they tend to long for the merchandise that is promoted in those commercials [5].

The interviews with the parents furthermore demonstrated that most of the family shopping is done during the weekend. Parents tend to pick a shopping center with indoor children playground with supervision. *"My son really likes the children playground, so me and my husband can do the shopping in peace, not being distracted. We even see it as a form of relax" (mother of a 4-year-old).* The shopping centers of this century became the modern centers of free time.

They offer all kinds of activities like different sports or cultural programs. However, spending free time in the shopping centers takes away the time that could be spent in the nature, which was acknowledged by the parents of our child participants, as well.

(4) Preschool institutions and peer groups

Upon commencement of the preschool, the child arrives to wider contact with the peers. The peer group is therefore another socialization institution which influences the wills, desires, attitudes, and values of the child [5]. The child's viewpoint of the world is still egocentric in this stage of development [2] and the game with their peers frequently ends up in quarrel over toys [66]. *"When Peter doesn't want to give me the digger, I take it from him"* (boy, age of 5).

The peer pressure to own a certain product or brand was declared by the parents in our study, as well. The child wants to be a part of the social group in the kindergarten, so they put pressure on the parent to buy what they think is cool. *"We gave into pressure from our son who wanted us to buy the exact same model of a car that his friend owns, although he already had a similar one at home"* (father of a 5-year-old son).

Even though in this age of development the perception is not yet in the symbolic level [44], our study sample showed that children under the peer pressure have knowledge of the products that are regarded as cool. The children were included in the bargaining, bartering, and swapping, what could be considered as the first signs of economic socialization [39]. The economic socialization occurred mainly in the process of swapping of football cards, collectible stickers, and sweets.

4. Conclusion

Child consumer of the present day is more than ever surrounded by medial messages that influence their values, attitudes, experience, and also behavior in the consumer-oriented society. For this young generation, television advertising represents only one aspect of their consumption experience, and other media, especially the Internet, have a lot more power [8, 67]. Apart from the TV, the child consumer is influenced by medial messages from billboards, posters, websites, clothing, text messages, magazines, packaging, radios, store shelves, video games, commercials on different types of media, or banners on websites. We also have to be aware that products reach the child in the school (e.g., on bags, notebooks, pen cases) or the playgrounds where logos of the companies investing in the building or renovation of the playground as a part of the socially responsible marketing are to be found. Therefore, in the interest of the protection of the children and young people, it is essential to know the main socialization agents that play an important role in consumer and economic socialization. These factors—main themes—were parents and siblings; media; stores; and preschool institutions and peers for the group of children aged from 2 to 7. Another study also support our findings that the biggest impact on consumer socialization in the children lives have been the parents, close relatives, and mass media [56]. Apart from these socialization institutions (i.e., media, parents, siblings, school, peers), our research exposed stores as another important socialization factor. They are places that along shopping provide fun and relaxation. Moreover,

we find there the realization of different marketing communication tools, as well as of personal sale, advertising, sale support, and PR. This is the environment where children connect the product they saw in advert with that seen directly in the store and demand the purchase of said product.

A paradox from the part of the parents is evident, which we already encountered in the past, where the parents on the one hand criticize the negative influence of media on the healthy development of their child and on the other hand they prefer the use of said media in family leisure activities [43]. Additionally, they buy unhealthy products for their children, even though they are aware of the fact that those products bear no nutritional value and can be damaging to children [11]. As our research showed, the media considerably structure daily rhythm of the family and are part of their rituals. On one hand, parents want to protect their children from the media, and on the other, they use the media as a way of distracting and entertaining children. Preschool children are consumers of not only mass media (e.g., TV, children books and magazines) but also of personal media designated for older people (PC, tablet, mobile phone).

The parents are critical to the lack of the media education that is present only in some Slovak schools as an elective subject, so there is no systematic nature. The parents however can contribute to the development of the economic socialization through explaining and guiding children to work with their "own income" coming from gifts and as a reward for doing household chores [45]. Children in preschool age already understand that they can exchange money for the product and also that if they save money for the desired product, they can buy it. This is in accordance with their cognitive development [6]. However, it is surprising that in preschool age, we can already witness the first signs of economic socialization, namely bargaining, bartering, and swopping. Similarly, the pressure to buy products that are seen as "cool" by the peers is evident in our research sample.

