

Effects of Consumers' Social Media Participation on Consumer Behaviors: A Marketing Perspective

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ABSTRACT

Technological advancements have shaped and reshaped the marketing landscape from time to time. Especially the digital revolution has given rise to new digital era that has changed this marketing landscape perhaps permanently. One of the core technology involved in defining this digital era is the Internet. The Internet has not only empowered the people by creating and disseminating the information like never before but also has affected the way we conduct our businesses. Various business usages of the Internet in search engine, email, mobile, and social media have given rise to new ways of conducting marketing activities such as affiliate marketing, display advertisement, email marketing, search marketing, and social media marketing among others. The significance and the relevance of online social media marketing have made this particular digital channel topical subject of the digital era. Effects of social media have been felt in influencing both seller and buyer behaviors. However, the focus of this chapter is to address two important aspects of consumer behaviors in an online digital social media environment. First, we propose a conceptual framework of consumers' social media participation. Second, we discuss how this participation affects consumers' behaviors including their purchases. Finally we present few econometric challenges associated with modeling consumers' social media participation and quantifying its impact on their behaviors.

1. INTRODUCTION

Technological advancements have shaped and reshaped the marketing landscape from time to time. Especially the digital revolution has given rise to new digital era that has changed this marketing landscape perhaps permanently (Wind and Mahajan 2001). One of the core technology involved in defining this digital era is the Internet (Kiani 1998). The Internet has not only empowered people by creating and disseminating the knowledge like never before but also has affected the way we conduct our businesses. Different digital outlets such as online search engine, mobile, and online social networks have given rise to new ways of conducting marketing such as affiliate marketing, display advertising, email marketing, search engine marketing, social media marketing among others. Among all these given the significance and the relevance of social media marketing, this particular digital channel has become very pertinent topic of this digital era (Carpenter and Shankar 2012). The effects of social media have been felt in influencing both buyer and seller behaviors.

Social media provides its own opportunities and challenges. It is interactive, engaging, convenient, flexible, immediate, and global. The interaction takes place in an open online environment without any physical boundaries with relevant measure of control. It has become one of the powerful marketing tools for consumer relationship management. On the other hand there are several challenges that firms face when it comes to implementing social media marketing. Some of these top social media marketing challenges are: measuring return on investment, managing, growing, monitoring and analyzing the social media presence, integrating consumers' social media behaviors with lead generation, sales, and other organizational marketing activities, and lack of adequate resources to initiate the social media marketing. At the heart of these challenges lies lack of better understanding of effects of consumers' social media

participation on their behaviors including their purchases. This requires not only measuring the impact of consumers' social media participation on their actual purchase behaviors but also a better understanding of online social behaviors of these digitally wired consumers.

With over 900 and 500 million users worldwide (Wasserman 2012) and generating annual ad revenues of \$3.8 billion (*eMarketer* 2011) and \$259.9 million (*eMarketer* 2012) respectively by two giant social networking sites namely Facebook and Twitter, it is evident that social media have affected consumers' lives as well as their behaviors. However, every now and then firms raise this question (Hoffman and Fodor 2010), "Is social media marketing effective?" The traditional cycle of consumer purchase decision consisting of need arousal, information processing, alternative evaluation, purchase, and post-purchase behavior has been augmented with bonding and advocating on social media (Edelman 2010). Thus, understanding of consumer purchase behaviors in this new environment of digitally wired consumers over social media necessitates conceptualizing their online social behaviors first before measuring the impact of their social media participation on their actual behaviors.

In this chapter we address two important aspects of consumer behaviors in an online social media environment. First, we propose a conceptual framework of consumers' social media participation. Second, we address the issue of how this participation affects their behaviors including purchases. Finally, we present the econometric challenges associated with modeling consumers' social media participation and quantifying its impact on their behaviors.

In §2 of this chapter we propose a conceptual framework of consumers' social media participation. The context we use is consumer participation in a firm hosted social media site. We look at consumers' social media participation through two dimensions namely, engagement and interaction. Engagement is joining firm's social media site which is similar to liking a firm's

Facebook page, whereas interaction is user contribution of online contents on a firm's social media site similar to liking, sharing, or commenting on a firm's Facebook page. Furthermore, we define the structure of this participation in order to address the right choice of social media metrics in influencing their participation in firms' social media sites. In the process we account for the effects of firm's social media efforts and their marketing-mix, and consumers' social media activities and their characteristics which are discussed in §3. We expect the conceptualization and the various factors that influence consumers' social media participation will help firms with better marketing metrics to understand and measure consumers' behaviors leading them to quantify their return on investment of social media efforts.

In §4 of this chapter we discuss the business value propositions of consumers' social media participation. Specifically we propose this participation can help firms realize either marketing strategic or sales goals or both. Note that both these marketing goals, strategic and sales, require understanding of consumer behaviors including their actual purchases. This is important as effectiveness of any marketing programs is measured based on their influence on consumer decision making. Consumers' behaviors can be direct whereby they indulge in actual purchases or it can be indirect whereby they indulge in recognition and association with brands. In §5 and §6 we propose econometric frameworks to model consumers' social media participation and to measure the impact of this participation on consumer behaviors that bring value to the firms respectively. Especially we look at the effects of consumers' social media participation on firms' strategic and sales goals. Note that there are econometric challenges such as identification issues due to self-selection and heterogeneity associated with capturing the impact of consumers' social media participation on their behaviors empirically. Notably consumers who participate in a firm's social media site may tend to display these

increased/decreased behavior inherently. Thus these consumers are predisposed towards these behaviors. Hence, if this is true then there is no impact of social media participation on consumer behaviors. Managerially this is important as it would imply rather than focusing on general set of consumers, firms could very well look for those consumers who could be fans/followers based on their inherent traits and target those segments. If practically firms could manage to do so then there is no incentive for them to invest in any social media program. Otherwise their social media investment is just another marketing effort targeted towards identifying that profitable segment, but as such the social media presence does not have any impact on consumer behaviors. Alternatively, it is possible that consumers who actually participate in a firm's social media sites become sensitive (positive/negative) to the outcome variables of interest e.g., purchases, price sensitivity, and promotion sensitivity etc. Then one can establish a causal link between consumers' participation in firms' social media program and subsequent changes in their behaviors. Managerially understanding of this causal link is important because this proves that there is a true incentive and hence marketing benefit for the firms to invest heavily on their social media programs. Thus, firms' social media efforts are then not geared towards identifying the profitable segment but it is about creating the segment of consumers whose behaviors are affected by their social media participation. Hence, the true benefit of social media marketing program.

In §7 we discuss some of the important literatures that look at impact of consumers' social media participation on their behaviors at individual level accounting for self-selection issue and heterogeneity. In §8 we present the future of social media marketing by emphasizing the role of consumers' social media participation in B2B context and integration of firms' social

media programs with their traditional and new marketing communication tools as well as with mobile devices. Finally we conclude in §9 with an overall perspective.

2. Consumers' Social Media Participation

Online social behaviors of digitally wired consumers are influenced to a large extent by the surrounding online environment. Given consumers are spending more time on online social networks than any other kinds of online media (*Nielsen 2012*) it is crucial to conceptualize consumers' social media participation and to understand any underlying structure before we make any attempt to measure its impact on their behaviors. In this section we present a conceptual framework and structure of consumers' social media participation.

