

Advertising and Utility Maximization – A Theoretical Exercise

A. F. M. Aatur Rahman¹ and Ahmed Abu Bakr²

Marketing operations in modern business are perceived to create a certain position of a product in consumer's mind. This service is well accepted by the firms and they invest a sizable portion of their budget for marketing operations. Although by definition, marketing is the act of understanding consumer's preference and producing goods that cater their demand better, yet most of the firms try implicitly to influence consumer's preference and make a favorable position for their product in consumer's mind through marketing operations. Advertising, as a part of marketing operation is no different. This paper takes this issue in some details. Using agent based mathematical model we here first tried to develop a theoretical argument for the effect of advertising staying within neo classical framework and then tried to see under what conditions advertising operation can increase demand while maximizing utility for buyers. We have found that if the aim of advertising campaign is to increase the substitutability of the advertised good relative to its non-advertised counterpart then that act will not always increase the demand for advertised good. We have also found that if the cost of advertisement is passed on the buyers as higher price then that may decrease the demand of the advertised good. This exercise is important as it will help us to see how advertising fits in our utility maximization based demand theory.

Keywords: Utility maximization, Persuasive advertising, Informative advertising

JEL codes: D01 and D21

1. Introduction

In modern businesses, marketing activities play a significant role. The main idea of marketing is to gather information regarding potential buyers' preference and make necessary changes in the product to be sold, so that it suites better to the buyers. In this process businesses also try to influence buyers' preference mapping in order to get higher level of revenue for the firms through larger amount of sales. Advertising campaign is supposed to influence consumers' preference and induce people to buy advertised products. The role of advertising however, has been highly debated. At one end, researchers argue that advertising is mostly wastage of resources as it puts comparable firms in competitive stance, resulting an environment that puts undue importance on small or insignificant product attributes. But on the other hand, some other researchers argue that the act of advertising actually helps consumers by disseminating important decision sensitive information, resulting reduction of transaction cost. So it does bring some real benefit. This debate generates three views of advertisement. These views² are, persuasive, informative and complimentary. The persuasive view holds that advertising causes a

¹Dr. A. F. M. Aatur Rahman (Corresponding author), Associate Professor, Department of Economics, North South University, Dhaka, Bangladesh, Email: Ataur@northsouth.edu

² Ahmed Abu Bakr, Department of Economics, North South University, Dhaka, Bangladesh

transformation in the preference structure of consumers in favor of advertised good. Informative view argues that advertisement disseminates information and help decision makers to take more informed decision. Complementary view argues that advertisement is a separate good (given for free) and people consume that along with the good being advertised. Out of these three views effectiveness of informative view is least argued and persuasive view has the most controversial appeal.

This paper adds in the literature through a mathematical model developed from theoretical arguments which can give us the condition under which the persuasive argument of advertising campaign can be effective. To the best of our knowledge there are not many works trying to answer this particular question from analytical setup and thus this question worth investigating. Due to data unavailability we could not test predictions of our model against industry data.

The next section reviews the existing literature which is followed by a section containing the model and necessary derivations. Findings are also discussed in that section. Usual concluding section summarizes the results at the end.

2. Literature Review

As explained in the introduction, according to the persuasive view, advertising campaign is used to create a certain position of the advertised good in consumer's mind. In that way it is used to create brand loyalty (see Braithwaite, 1928; Robinson, 1933; Kaldor, 1950; Bain, 1956; Comanor and Wilson, 1967, among others). This persuasion can have interesting outcomes. It can create high market concentration (Kaldor, 1950); it may help to create entry barriers (Comanor and Wilson, 1974; Spence, 1980) and so on. These effects can increase income potential of the existing firms in the market and can put effective barriers to entry for new firms. New firms trying to enter into that market has to invest disproportionately high amount in advertisement.