The time of preoperational period is when the symbolic thinking and language develop [34], giving the opportunity to actively intervene and thus form the consumer behavior in children in a way of raising a future responsible consumer who is not only consumption oriented. This task is on parents, preschool institutions, media, and, as our research demonstrated, on stores, as well.

Author details

Blandína Šramová

Address all correspondence to: sramovab@fedu.uniba.sk

Comenius University in Bratislava, Bratislava, Slovakia

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Explicative Factors Driving the Tomato Consumption in the Mediterranean Basin: A Panel Data Approach

Jaime de Pablo Valenciano,
José Ramos Pires Manso,
Miguel Ángel Giacinti Battistuzzi,
Juan Milan García and Juan Uribe Toril

Additional information is available at the end of the chapter

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Abstract

This chapter studies the consumer behavior of the tomato market in six Mediterranean countries, four of them belong to the European Union, EU—Spain, France, Italy, and Portugal, one to North Africa—Morocco, a highly competitive market with a major trade agreement with the EU since 2004, and another in Asia—Turkey. The main objective of the chapter is to analyze which are the most important explanatory factors, of a series of 13, that explain tomato consumption in the Mediterranean Basin. These factors, which are assumed as significant, are analyzed with an approach that uses panel data (fixed effects) models, a type of models that has clear advantages over the traditional methodologies. The results show significant differences between countries, that there are empirical evidence between consumption of tomatoes and price, imports and exports, production, growth area, technological developments and euro-dollar exchange rate; some importance lies on the EU-Morocco trade agreement; less empirical evidence was found between consumption and the exchange rates of the Turkish and Morocco currencies (Turkish pound and the Morocco dirham).

Keywords: panel data, fixed effects, key factors, demand, trends, explicative factors

1. Introduction

The agricultural sector in the European Union passes by a process of structural changes due to the progressive world trade liberalization or globalization, the enlargement of the number of EU Member States, the technological change, the EU political reforms and the emergence of new demands for quality and food safety for consumers, among other things.

Various trade agreements are joining the European Union and other non-EU competitive countries (like Morocco and Turkey), and these agreements are affecting consumer markets (Figure 1).

Tomatoes are a sensitive product for many EU countries. This is especially true in the case of Spain, which is observing as non-European Union countries (Morocco and Turkey) are increasing their tomato exports in countries such as France.

It is essential to be aware of the consumer’s behavior with respect to this product in consumer countries such as Spain, France, Italy and Portugal. It is also interesting to know how this product behaves in Morocco and Turkey. A panel data approach is used in order to study the tomato market consumption from 1960 to 2010.

These countries are currently competing and will be more intense in the future due to preferential agreements, and this may affect consumers in a significant way.

There are several fruit- and vegetable-related jobs that have employed demand-side systems such as the Near Ideal Demand-System (AIDS) [1–4] and the Rotterdam model [4, 5] that only take into account a single data dimension (transverse or temporal).