2.1. Conceptual Framework

Consumer bonding with brand is all about building brand relationship with consumers. Influence of this brand relationship on consumers' purchase behaviors gives rise to consumer-firm relationship. These two kinds of relationships, brand and consumer-firm, take place in an online environment by creating brand awareness and familiarity, and building trust and commitment (*Chiagouris and Wansley 2000*). The dominance of social networking sites over the Internet has led many firms to create their social media presence to make contact with their existing and potential consumers. Thus, firms are creating pages on Facebook and Google+, accounts on Twitter, Pinterest. Consumers who are users of these social networking sites however may participate in firms' online social media efforts in several ways. Given the nature of dominant social media in an online environment such as Facebook and Twitter we can conceptualize consumers' participation in firms' social media efforts along two dimensions, participation through engagement and participation through interaction. These two dimensions of consumers'

social media participation then can have possibly an influence on their behaviors and purchases. The conceptual diagram of consumers' social media participation is presented in Figure 1.

----- Insert Figure 1 about here -----

2.1.1. Participation through Engagement. One of the objectives of firms' efforts to establish their online social media presence is to create a connection with their consumer base. Such connections are important for transactional as well as non-transactional business values (Verhoef, Reinartz, and Krafft 2010). In an online environment where firms have their social media presence (e.g., Facebook pages, Twitter accounts) consumers can sign-up or register (e.g., consumers can *like* firm's Facebook page, or *follow* firm's Twitter account) to these services. Such direct consumer participation that involves actively signing-up for online social media efforts is termed as consumer participation through engagement. Consumers' participation by engagement allows firms to communicate with them directly as messages posted by them directly appear on their social media accounts (e.g., user's *wall* on Facebook) as news-feed. However, consumers who do not engage in firms' social media efforts these postings or marketing messages do not appear on their social media accounts naturally. Consumer participation through engagement helps firms directly monitor the progress of their social media efforts and post marketing messages according to the profile of the engaged consumer base.

2.1.2. Participation through Interaction. Consumer participation in firms' online social media efforts through engagement is a passive act as their involvement does not constitute any further actions apart from initial sign-up or subscription to their social media site. However, in an online social media setting firms create many touch-points where consumers can take further actions (e.g., filling survey, *liking* postings, *retweeting* etc.). Such consumer action in response to firms' online touch points is termed as interaction (Forrester 2008). Such interactions facilitate

consumers to communicate with firms. Consumer participation in firms' online social media efforts through their various actions is termed as participation through interaction. Note that both types of consumers, those who are engaged and those who aren't to firms' social media efforts, could participate through interaction with firms, however it is harder for firm to take any measurable marketing actions for the consumers who are not engaged.

Based on consumer participation in firms' social media efforts we can divide the consumers into four segments. These segments are shown in Table 1. The first consumer segment is in-actives who neither engage nor interact. The second segment is spectators or joiners who engage but never interact. The third consumer segment is critics who participate via interaction but does not engage. However, note that few online social networks don't allow consumers to comment (or interact) unless they join (or engage), in such case the segment of critics will be nonexistent. The fourth segment is identified as actives who participate via both engagement and interaction.

----- Insert Table 1 here -----

Consumers' social media participation in firms' social media sites either through engagement or interaction is not an independent process i.e. there could be an underlying structure to this process. For example some consumers may engage first and then interact and others could do vice versa. Therefore it is important for firms to know the structure of consumers' social media participation in order to channel their limited social media marketing resources in a right direction. We discuss structure of consumers' social media participation next.

2.2. Structure of Consumers' Social Media Participation

As we outlined earlier consumers' participation in firms' social media efforts could take place through two actions namely engagement and interaction. However, the sequence of actual

actions that consumers take to participate in a firm's social media sites is not straightforward. Nevertheless, it is important to know this sequence of consumer actions so that firms can channel their social media strategies in a right direction. For example a significant proportion of advertising and marketing budget, \$1 million as grand prize and \$500 as give away each hour, was allocated by J.P. Morgan Chase and Co. to boost their social media presence by hosting a sweepstakes for users who 'like' (equivalent to consumer engagement) Chase Freedom credit card's page on a popular social networking site Facebook (*Wall Street Journal* 2011). Given significant proportion of marketing budget allocated towards social media marketing it is important for firms to know how to engage and interact with their online social consumers.

The initiation of social media efforts by firms is to engage and interact with their consumer base. Firms spend significant amount of their social media marketing budget to connect with their consumer base. For example, many firms encourage consumers to *like* their Facebook page or they encourage consumers to *follow* their Twitter account. Consumers' participation in firms' social media efforts through engagement has following importance. First, it allows firms to monitor the progress of their social media efforts and analyze the engaged consumers' behaviors more closely. Thereby it helps firms to take measurable marketing actions. Second, engaged consumers receive firms' updates, messages, or posting as news-feed in their online social media accounts. Thus, they are more likely to interact if they engage in continuously receiving the updates or information feeds from the firms they like or follow.

Consumers participate in firms' social media sites to seek information about their offerings and possibly to make purchases. Drawing from the standard theory of consumer information processing model (Kotler 1997, Schiffman and Kanuk 1987) where information search in consumer decision making process starts with problem recognition and relevant

information search, it makes easier for the consumers to search for the appropriate information who are already engaged. Once consumers are engaged, they can refine their need for the relevant information by subsequent interaction with the firm.

Therefore, we expect consumer participation in firms' social media sites through engagement will affect their participation through interaction. And finally, participation in firms' social media efforts through both engagement and interaction will have direct impact on their behaviors or purchases. The structure of the consumers' social media participation along with its impact on their behaviors is presented in Figure 2.

----- Insert Figure 2 about here -----

2.3. Alternative Framework

Conceptual framework and the structure of consumers' social media participation described in previous subsections are focused primarily on relationship marketing constructs especially useful for customer acquisition, retention and development. However, in the realm of relationship marketing when we focus on consumer experience as an outcome of consumers' social media participation then extension of previous framework becomes essential considering consumers' responses now include their psychology consisting of cognition and emotion apart from their behaviors (Belch and Belch 2007). Thus, consumers' social media participation, through engagement and interaction, becomes multidimensional scale. Therefore we explain briefly about alternative framework of consumers' social media participation to complete the discussion comprehensively and to illustrate the complexities involved and the wide range of possibilities.

Consumer engagement is a form of interaction that involves emotional, psychological, and physical connection thus there are various constructs (such as participation, involvement, consumption communities, attachment, loyalty, and devotion) that capture this phenomenon

(Vivek 2009). Based on broader meaning of consumer engagement across different disciplines Vivek (2009) defines it as, "...the intensity of consumer's participation and connections with the organization's offerings, and/ or organized activities", and conceptually captures consumer engagement using five constructs namely, awareness, enthusiasm, interaction, activity, and extraordinary experience. Thus, the proposed construct of consumer engagement becomes multidimensional which accounts for consumers' psychology as well as their behaviors and has potential to capture both intrinsic and extrinsic consumer value.