Marshall (1920) one of the earliest analyzer of marketing concluded that advertising can be both constructive and socially wasteful. Braithwaite (1928) in her treatise remarked advertising can distort the consumer's valuation of the advertised good and hence artificially inflate demand for that good. Braithwaite (1928) further claims that advertising requires expenditure of real economic resources for an unproductive cause. Chamberlin (1933), argued for informative and persuasive role of marketing. He addressed scale effects which can create greater demand, allowing producers to reduce their cost of production and hence prices. Dixit and Norman (1978) provided a rigorous normative treatment of persuasive advertising concluding through the remark that in both monopoly and oligopoly setting advertising is socially excessive. However they actually did not formulate the means through which advertising may shifts tastes and alter preferences.

Kaldor (1950) saw advertising as persuasive in nature because while it offers information, the information is offered by an "interested party" and aims to persuade. In support of Kaldors views, Krishnamurthi and Raj (1985) find that demand for a particular brand becomes significantly more inelastic as advertising is increased.

Rahman & Bakr

Johnson and Myatt (2006) propose an analytical framework for studying the transformations of demand that advertising causes. While most previous works predicted shifts in demand due to advertising, Johnson and Myatt point out that advertising provides information which will encourage a certain proportion of buyers and discourage others; hence the demand curve undergoes a rotation as opposed to a shift. They show that firms are likely to seek either high level for consumer valuations (niche market position) or very low levels of dispersion (implying a mass marketing strategy). Their framework is highly flexible and can be applied to multi-product firms, vertical differentiation and even competitive environments.

There are quite a few researches regarding how advertisement enters into demand function. Brester and Schroeder (1995) summarized three such approaches. The first approach assumes that advertising effort changes consumer preferences by creating a shift in consumers' demand. This treats advertising as a good, affecting utility both directly and through complementary relationships with other goods (see Becker and Murphy, 1993; Telser 1962, 1964 among others). Another approach accommodates advertising expenditure as a measure of advertising intensity into the demand function (see Kinnucan and Belleza, 1991; Kaiser, 1997; Funk et al. 1977 among others). It incorporates a scaling approach, in which advertising changes the effective quantities and prices of goods. The last approach allows advertising intensity to affect demand more generally, like changing its price elasticity. Here the coefficients of the demand model are functions of advertising and therefore can have various effects (see Pollak and Wales, 1992; Goddard and Amuah, 1979; Piggott, Chalfant, Alston, and Griffith, 1996).

Through our survey we have found that relatively few works is there to specify the mechanism through which advertising affects consumer preferences, and almost all proponents of the persuasive view simply start their analysis after assuming that advertising alters consumer preferences. Recently, economists have started to seek answers from neuroscience and psychology. They try to find out the neuroscientific basis of human actions which includes persuasion effect of advertising as well.

Following this argument the literature has moved into the direction of investigating reasons behind consumer decision making. This is a very alive topic in Economics and Psychology and in marketing literature and there are at least three distinct lines of arguments. The first one is based on usual utility maximization criteria (see Dodds, Monroe and Grewal, 1991 among others) where a consumer buys a certain product only if its price is equal or more to its marginal utility. Another line of argument followed by Fournier (1991, 1998), Belk (1995), Kleine, Kleine, and Kernan (1993), Firat and Venkatesh (1995), Brown (1995, 1997), Holt (1997), Echtner (1999), Fischer (2000), Hogg, Cox, and Keeling (2000), and Voase (2002) argues that consumption decisions are based mostly on pursuit of identities of self, social group and culture. Another line of argument puts emotion ahead of rationality and tries to explain decision making through explaining emotional stimuli. Studies following this argument are Shiv, Edell and Payne (1997), Elliott (1997), Siemer and Reizenzein (1998), and Shawarz (2000) and Pham, Cohen, Pracejus, and Hughes (2001) among others. A holistic approach, combining all three is also used in some researches like Kantamneni and Coulson (1996), Hall, Robertson, and Shaw (2001), Bhat and Reddy (1998), Sirgy and Johar (1999) and Petrick (2002) among others.