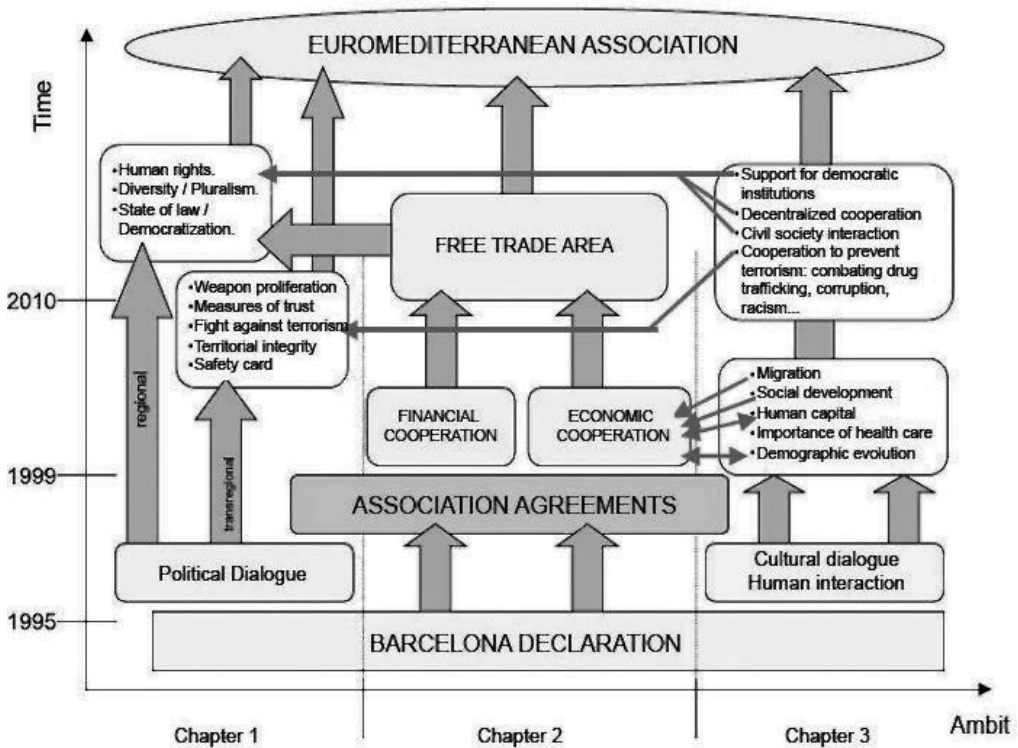


Figure 1. Ideal scheme of the Mediterranean Association.

This is why it is important to combine these two dimensions and thus to improve the pressures of the model parameters by means of panel data. These are basically regression models for the estimation of the parameters that we are interested in studying as well as their variation in time and their transversality.

The main objective of this chapter is thus to analyze which are the most important explanatory factors in the tomato consumption market of these countries; the idea is to set up the basis for a better understanding of these markets and, therefore, their quotas. The use of panel data (fixed effects) models has obvious advantages over the traditional general linear or non-linear models.

This analysis and results are innovative in this field, fill a gap in this literature and are complementary to the results of the studies mentioned.

The chapter is divided into five sections including the Introduction section. Section 2 presents a quick state of the art with references to the most recent studies covering the theme of the paper. Section 3 describes the current situation of the countries in the Mediterranean Basin. Section 4 presents the data, methods and results. Section 5 presents the main conclusions and the policy implications for the tomato markets.

2. The state of the art

The tomato sector has been approached from many points of view: international trade [6–8]; farming contracts [9]; distribution channel strategies [10, 11]; quality [12] or pricing analysis [13, 14].

Regarding consumer preference, Johnecheck et al. [15] used a static partial equilibrium model of two countries to simulate the ex ante market and welfare performance of the US country of origin for the fresh tomato trade between the United States and Mexico. Brumfield et al. [16] conducted interviews with agricultural consumers at the Kings Super Markets in New Jersey to obtain data on consumer tastes and preferences, quantities purchased and prices paid for fresh tomatoes. As a conclusion, the authors state that tomato prices and consumer incomes were important determinants of the quantity of tomatoes purchased from both New Jersey and other states.

The tomato market has been studied by several authors using different methodologies. Some of them have asked about the power wielded by retailers in the market for fresh fruits and vegetables [17], p. 2 noting that the EU countries with uncompetitive behavior can have a significant impact on consumption, surplus and welfare. These authors used a structural model consisting of a system of equations covering the demand, supply and price.

With regard to tomato price, the study has focused on the uncertainty of the time lag between supply and demand planning in the agricultural sector; in many cases, these studies led to the development of hypotheses about price formation. Among them, we can refer to Galdeano Gómez [18] who performed different explanatory models. Richards et al. [19] used a neural

network and a radial basis network model compared with other econometric determination of the margin (retail price—price at the farm) for the US fresh tomato. Huang and Lin [20] used a hedonic analysis of fresh tomato prices among regional markets.

De Pablo Valenciano and Pérez Mesa [21] used an Engle and Granger methodology to estimate an export function for the tomato social economy enterprises in Almeria (Spain).