In the context of 'service-dominant (S-D) logic' of marketing propounded by Vargo and Lusch (2008) the customer relationship transcends from transactional view to cocreative experience. Therefore the meaning of customer engagement in service-dominant marketing field incorporates cognitive, emotional, and behavioral dimensions of customer relationship and become multidimensional. Brodie et al. (2011) extend this framework to include five fundamental propositions that defines consumer engagement namely psychological state, dynamic iterative process, nomological network, multidimensional concept, and situational contexts. Note that these propositions can very well be applied in the context of consumer engagement in social media.

These alternative frameworks of customer engagement are discussed in a broader framework of customer-firm relationship that may encapsulate customer participation in firm's social media activities too. Furthermore, these frameworks transcend beyond transactional relationship to include customer experience thereby defining long term customer value. The essence of these frameworks can be incorporated very well into the proposed framework of customers' social media participation captured through engagement and interaction.

3. Factors Influencing Consumers' Social Media Participation

Various observable and non-observable factors could explain consumers' social media participation. We refrain from calling them antecedents simply because it's a complex process and there could be several other non-observables (to the researchers) that could affect consumers' participation in social media. However, factors that explain consumers' social media participation should have two properties. First, they should be observable and, second they should be measurable so that firms can take consumer-level actionable marketing strategies (Kumar and Petersen 2005) that would help them measure their return on investment of social media marketing. Therefore, we propose following three factors that would explain consumers' social media participation. The framework is presented in Figure 3.

----- Insert Figure 3 about here -----

3.1. Firm's Social Media Efforts

Each online social networking environment provides different kinds of platforms which firms can leverage in a certain way to create and disseminate their marketing messages. For example, on Facebook page firms can post messages, schedule events, initiate conversations, similarly on Twitter account they can broadcast short messages to their followers. The various forms and formats of online social contents disseminated by the firms on their social media sites are termed as firm's social media efforts. Various characteristics of their social media efforts (e.g., number of postings, valence or sentiment of postings etc.) could influence not only consumers' social media participation but also their behaviors or purchases.

3.2. Consumers' Social Media Activities

Drawing upon social-presence theory (Short, Williams, and Christie 1976) and self-presentation state (Goffman 1959) individuals in a networked environment exert social influence on each other leading to possible changes in their behaviors. Thus, in a social networking environment

like social media individuals are influenced not only by their own actions but by the actions of other connected users too. Therefore, consumers' own as well others social media activities could also have influence on their participation and behaviors. Consumer activities on a firm's social media site are termed as consumers' social media activities. For example, consumers might be influenced by the total number of comments on firms' Facebook page or total number of likings by other users. Hence it is important to include consumers' own as well as others social media activities to explain their participation and subsequent behaviors.

3.3. Marketing-Mix Efforts

In an integrated marketing environment firms are trying to manage all kinds of marketing activities across all channels presumably in harmony. Thus, as a part of integrated marketing communication strategy firms indulge in making all aspects of media, including traditional and new, work together as a unified force that could influence consumer behaviors. In a digital marketing environment social media has become an integral part of firms' integrated marketing communication strategy. For example, other forms of firms' advertising such as email, television etc. often emphasize their social media presence. Therefore, firms' marketing mix could influence consumers' social media participation. Furthermore, traditional form of marketing mix, price and promotion, could very well influence their purchase behaviors if not the participation.

3.4. Consumer Characteristics

Consumer characteristics (e.g., lifestyle, motivation, demographics, attitude, trust etc.) are very important factors that could explain consumers' online behavior of intention, adoption and continuance in an online environment (Cheung et al. 2003). Therefore, we expect some of the variation in consumers' social media participation could be accounted by looking at the profile of consumer characteristics. For example, we expect younger, educated, and higher income

socialized shopper would likely to participate in firms' social media sites more than those consumer who are old, less educated and less comfortable with technology usage.

4. Firm Value of Consumers' Social Media Participation

Consumer participation in firms' social media sites strengthens the consumer-firm relationship. This relationship brings value to the firm by building consumer-equity. Consumers in turn gain benefits by this participation in following ways. First, it helps them initiate social interaction with the firm by engaging in mutual conversation, second the existing network structure allows consumers to gather information from other participating users, and finally consumers can have easy access to the product related information from firms (Rishika et al. 2013). Therefore, there is a direct mutual benefit of a firm's social media presence and consumers' social media participation to firm as well as to consumers in creating consumer-firm value through strengthening this relationship. However, firms often face two kinds of problems associated with measurement issues of actual values created through consumers' social media participation. The first problem comes from the fact that objectives of social media marketing vary across firms. The second problem is that of linking consumers' social media participation to their behaviors and purchases that eventually affect sales. Therefore, we divide values of consumers' social media participation to firms into two parts- marketing strategic value and marketing sales value, which we discuss next.

4.1. Marketing Strategic Value

The marketing strategic value of consumers' social media participation focuses on brand building and consumer service. These are two primary dimensions along which firms' marketing strategies are targeted towards. They help in building brand and consumer equity respectively.

Brand building is a sequential process of brand awareness and brand image that helps in creation of consumer knowledge about the existence and the functionality of a brand respectively. Brand awareness refers to the accessibility of a brand in consumers' memory that leads to brand recognition whereas brand image refers to consumer perception of a brand as a result of the association held in consumers' memory that leads to possible consumer-brand engagement. Consumers' social media participation through engagement and interaction helps firms build their brands in a real time. Furthermore, it also provides firms with metrics to measure the effectiveness of their brand building efforts. For example, number of fans/follower (i.e. participation through consumer engagement) could be used to measure brand awareness whereas number of comments, liking, mentions, shares etc. (i.e. participation through consumer interaction) could be used to measure brand image. Furthermore, the profiles of these advocates (e.g., influencers vs. engagers) could provide the strength of brand awareness and brand image. Moreover, consumers' social media participation could provide information pertaining to share of voice (i.e. share of mentions a brand has on social media compared to overall mentions that include mentions of competitors), sentiment (i.e., consumer vibe, positive or negative, about the brand while consumers interact over social media) that could be used to measure the effectiveness of brand building strategies.

Social media provides an excellent platform for firms to serve their consumers in real time efficiently. Consumers who participate in firms' social media sites could voice their opinion, ask questions, or seek clarification through interaction. Such consumer interactions create an opportunity for firms to serve their consumer satisfactorily. Firms could use following kinds of metrics to measure the efforts of their consumer service- submission rate, resolution rate, resolution time, and satisfaction rate. The submission rate is percentage of consumer issues

submitted through social media, the resolution rate refers to percentage of issues resolved using social media, resolution time is time taken to resolve an issue through social media, and finally satisfaction rate refers to percentage of consumers who submitted their issue through social media and are satisfied with the response.

4.2. Marketing Sales Value

The ultimate objective of firms' any marketing actions is to generate profits. In a digital economy there is high fixed cost but low marginal cost of production (Shapiro and Varian 1998). Therefore, the focus shifts in generating higher revenues by increasing sales. Firms' can use consumers' social media participation to achieve this focus in two ways- direct and indirect sales impact. Direct sales impact is the revenues generated by socially connected consumers through the advertised products on social media whereas indirect sales impact is either instant revenues generated from non-advertised products on social media sites as a result of some spill-over effect or some long term impact that influence overall revenue of the firm.

Direct sales impact can be measured using three metrics, leads generated and converted, average purchase quantity, and overall revenue generated. Leads generated and converted are number of prospective consumers (leads) that originated from a social media campaign and the volume of actual sales (conversion) generated from the advertised products by these leads respectively. One can also look at the average purchase quantity of socially connected consumers that is originated from social media campaigns. Finally as an aggregate measure the overall revenue can be operationalized as net or gross revenue as an outcome of social media campaigns.

Indirect sales impact could be measured using two metrics, spill-over effect and consumer life time value. Spill-over effect measures the sales generated from participating consumers through non-advertised product items. This spill-over could take place either through

upselling or reselling. Upselling involves pushing consumers to buy expensive product items and reselling is pushing consumers to buy additional product items in the same or different category (termed as cross-buying). Consumers who participate in a firm's social media site have access to information from the firm as well as from other participating consumers thereby making the information more credible. The credibility and the ease of access of the information gained through social media sites could affect participating consumers' purchase behaviors in an indirect way leading to either upselling or reselling or both.

Consumer life time value is a multi-period or long-term evaluation of a consumer's value to a firm (Kumar and Reinartz 2006). Rishika et al. (2013) establish consumers' value to a firm in terms of their frequency of visit and profitability. The authors find both are high for those consumers who are engaged in a firm's social media site compared to those who aren't. Thus it makes socially engaged consumers more loyal to the firms. Furthermore, consumer-firm relationship is strengthened by consumers' social media participation as participating consumers tend to buy premium products and have low deal sensitivity. Firms can also use few other metrics to evaluate life time value of participating consumers at aggregate level e.g., consumer acquisition rate which is number of new consumer added for a period as a result of firm's social media campaign, consumer retention rate and repeat purchase rate being others metrics.

5. Modeling Consumers' Social Media Participation

This section describes an approach to model consumers' social media participation. The modeling approach is drawn upon conceptual framework described in §2. Using random utility theory we model two aspects of consumers' social media participation, engagement and interaction, at a disaggregate level. Specifically, consumer c each time period t decides whether to participate in a firm's social media site s through engagement or not. Consumer derives latent

utility U from engagement. The binary variable E takes value 1 when we observe consumer engagement otherwise it is 0. Similarly, consumer c each time period t decides whether to participate in a firm's social media site s through interaction or not. Consumer derives latent utility V from this interaction. The binary variable I takes value 1 when we observe consumer interaction otherwise it is 0. Thus, following the structure of consumers' social media participation and factors that influence this we have following two equations:

$$U_{st}^c = \alpha_s^c + \beta^c MKT_t^c + \theta^c SOCIAL_{st} + \delta^c DEMO_t^c + \varepsilon_{st}^c \quad (1)$$

$$V_{st}^c = \theta_s^c + \eta^c MKT_t^c + \lambda^c SOCIAL_{st} + \kappa^c DEMO_t^c + \omega^c E_{st}^c + \upsilon_{st}^c \quad (2)$$

Where MKT , $SOCIAL$, and $DEMO$ represent variables pertaining to firm's marketing-mix efforts, firm's as well as consumers' social media efforts, and consumer characteristics respectively. The dependent variables in equations (1) and (2) are latent. Thus, the relationship between latent and observed variable is as follow:

$$E_{st}^c = \begin{cases} 1 & \text{if } U_{st}^c > 0 \\ 0 & \text{otherwise} \end{cases} \quad (3)$$

$$I_{st}^c = \begin{cases} 1 & \text{if } V_{st}^c > 0 \\ 0 & \text{otherwise} \end{cases} \quad (4)$$

The error terms, ε_{st}^c and υ_{st}^c , are assumed to be distributed jointly as bivariate normal:

$$\begin{pmatrix} \varepsilon_{st}^c \\ \upsilon_{st}^c \end{pmatrix} \sim N \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 & \rho \\ \rho & 1 \end{bmatrix} \right) \quad (5)$$

The above formulation of the model gives rise to simultaneous equation model with dummy endogenous variable introduced by Heckman (1978). This model is also called recursive bivariate probit model.

5.1. Model Identification

While the full simultaneous model (where I_{st}^c appears in equation 1 as a regressor) is not identified¹, the recursive model can be estimated using full information maximum likelihood. According to Heckman (1978) the full rank of the regressor matrix is a sufficient condition for the identification of model parameters. However, Maddala (1983) suggested that parameters of the equation with endogenous dummy variable (equation 2) are not identified if it fails to meet exclusion restriction. But Wilde (2000) has shown that recursive bivariate probit model is identified by the functional form in the absence of exclusive restrictions. Thus, the theoretical identification does not require availability of any additional instrument to estimate the parameters of equation 2. This result is valid in the context of bivariate normal distribution but Wilde (2000) has shown the results to be valid in multiple equation recursive probit models too.

One can also use copula based method (Winkelmann 2012) to identify the parameters of recursive bivariate probit model that allow correlation between the two latent errors without imposing joint normality condition. Copula based methods are frequently used to jointly model parametric distributions (Trivedi and Zimmerman 2005; Danaher and Smith 2011) as well as to account for endogenous regressor in the absence of strong instruments (Park and Gupta 2012).

5.2. Heterogeneity

One can use random effects to model consumer heterogeneity. Specifically, the intercept terms of each of these two equations, $\varphi = (\alpha_s^h, \theta_s^h)$, are assumed to follow a multivariate normal distribution with mean μ and variance-covariance Ω , i.e. $\varphi \sim MVN(\mu, \Omega)$. This specification

¹ For full simultaneous model one can specify following econometric model:

$$U_{st}^c = \alpha_s^c + \beta^c MKT_t^c + \theta^c SOCIAL_{st}^c + \delta^c DEMO_t^c + \pi^c V_{st}^c + \varepsilon_{st}^c$$

$$V_{st}^c = \theta_s^c + \eta^c MKT_t^c + \lambda^c SOCIAL_{st}^c + \kappa^c DEMO_t^c + \omega^c U_{st}^c + \nu_{st}^c$$

Where U_{st}^h and V_{st}^h are endogenous latent variables reflecting respectively the households' propensity to connect and contribute. Note the underlying latent structural variables in the two equations and not the observed binary variables. This simultaneous model is identified and can be estimated consistently with a two-step methods but interpreting the model parameters is hard (Maddala 1983).

doesn't capture the observed heterogeneity of consumers' social media participation. In the presence of survey data where information pertaining to consumers lifestyle variables such as their activities, interests and opinions (AIO variables) are available they can be used to explain the observed portion of consumer heterogeneity. Furthermore, parameters pertaining to consumer responses to the firm's marketing-mix and social media efforts can be heterogeneous.