In line with this one, a very interesting study is the analysis through a vector auto-regression by Cioffi et al. [22] on the effects of stabilization of the import regime for EU fruits and vegetables based on the entry price system. The analysis was performed taking into account the EU prices and the imports from Morocco, the main foreign competitor in the EU domestic markets. Previously, Cioffi and Dell Aquila [23] studied the problem of prices and subsidies of horticultural products, including tomato products in the European Union.

In order to analyze consumer preferences on the tomato market, Alfness and Guttormsen [24], p. 17 used the Becker-DeGroot-Marschak mechanism and 20 types of tomatoes to obtain an assessment of consumer preferences. They concluded that they are willing to pay much more for tomatoes of their choice, an important fact to assess the elasticity of demand of this product.

This chapter also takes into account the technical efficiency factor that Iraizoz et al. [25] identified as the main determinant factor of economic growth and productivity gains. They concluded that technical efficiency is positively related to partial productivity indices and is negatively related to unit cultivation costs (hectare).

3. Model specification, data and results

In this chapter, we use a panel data model, namely a fixed effects panel data model. A panel of data is a sectional group of units (N) that vary over time (T).

In this case, the number of countries (N) is 6: Spain, France, Italy, Portugal, Morocco, and Turkey. The time period is from 1960 to 2010 ($T = 50$).

The use of panel data models allows for taking in account both the differences among countries and the heterogeneity of the group. Moreover, panel data methodology is increasingly important for studying the dynamic factors of the markets.

The explicative factors of the tomato market that we are going to consider are: imports (mt), exports (xt), consumption (kt), technical progress (pt), cropped area (h), price (pc), per capita GDP in PPP (gc), and the exchange rates of the euro currency against the Moroccan dirham (tdm), the Turkish lira (tlr) and the USA dollar (TDU). There is also a dummy variable to be taken into account, that is, the EU-Morocco trade agreement established in 2004 ($d1$).

Another interesting issue related to the panel data is the estimation of econometric models that describe either the behavior of individuals over time or the technological changes.

For each type of data, one should take into account not only the assumptions that affect the random errors of the model but also the assumptions about whether, how and when to change settings between individuals and between different periods [26].

According to Hsiao [27] and Klevmarcken [28], the panel data: (i) allow for the control of heterogeneity and differences among countries, (ii) allow the processing of much information, more variability, less collinearity among variables, more degrees of freedom and greater efficiency, (iii) allow to study the dynamic adjustment over time, (iv) have a greater ability to identify and measure the purely sectional or purely chronological undetected, (v) allow to build and test more complicated behavioral models than the cross-section or pure time series ones, and (vii) reduce or eliminate the bias resulting from the aggregation of data.

According to these authors, the limitations and disadvantages of panel data are: (i) the limits resulting from the design for collecting data, (ii) the measurement of the bias error, (iii) the problems of selectivity, (iv) the temporal dimensions that sometimes are short and (v) the section dependency (the countries).

The fixed effects model intends to monitor or control the effect of omitted variables that vary between individuals or countries, and that are constant over time. Intersections are assumed to vary from country to country but are constant over time. Following Stock and Watson [29], we suggest the following model to eliminate the multicollinearity between countries:

$$y_{it} = \alpha_i + \beta_1 x_{1it} + \beta_2 x_{2it} + \dots + \beta_k x_{kit} + u_{it} \quad (1)$$

In this model, i ($i = 1, 2 \dots 6$) identifies the six different countries and t identifies the year ($t = 1960 \dots 2009$), y_{it} is the dependent variable, x_{jit} ($j = 1, 2, \dots, k$) is the k independent variables or explicative factors and u_{it} is the random errors of the models that are supposed to have zero mean, constant variance and not correlated over time.

In our application, y_{it} (the dependent variable) is the consumption of tomatoes, k_{it} , of the six countries; the explicative factors (x_{jit}) are: imports (m_{it}), exports (x_{it}), yields (es_{it}), the cropped area (h_{it}), the price per tone (pc_{it}), the per capita GDP at constant prices in PPC (in power parities) (gc_{it}), all these variables related to the six countries, and the three types of exchange rates [Moroccan dirham, the Turkish lira and the US dollar always with the euro (tdm, tlt, tdu)], t is the trend associated with technological change ($1960 = 1, 1962 = 2, \dots$) and a dummy variable to control for the trade EU-Morocco in 2004 ($d1 = 1$ in 2004 and $d1 = 0$ in the other); C is the common intersection of the model.