5.3. Model Estimation

The specified model is endogenous in recursive bivariate probit model; however the terms that enter into the likelihood function is same as those for usual bivariate probit (Maddala 1983). Thus, the parameter vector, Θ , of the specified model can be estimated by maximum likelihood. The sample log likelihood is given by:

$$l(\Theta) = \sum_{c=1}^C \sum_{i=1}^T [d_{11} \ln P_{ci}^{11} + d_{10} \ln P_{ci}^{10} + d_{01} \ln P_{ci}^{01} + d_{00} \ln P_{ci}^{00}] \quad (6)$$

where C is the total number of consumers and T is total number of time periods. The indicators are $d_{11} = E_i^c I_i^c$, $d_{10} = E_i^c (1 - I_i^c)$, $d_{01} = (1 - E_i^c) I_i^c$, and $d_{00} = (1 - E_i^c)(1 - I_i^c)$. The four cell probabilities are given by:

$$P_{ci}^{11} = \Pr(E_i^c = 1, I_i^c = 1) = \Phi(\alpha_s^c + \beta^c MKT_t^c + \theta^c SOCIAL_{st} + \delta^c DEMO_t^c, \theta_s^c + \eta^c MKT_t^h + \lambda^c SOCIAL_{st} + \kappa^h DEMO_t^c + \omega^c E_{st}^c, \rho) \quad (7)$$

$$P_{ci}^{10} = \Pr(E_i^c = 1, I_i^c = 0) = \Phi(\alpha_s^c + \beta^c MKT_t^c + \theta^c SOCIAL_{st} + \delta^c DEMO_t^c, -\theta_s^c - \eta^c MKT_t^c - \lambda^c SOCIAL_{st} - \kappa^c DEMO_t^c - \omega^c E_{st}^c, \rho) \quad (8)$$

$$P_{ci}^{01} = \Pr(E_i^c = 0, I_i^c = 1) = \Phi(-\alpha_s^c - \beta^c MKT_t^c - \theta^c SOCIAL_{st} - \delta^c DEMO_t^c, \theta_s^c + \eta^c MKT_t^c + \lambda^c SOCIAL_{st} + \kappa^c DEMO_t^c + \omega^c E_{st}^c, \rho) \quad (9)$$

$$P_{ci}^{00} = \Pr(E_i^h = 0, I_i^h = 0) = \Phi(-\alpha_s^c - \beta^c MKT_t^c - \theta^c SOCIAL_{st} - \delta^c DEMO_t^c, -\theta_s^c - \eta^c MKT_t^c - \lambda^c SOCIAL_{st} - \kappa^c DEMO_t^c - \omega^c E_{st}^c, \rho) \quad (10)$$

where $\Phi(.,., \rho)$ denotes the bivariate normal cumulative distribution function.

One can use Bayesian estimation methods in which multivariate normal distribution is used to model unobserved heterogeneity. This is the full hierarchical model accounting for the

household heterogeneity and specifying the full variance covariance structure on error terms. Markov chain Monte Carlo (MCMC) techniques can be used to estimate the parameters of the model. Data augmentation techniques for the latent variables of the model are used. Priors for the model parameters are specified as uninformative. Details of further description of the priors and full conditional distributions for the unknown parameters and sampling details can be found in Rossi, Allenby, and McCulloch (2005).

6. Modeling Firm Value of Consumers' Social Media Participation

Strategic and sales values are two kinds of firm values attributed to consumers' social media participation. The credibility of social media in achieving marketing strategic values in the form of brand building and consumer service has been established in several contexts. Today's consumers want to engage with a firm not just in their own consumption process but also in the firm's production process as co-producers. The user generated content (UGC) from firm's social media facilitates consumers in co-production of information about the firm's offerings (Godes and Mayzlin 2004). Furthermore user generated content also helps firms in new product diffusion (Susarla, Oh and Tan 2012), establishing credibility of recommendations (Ho, Bodoff and Tam 2011) and also influencing product sales (Zhu and Zhang 2010).

Marketing strategic values are important for firms but the ultimate goal of these strategies is to attain prime objective which is generating sales. Hence we focus our discussion along the line of modeling effect of consumers' social media participation on sales value. We propose two methods to measure this value, first method focuses on consumer purchase amount and second method focuses on consumer life time value. Subsequently we also discuss the econometric challenges associated with such modeling approach.

It is important to know how consumers' social media participation (engagement and interaction) affect their purchase behavior. The variable of interest in our model is quantity Q purchased by consumer c at time period t from a firm having its social media presence. Purchase quantities are observed only when a consumer visits the firm otherwise it is 0. Thus, we model the latent quantity Q^* as follows:

$$Q_{ct}^* = \pi_{1c} + \pi_{2c}E_{ct} + \pi_{3c}I_{ct} + \pi_{4c}(E_{ct} \times I_{ct}) + \pi_{5c}MKT_{ct} + \pi_{6c}SOCIAL_t + \pi_{7c}DEMO_{ct} + \xi_{ct} \quad (11)$$

The parameter π_{2c} measures the direct effect of consumer's participation through engagement, the parameter π_{3c} measures direct effect of consumer's participation through interaction and the parameter π_{4c} measures the interaction effect between these two i.e. the joint effect of engagement and interaction. We expect parameters π_{2c} and π_{3c} to be positive and significant. Similarly we expect parameter π_{4c} to be significant and positive establishing the fact that consumer segment of active participants is most valuable to the firm. The effect is moderated by MKT , $SOCIAL$, and $DEMO$ variables pertaining to firm's marketing-mix efforts, firm's as well as consumers' social media efforts, and consumer characteristics respectively. The error term is distributed normal with $\xi_{ct} \sim N(0, \sigma^2)$. The above formulation leads to type-I tobit model where latent and observed quantities are related as follows:

$$Q_{ct} = \begin{cases} Q_{ct}^* & \text{if } Q_{ct}^* > 0 \\ 0 & \text{if } Q_{ct}^* \leq 0 \end{cases} \quad (12)$$

Consumer heterogeneity can be modeled using random effect. The model can be estimated using log likelihood method.

Consumer life time value, another metric to quantify long term sales, is modeled in a marketing context using survival analysis (Reinartz and Kumar 2003). The variable of interest in survival analysis is the duration of consumer relationship with the firm. One can use proportional

hazard model which allows finding the effects of several explanatory variable on duration of consumer relationship along with unspecified form for the underlying survivor function (Cox 1972). Thus the hazard rate $h_c(t)$ for consumer c is assumed to take following form in a proportional hazard model:

$$h_c(t) = h_0(t) \exp(\nu_{1c}E_{ct} + \nu_{2c}I_{ct} + \nu_{3c}(E_{ct} \times I_{ct}) + \nu_{4c}MKT_{ct} + \nu_{5c}SOCIAL_t + \nu_{6c}DEMO_{ct}) \quad (13)$$

Where $h_0(t)$ is the baseline hazard function and the rest of the variables are same as described earlier. Consumer heterogeneity can be specified using individual level frailty modeling approach (Hougaard 2000). In a non-contractual setting duration of consumer relationship with the firm is truncated as the analysis period is fixed. To account for this one can use either the Pareto/NBD model (Schmittlein, Morrison and Colombo 1987) or the BG/NBD model (Fader, Hardie and Lee 2005) to determine where the consumer relationship with the firm is still active or dead. One can use the PHREG procedure in SAS to estimate consumer survival.

There are other marketing metrics too that could be used to understand the impact of consumers' social media participation on consumer-firm relationship. For example, Rishika et al. (2013) look at effect of consumers' social media participation on consumer visit frequency and profitability. Apart from direct effect of consumers' social media participation they also analyze the moderating effect of consumer characteristics and social media activities. The authors find positive relationship between frequency of visit and consumers' social media participation. This positive relationship holds true for consumer profitability also. Similarly, Goh, Heng and Lin (2013) find the positive impact of social media contents on consumers' purchase quantity.

6.1. Model Identification

One of the problems that is faced with modeling impact of consumers' social media participation at individual level is endogeneity issue arising out of self-selection i.e. the model includes

endogenous explanatory variable which is consumers' social media participation. Specifically the question raised with respect to the endogenous participation is whether participating consumers are predisposed towards these increased/decreased responses or their social media participation causes changes in their behaviors (Algesheimer et al. 2010). Removing this bias is critical as Algesheimer et al. (2010) point out, "This is an important question, because depending on which of the possibilities is true, the answer provides different guidance to the firm. For example, if the first possibility is true (i.e., community participants intrinsically display increased relational behaviors), then the firm should target only its fans when seeking new consumers to attract to its community. In contrast, if the second possibility is verified (i.e., community participation causes increased behaviors), then the firm can try to implement interventions to attract consumers to participate in a community more broadly. Indeed, it would mean that consumer community programs can be used broadly to market to more of the firm's consumers than just the fans." Therefore, we propose two methods from academic literature that address this particular issue.

This first method to address this issue is two-step instrumental variables (IVs) approach proposed by Heckman and Navarro-Lozano (2004), Angrist and Krueger (2001), Vella and Verbeek (1999), Vella (1998), Staiger and Stock (1997) and implemented by Algesheimer et al. (2010) in the context of consumers' social media participation. This approach first specifies the "participation model" and subsequently an "outcome model" (similar to the model specification of firm value of consumers' social media participation). The idea is to instrument out the consumers' social media participation in the outcome model where instead of actual dummy variable of consumer participation one puts consumers' propensity to participate derived from the first step participation model. One can use probit or logit probabilities to derive propensity to

participate. However, linear probability model is recommended in case the endogenous variable is a dummy variable such as user participation in social media (Grootendorst 2007, Angrist and Krueger 2001, Angrist 2001, Vella and Verbeek 1999).

Next we discuss the propensity score matching (PSM) in combination with difference in difference (DID) method adopted by Rishika et al. (2013) in solving the self-selection issue and endogeneity arising out of unobserved consumer specific factors that may jointly determine the consumers' social media participation and consumer relationship with the firm. The authors use this method to empirically evaluate the impact of consumers' social media participation on their visit frequency and profitability. The DID estimation process entails two requirements, first there should be representative samples from both participating (treatment group) and non-participating groups (control group), second the variable of interest should be observed for both the groups in pre as well as post period (e.g., before and after their social media participation). However, the DID estimates are biased if both the samples, participating and non-participating groups, are non-random which is the case in most of the non-experimental studies. The solution to this problem is another challenge in constructing a non-participating group that is very similar to the participating group in all observed aspects prior to the participation so that all differences in their behaviors in the post-period can be attributed to their participation. The construction of such non-participating group is done by a statistical matching technique called PSM (Rosenbaum and Rubin 1983). The principle idea of PSM is to balance the control and treatment groups based on observable characteristics (e.g., demographics) which involves two steps, first calculate the propensity scores (if the program intervention is binary then one can use logit or probit model), second use these propensity scores to match the control and treatment groups (one can use various matching algorithms such as optimal pair matching, greedy matching such as nearest

neighborhood with/without calipers, Mahalanobis distance matching). To summarize in the absence of randomization the PSM methods allow to come up with good counterfactuals which can then be used in DID model to estimate the causal impact of participation.

7. Evidence of Consumers' Social Media Participation on Consumer Behaviors

7.1. Empirical Evidence

In this section we discuss some of the key findings from the literature about the impact of consumers' social media participation on consumer behaviors. There is a growing concern and a perennial question among small as well large firms about the real worth of their fans/followers on their social media sites (*Wall Street Journal* 2012; *AdAge* 2011; *Business Insider* 2011; *comScore* 2012). Furthermore, questions have been raised regarding the return on investment of social media marketing (Hoffman and Fodor 2010; Mintz and Currim 2012; Weinberg and Pehlivan 2011; McKinsey Quarterly 2012). Therefore, we review some of the articles and discuss their key findings about the impact of consumers' social media participation on various aspects of consumer behaviors having marketing strategic and sales values. The empirical analysis in these reviewed articles is done at individual level.

The white paper by *comScore* (2012) in collaboration with Facebook analyzes the impact of brand exposure on Facebook fans and friends of fans. The main findings of the paper are as follows. The firms should use three key metrics namely fan reach (exposure of Facebook ad in the fans news feed), engagement (fan interaction with ad content), and amplification (Facebook ad exposure by friends of fans) to measure the impact of a Facebook ad. Facebook as a social media platform provides unique opportunity towards integration of various other marketing communication media. For example, firms can advertise their brands using external channel (Paid Media) such as display ads or other forms of paid media to attract users to their own

Facebook page (Owned Media). Once the fans interact with their marketing campaigns it creates an opportunity for the firm to reach friends of fans indirectly (Earned Media) at no added cost. Such integration can help firms in creating greater brand awareness leading to increase in brand purchase by fans as well as friends of fans. In summary, both aspects of consumers' social media participation, engagement and interaction, are important for success of social media marketing captured through brand awareness and purchase behavior.

Algesheimer et al.'s (2010) study on effect of consumer community participation on consumer behaviors has very interesting findings which is carried out in the context of eBay. Consistent with the context, i.e. eBay, which is an online auction site the authors model effect of consumers' (buyers/sellers on eBay) community participation (note that this online social community is firm sponsored on their online web site) on four outcome variables namely, average number of bids placed, the average number of product listings, the average amount spent buying in a product category, and the average amount earned selling in a product category. The authors find mixed effects of consumer participation on these four outcome variables, especially there was no effect of participation on bidding and amount earned whereas there was negative effect of participation on number of listing and amount spent. However, the results do not imply deteriorating effect of consumers' social media participation, in fact if generalized in the context of online auction site participation helps consumers becoming more selecting and efficient in their selling behavior. Interestingly firm's other marketing mix efforts such as email invitation to join online social community has significant positive effect on consumers' participation through engagement. Furthermore, users have intrinsic differences in their participation behaviors.

Rishika et al. (2013) study consumers' social media participation on firm hosted social media sites using actual consumer transaction data i.e. consumers' revealed preferences. The

outcome variables they analyze are visit frequency and profitability. The authors find outcome variables, consumer visit frequency and profitability, are positively affected by consumers' social media participation through engagement leading to stronger consumer-firm relationship and greater value proposition of participating consumers to the firms having their social media presence. The authors also report the variation (i.e. heterogeneity) in participation behavior across consumers based on their transaction based characteristics. Specifically they find that social media participation leads consumers to buy more premium products, and makes them less sensitive to deal. Also high level of social media activities moderates this relationship positively.

Goh, Heng and Lin (2013) also use individual level transaction data and consumers' social media participation to measure the impact of social media content. The study is carried out in the context of popular social media Facebook. The authors divide the social media content into two parts- user-generated content (UGC) which is social media content generated by consumers' interaction on a firm's social media page, and market-generated content (MGC) which is social media content contributed by a firm on its social media site. Consistent with Rishika et al.'s (2012) finding on positive impact of participation on consumer profitability the authors also find that consumers' social media participation is associated with increase in consumer expenditure. The social media contents generated from consumers (UGC) has both persuasive and informative role whereas contents contributed by the firm (MGC) play persuasive role in influencing consumer purchase decisions. Thus, the study signifies the complementary role of consumers' interactions on firm's social media sites on stimulating their purchase decisions apart from the significant effects of firm's own marketing mix efforts.