The errors of this model are subject to the following assumptions: (i) zero mean value, $E(u_{it}) = 0$; (ii) homoscedasticity of the variances; and (iii) no correlation of errors over time, $E(u_{it}u_{jt+s}) = 0$ ($t, s = 1, 2, \dots$).

The fixed effects model estimates a coefficient for each country; this estimate gives the deviation of each country in relation to the common intersection C .

The hypothesis that the values of the fixed effects do not vary from one country to another (the effect is constant) can be tested using the Chow test.

In our empirical application, we tested several models with 16 panel data estimations (fixed effects). All of them show highly significant results in statistical terms (based on the overall F test). **Table 1** shows the results for the 16 estimates.

After estimating the 16 different fixed effects models, we analyzed each one of the parameters associated to the variables that integrate the models to see their statistical significance, their sign and their importance in the tomato market.

Prices (pc): In 7 of the 16 models considered, the tomato price showed a significant coefficient with a positive correlation to the tomato level of consumption. This factor has been the subject of several studies that showed that the internal prices influenced the perceived quality of the markets and failed to explain 41% of the variance in purchase intents and 85% of the variation in the perceived value [30]; p. 349. So a price drop is related to a decline in quality and therefore results in a fall in consumption.

Ladd and Suvannunt [31] also reached a similar result through the analysis of Lancaster and consumer goods characteristics model, CGCM. The authors concluded that for each product consumed, the price paid for the product is equal to the sum of money marginal values of the characteristics of the product.

Trend – Technical Progress (t): In 12 of the 16 models considered between the tomato consumption and trend (t), there are empirical and positive evidence in five of the models and empirical and negative evidence in seven of the other models; in the other four, the trend coefficients are not significant in statistical terms. As the inclusion of this trend is often used as a proxy to study technical progress, this shows the importance of technological change or advances in the growing and marketing of tomatoes.

Exports (x): There is evidence of positive correlation between the tomato consumption and tomato imports in six models (imports encourage or stimulate consumption, but one of them is negative and significant which is more difficult to understand).

Cropped area (h): There is an evidence of positive correlation with tomato consumption and cropped area (more space for more production and more consumption; eight of the models confirm this evidence).

EU-Morocco trade agreement (d1): The coefficient associated to the trade agreement between the EU and Morocco was signed in 2004 and was tested by the introduction of a dummy variable, d1, which was significant and positive in one of the models considered; therefore, the influence of this commercial agreement plays an important role in the EU tomato market.

Exchange rates (tdm, tlt, tdu): The exchange rate of the dirham against the euro Morocco (tdm) has a significant and negative sign in a model. The sign of the exchange rate of the Turkish lira (tlt) is positive; its influence is also significant in one of the models considered, but in all the other 13, it is considered not significant (the influence of Turkish tomatoes is negligible in all six countries considered). Six estimated models confirm that there is empirical evidence between tomato consumption and the exchange rate of US dollar against the euro (tdu).