7.2. Experimental Evidence

The formal understanding of consumer participation in social networks and its impact on outcome variables of interest is confounded by endogeneity (Chandrasekhar, Kinnan, and Larreguy 2011). Therefore, the examination of causal claims between consumers' social media participation and their behaviors requires experimental evidence. The causal interpretation of the experimental setting lies in careful control of the environment and participants' social network characteristics while holding other factors constant. The ideal experimental setting for such causal interpretations is randomized experiments, because "...randomized experiments are more likely to yield unbiased estimates of causal effects than typical observational studies because the randomization of treatment makes the treatment and control groups equal on average in terms of all (observed and unobserved) characteristics" (Horiuchi, Imai, and Taniguchi 2007). Therefore, we present some experimental evidence regarding individuals' online social behaviors in a social networking environment such as social media.

Aral and Walker (2012) investigate the social influence in networks to understand how individual behaviors spread. Identification of social influence in a network structure is confounded by homophily, confounding effects, and simultaneity. The randomized experiment to measure individuals' influence and susceptibility in a network overcomes these problems by randomly manipulating the influence-mediating messages. The results suggest that younger users are more susceptible and married individuals are least, men are more influential than women though influential women have more influence on men than other women. The distribution pattern of influential and susceptible individuals is also distinct in a network; influential individuals cluster together in a network and are less susceptible whereas susceptible individuals do not cluster around. Understanding of how information and influence is spread across individuals in an online network environment has both scientific and public importance

(Brossard and Scheufele 2013). Consistent with this study Bond et al. (2012) also suggest that in both online and offline environment strong ties in a social network are critical in spreading the messages.

In a randomized field experiment Tucker and Zhang (2010) examine how user participation in two-sided exchange networks (such as Amazon.com) is influenced by the way they advertise information pertaining to their user base – either highlighting sellers or buyers or both. The authors find seller participation is deterred when both seller and buyer information is displayed however this effect disappears when only seller information is displayed. Buyer participation increases when both seller and buyer information is displayed together.

Randomized field experiments are ideal method to uncover cause-and-effect relationship in an online social media environment. However, the method ignores the observational data collected beforehand for operational purposes. Furthermore, sometimes the cost of randomized field experiment is very high and infeasible to conduct. Under such situation when observational data is available and the cost of randomized field experiment is high researchers can use quasi-experimental designs to infer causal relationships in online social media environment (Oktay, Taylor, and Jensen 2010).

8. Future of Consumers' Social Media Participation

Social media is going to be an indispensable tool for all kinds of businesses to connect with their users. It is going to combine the essence of traditional and new media as well as mass and personalized media. Its reach, its ability to communicate at mass level as well as at individual level, its ability to integrate with other forms of communication media, its ability to interact with users in real time, its ability to customize user engagement and interaction, and its ability to bring in indirect benefits (e.g., viral marketing, user generated content) make social media to become

part and parcel of every firm's integrated marketing communication tools. Even though the future of social media is bright and we see established social media sites such as Facebook and Twitter as well as upcoming social media sites like Pinterest and Google+ which are built upon the concept of social networking there are various challenges that social media faces in this dynamic and ever evolving market place.

The business integration of social media has taken place prolifically in business-to-consumer (B2C) market place. However, when it comes to business-to-business (B2B) marketing environment questions are raised about appropriate usage and integration of social media and social networking. The main purpose of social media integration by B2B firms fall into attaining three objectives, creating brand awareness, encouraging social sharing, and gaining trust and followers (Gaskell 2012). In B2B marketing environment the firm value of users' social media participation comes mainly from lead generation rather than from demand generation. Therefore, B2B firms are more interested in 'professional social networking sites' such as LinkedIn with recruitment process as their prime objective and engagement and interaction with their prospective future employees to build brand value as secondary objective. The challenge lies therefore in efficiently and effectively leveraging the opportunities of social media in achieving those objectives in B2B context. Thus, understanding of users' online job search behavior and their interaction with the firms over social media platforms becomes critical in integration of social media in B2B marketing environment.

Technological advancements have made this market environment not only more dynamic but also ever evolving. Therefore, to keep up with the changes in market place primarily due to development in technology social media faces tremendous challenges. The first problem that firms face with social media is that of integration. Social media is one of the marketing tools in

the baggage of firms having integrated marketing communication program. Therefore, it has to be integrated effectively with other traditional and new forms of communication media which requires our understanding of not only consumers' social media participation behavior but also how these consumers consume other forms of media. Another dimension of social media integration requires our understanding of online social behavior of connected consumers over mobile devices that include smartphone as well as tablets. More and more users are accessing social media sites over their mobile devices. One of the advantages of mobile devices is access to the users' location. Therefore, firms can leverage this benefit of mobile devices for social media campaign by delivering appropriate user requests at right time and right location. However, successful location based marketing campaigns require our understanding of consumer usage of mobile devices. Another aspect of mobile devices nowadays is proliferation of mobile applications or mobile apps. As more and more people have started using mobile devices we will see development of sophisticated customized apps that will change the way users solve their daily problems. Therefore, we have to broaden our understanding of consumers' social media participation in conjunction with their usage of mobile apps in future. This will provide a deeper understanding of future behavior of consumers' social media participation.

9. Conclusion

Traditional use of the Internet by users has been completely redefined by the social media. Initially people participated in the Internet only as consumers but social media have provided them to participate not just as consumers but also as producers. Thus, the co-creation of contents by both, consumers and firm, have enabled them mutually. Consumers feel their additional participation also as producers has given them a greater sense of empowerment in the consumption process, whereas firms are experiencing a form of connection with their consumers

never felt before. So much so is the power of user engagement through social media that it is not only important for firm's reputation, sales, and survival, even the Pope has started using social media to reach out to everyone (*BBC* 2012).

Despite the percolation of social media in people's everyday lives many firms either refrain from using it or mismanage it due to their lack of understanding of what it is, various forms of it, and how to engage consumers with it and learn from it (Kietzmann et al. 2012). Firms' mismanagement or misunderstanding of social media could be attributed to two factors. First, they lack the understanding of consumers' social media participation from business perspective, and second they find problem in measuring business value proposition provided by the consumers' participation in their social media efforts.

In this article we provide conceptual underpinning and measurement framework to understand and manage the concerns about firms' misunderstanding and mismanagement about social media marketing. We address this problem from three perspectives critical in understanding and measuring the return on investment of social media marketing. First, we provide a conceptual framework of consumers' social media participation from its business value proposition perspective. Two dimensions of consumers' social media participation, engagement and interaction, and the structure of this participation are discussed. This will help firms understand consumers' online social behavior leading them to channel their limited resources in an efficient way while adopting social media marketing. Furthermore, we also explain the key factors that affect consumers' social media participation thereby facilitating firms to target right segment of consumers with right marketing tools for effective social media marketing. Second, we discuss the firm value of consumers' social media participation. Specifically we explain about marketing strategic and sales value. With strategic value in mind firms can leverage social

media marketing in brand building and providing interactive consumer service whereas with sales in mind firms can influence consumers' purchase behavior via social media marketing strategies. Third, we provide econometric frameworks at individual level to measure and quantify consumers' social media participation, and the effect of this participation on consumer behaviors that brings values to firms. The econometric model accounts for the heterogeneity and identification issues so critical in addressing unbiased estimation process. Finally we also provide some examples from literature that demonstrate at individual level as how consumers' social media participation has changed their behaviors.