Dep. var.	Mod 1		Mod 2		Mod 3		Mod 4		Mod 5		Mod 6		Mod 7		Mod 8		
	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	kt	
mt												1.009472*	1.040.719*		-4.22438*		
xt	-1.00427*	-1.00433*	-1.00488*	-1.00488*	-1.01421*	-1.00488*	-1.00488*	-1.00488*	-1.01421*	-1.01421*	-1.01421*	0.985651*	0.901394*	ns	ns	ns	
pt	0.986182*	0.986235*	0.986202*	0.986202*	0.992308*	0.986202*	0.986202*	0.986202*	0.992308*	0.992308*	0.985651*						
h					ns				ns	ns			3742874*	38,49103*			
pc												55834.20**		ns			
gc															207523.9*		
d1		19264.73**	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
tdm	-728819**	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
flt	79395.64***	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
tdu	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
t	3279.236*	3183.352*	3169.268*	3169.268*	2987.154*	3169.268*	3169.268*	3169.268*	2987.154*	2987.154*	-6250.79*	-6250.79*	-3317022**				
c.	ns	41,428,97***	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Fra-C	211107.2	211206.1	211084.6	211084.6	208039.4	211084.6	211084.6	211084.6	208039.4	208039.4	65873.24	65873.24	88214.45	-287,103			
Ita-C	6055.709	5915.618	5946.083	5946.083	4194.898	5946.083	5946.083	5946.083	4194.898	4194.898	128971.1	128971.1	126185.3	-908,245			
Mar-C	-87272.9	-87167.3	-87236.3	-87236.3	-87684.4	-87236.3	-87236.3	-87236.3	-87684.4	-87684.4	-17578.7	-17578.7	3,912,876	1,323,173			
Por-C	-76,311	-76221.1	-76361.2	-76361.2	-78260.3	-76361.2	-76361.2	-76361.2	-78260.3	-78260.3	114275.6	114275.6	126213.4	32251.56			
Tur-C	-17076.3	-17240.5	-17159.2	-17159.2	-11693.6	-17159.2	-17159.2	-17159.2	-11693.6	-11693.6	89473.83	89473.83	7,997,240	498363.5			
AdjR ²	0.999806	0.999807	0.999806	0.999806	0.999806	0.999806	0.999806	0.999806	0.999806	0.999806	0.998136	0.998136	0.998387	0.998033			
Obs F	109059.3*	120453.6*	99862.74*	99862.74*	92304.79*	99862.74*	99862.74*	99862.74*	92304.79*	92304.79*	10399.68*	10399.68*	11092.94*	795.8867*			
Cr-sct-obsF	383.4834*	385.0701*												15.23321			
Cr-Sct Qui-Squared	530.153*	530.0764*												70.11794			

Dep. var.	Mod 9	Mod 10	Mod 11	Mod 12	Mod 13	Mod 14	Mod 15	Mod 16
	kt	kt	kt	kt	kt	kt	kt	kt
mt	1.236805	1.237023	-4.22438*	1.239805	1.250483	1.20129		
xt			ns				-0.94811*	-1.0134*
pt	0.911383	0.911765		0.911383	0.912221	0.911937	0.999364*	0.991794*
h	3.265319*	3.242632	38.49103*	3.265319*	3.224813*	3.217566*	ns	
pc	75000.3*	74962.39*	ns	75000.3*	73686.25*	75058.11*	63558.72*	ns
gc	ns	ns	207523.9*	ns	ns	ns		13155.42*
d1	ns	ns	ns	ns	ns			
tdm	ns	ns	ns	ns				
flt	ns	ns	ns	ns				
tdu	ns	-63088***	-226951**	-59915.3**	-57360.6***	-76344.5*		
t	-4228.66**	-4348.34**	ns	-4228.66**	-4293.07**	-5342.91*		
c	ns	ns	-1206423*	ns	ns	168982.4**	ns	-33428.6*
Esp-C	-330,550	-330,369	-658,440	-330,550	-329,598	-332,986	-55118.2	-49203.4
Fra-C	118373.8	119453.7	-287,103	118373.8	118420.5	121487.7	199,392	100025.3
Ita-C	190596.4	192039.2	-908,245	190596.4	193900.4	188167.7	-18707.2	-73492.4
Mar-C	-71375.5	-73321.1	1,323,173	-71385.5	-74692.8	-70,842	-55621.9	28296.22
Por-C	117,764	117,228	32251.56	117,764	117836.2	115367.8	-57493.3	-41801.8
Tur-C	-24798.6	-25030.8	498363.5	-24798.6	-25866.8	-21195.4	-12451.3	36176.01
AdjR ²	0.998405	0.998411	0.980823	0.998405	0.998417	0.998415		0.999464

	Mod 9	Mod 10	Mod 11	Mod 12	Mod 13	Mod 14	Mod 15	Mod 16
Dep. var.	kt	kt	kt	kt	kt	kt	kt	kt
Obs F	9723.391	10460.53*	795.8867	9723.391*	11307.45*	12231.21*		133797.3*
Cr-sct-obs F	116.7837	117.369*	15.23321*	116.7837*	117.9539*	117.8567		
Cr-Sct Qui-Squared	304.7878*	304.859*	70.11794*	304.7878*	304.9306*	304.0178*	0.629963 ns	63.89267*

*Significant at 1%.
 **Significant at 5%.
 ***Significant at 10%.
 ns: Not significant.

Table 1. Results of the estimation of the panel data model – fixed effects.

Intersection (C): The constant or intercept of the models is significant in five models, but there is no significant evidence in 11 cases.

GDP per capita (gc): Three of the models had shown positive correlation and significant evidence between tomato consumption and per capita GDP in PPC of the countries.

Statistical tests: The redundancy test showed that there are significant differences from one country to another; for example, the fixed effect is always negative in Spain; in Portugal, it is mostly positive (positive in 9 of 13 models, but negative in four models); the effect is negative especially in Turkey, with four exceptions; the fixed effect of Morocco is mostly negative, but with three exceptions; the fixed effects for Italy and France are mostly positive, with two exceptions perhaps because they are really big tomato consumers. The results encountered for the tests performed confirm the suitability of the fixed effects model to explain the tomato consumption of the six countries in the Mediterranean basin, once it always rejected the null hypothesis of redundancy of the coefficients.

4. Conclusions and policy implications

Technological advances are a point of reference for the development and marketing of tomato market and to encourage consumption in the countries. Crop improvement has been related by several authors as seed and production structures, especially greenhouses. Marketing, logistics and transport activities have improved substantially, but there is still room for improvement.

The estimated panel data models identified technical progress as one of the main factors for this industry, since it has the highest correlation with the level of consumption to positively influence the production and quality.

Others factors are positively associated with consumption as is the case of the cropped area, the EU trade agreement with Morocco (in 2004), the gross domestic product, and exports. The more criticized significant factor is the international trade agreements, especially the EU-Morocco free trade treaty (the Euro-Mediterranean Partnership) and its extension to other EU countries (namely Turkey); this criticism is related to the EU markets' openness and to the possibility of power loss of some countries. But these agreements allow for important social effects, namely the creation of peaceful and stable areas, areas of shared prosperity and of better mutual understanding and civil development between countries.

The other aspect to consider is the possible impact of the euro/dollar exchange rate. This has increased the exchange of Morocco, especially with Southeast Asian countries whose currencies are US dollar indexed. However, the import costs' reduction is less sensitive for the purchase of agricultural raw materials and energy, especially oil. This location is also beneficial for Moroccan exports to the eurozone. However, it is far from being a criterion for the promotion of exports. The impact of exchange rate on foreign trade will only be structural if there is a long run trend.

The exchange rate of the dirham (Moroccan currency) indexing (up to 80% euro and 20% for dollars) is one of the main factors for this situation. It allowed the Moroccan currency to retain

a competitive position against the dollar. In the case of a liberalization of foreign exchange, no one could predict the position of the dirham against the dollar or the euro.

The results found also show a direct and positive relationship between price and consumption. The explanation is probably related to the perceived quality of product; a price cut can be seen by consumers as a reduction of quality, thereby discouraging consumption. For this reason, retailers should consider the choice of pricing strategies as they play an essential role in the consumer's perception of value.

Author details

Jaime de Pablo Valenciano^{1*}, José Ramos Pires Manso², Miguel Ángel Giacinti Battistuzzi³, Juan Milan García¹ and Juan Uribe Toril¹

*Address all correspondence to: jdepablo@ual.es

1 Applied Economic Department, University of Almeria, Spain

2 Economic Department, University of Beira Interior, Portugal

3 MAG Consulting, Argentina

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No time in the history, consumption is considered to be as important as in today's world. It defines who we are, how well/perfect we perform our multiroles within the society (buying the most expensive clothes means being the best mom for instances), what symbolic meanings we attribute to our belongings, and how rich/clever/fashion conscious or innovative we are. Due to multidisciplinary and multimethod character of the concept of consumer behavior, it is appropriate to study it accordingly in order to understand the subject with its different aspects and holistically. Especially with the cultural, social, and technological changes within today's world, this issue becomes prominent. This book is a modest try for that end.

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