There will be a close integration of social media with other forms of traditional and new marketing communication tools in coming days. With more and more people not only using social media but also spending significant amount of time on these platforms it is certainly going to provide essential marketing strategies for firms to succeed in this socially connected world. We hope our article will provide some guidance to firms about efficient and effective use of social media marketing strategies.

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Key Terms and Definitions

Actives – Segment of consumers who actively participate in a firm’s social media site by both engagement and interaction.

Critics – Segment of consumers who participate in a firm’s social media only by contributing contents to the site but never join or subscribe to the site.

Digital Environment – An environment where the information is transferred across users in the digital format.

In-Actives – Segment of consumers who do not participate in a firm’s social media site either by engagement or by interaction.

Social Media – An online social networking platform used as a communication media to engage and interact with other users.

Social Media Participation – User activities on social media platform in the form of various actions such as joining and contributing contents to the site.

Spectators – Segment of consumers who participate in a firm’s social media site only by engagement but do not contribute any kinds of contents to the site.

User Generated Content (UGC) – Any form of online contents created by the end users which are publically assessable by other users.

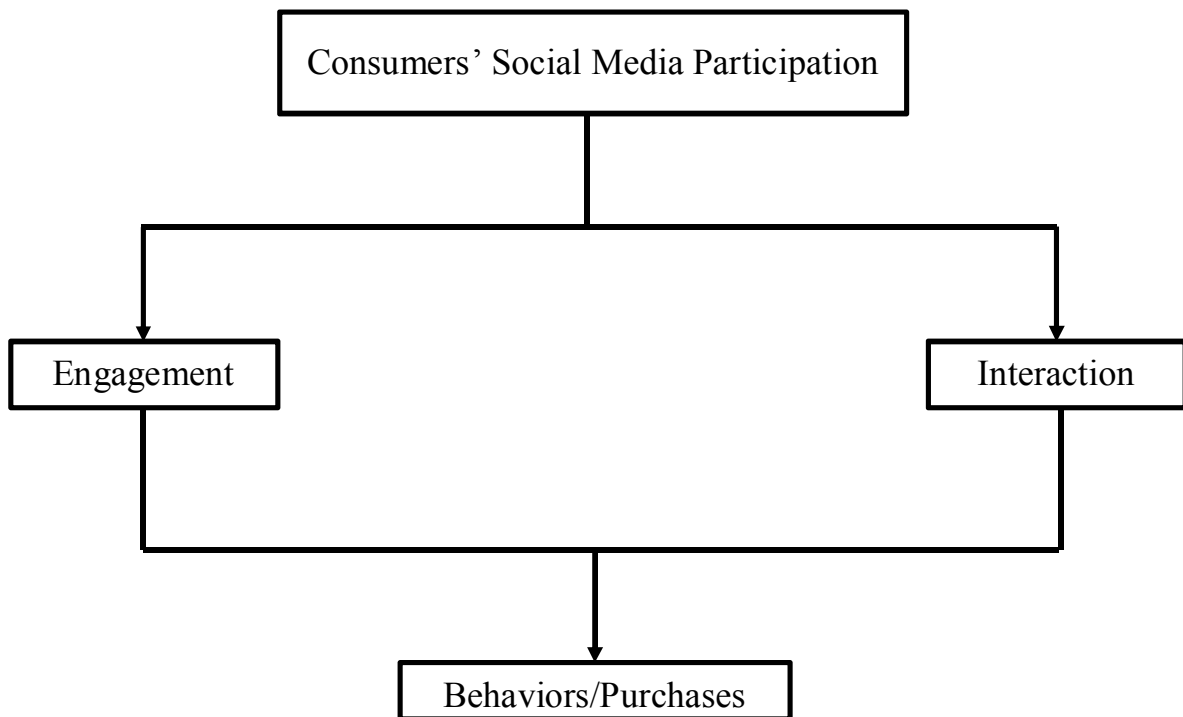
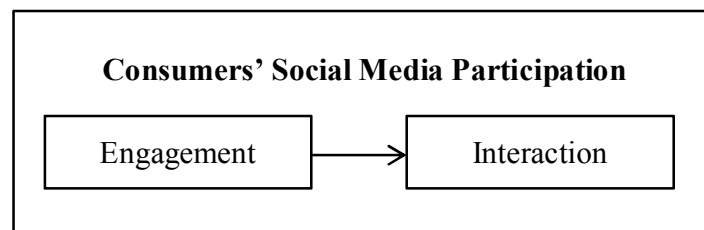
Figure 1: Consumers' Social Media Participation**Figure 2: Structure of Consumers' Social Media Participation**

Figure 3: Factors Affecting Consumers’ Social Media Participation and their Behaviors

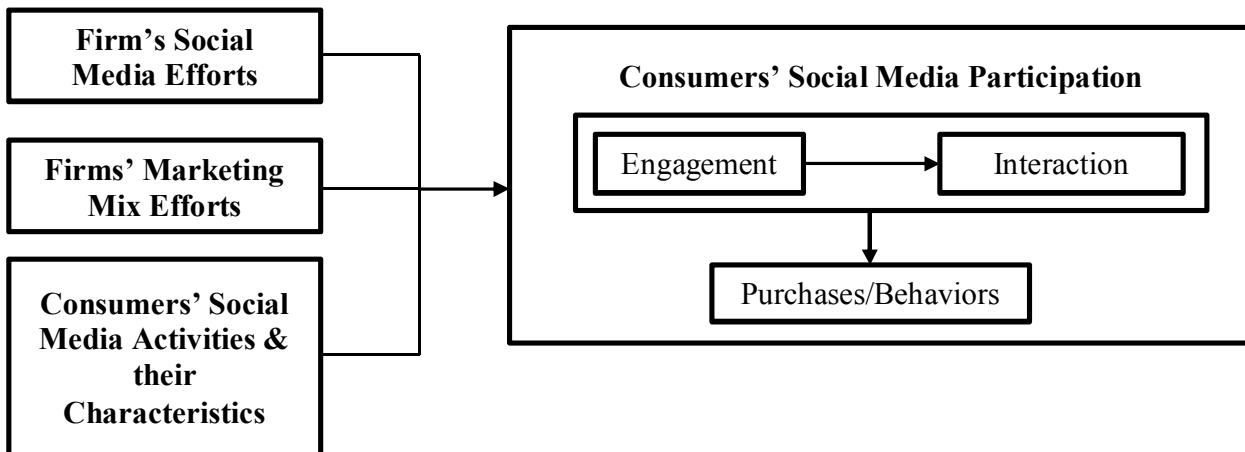


Table 1: Four Segments of Socially Connected Consumers over Social Media

Consumers’ Social Media Participation	<i>Engagement</i>		
		No	Yes
<i>Interaction</i>	No	In-actives	Spectators/Joiners
	Yes	Critics	Actives