Rahman & Bakr

In this study our chief question is whether advertising does in fact persuade consumers away from one brand to another through alteration of a consumer's preference structure. And if so then under what condition those effects will be more prominent. We believe our treatment of the problem at hand is different from those done previously in that we start by identifying parameters in the utility function (based on the CES utility function) that would change if the preference structure changes. Previous attempts to gauge the distortion in preferences have used the Cobb-Douglas functional form; we believe that a utility function of the CES form is more applicable since brands are more likely to have a perceived degree of substitutability ranging between 0 and 1, rather than a constant value of 0.

3. The Model

We argue that advertising can affect consumer preferences by entering the utility function through the two parameters, δ (the perceived degree of substitutability and α (the perceived weight of a good/brand). Thus, for the following Utility function,

$$U = [w_x x^\delta + w_y y^\delta + w_z z^\delta]^\frac{1}{\delta}$$

Where,

U is the utility

x and y are the two brands (same good), and z represents all other goods

w_i is the weight of the i th good/brand and $\sum_{i=1}^n w_i = 1$

And δ is the degree of substitutability between any pair of x, y and z

w_x and δ are assumed to be a function of intensity of advertising campaign. It should be noticed here that if δ is dependent on advertising campaign then, the function no longer has a constant elasticity, but has both variable weights and substitutability. We will assume advertising is campaign affects buyers' decision through two parameters δ and w_i . The first one defines the degree of substitutability and the second one defines the weight of a good (brand in this case) in the utility function. It is important to note that since utility is subjective, the parameters are also subjective and hence dependent on perception. However, it must be mentioned, that the two parameters are not only affected by advertising, but also by other forms of persuasion, learning experiences and information.

Our concept of representative consumer is little different from the representative consumer of Agent Based Model (ABM). Here we will consider that the whole economy will collectively act a person and the behavior that we are going to address is the collective behavior of the economy. And in that respect this "representative agent" is different from conventional agents of agent based models following the sprit of Holland (1995), Epstein & Axtell (1996), LeBaron (2000), Gilbert & Troitzsch (2005), Miller & Page (2007) among others.

Denoting w_x as α and $w_x + w_y = \beta$

Rahman & Bakr

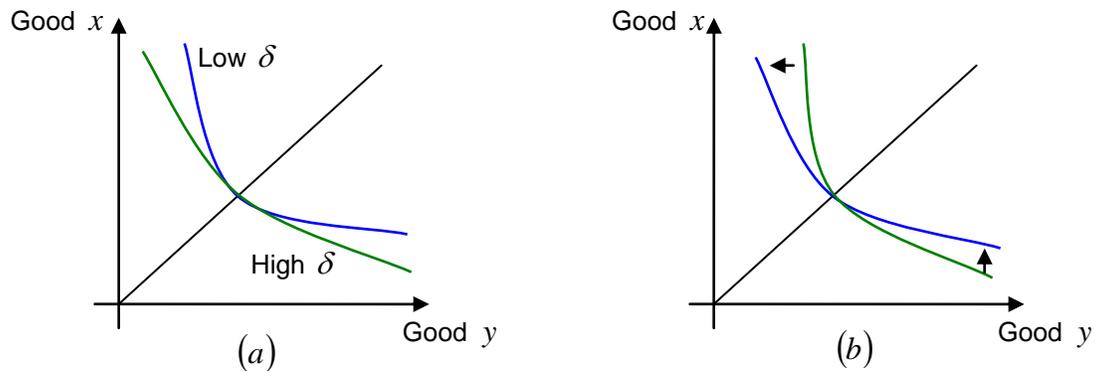
We can rewrite the utility function as

$$U = [\alpha x^\delta + (\beta - \alpha)y^\delta + (1 - \beta)z^\delta]^\frac{\gamma}{\delta}$$

It is also important to note here that traditionally utility is acknowledged to arise from the consumption of a good. Our concept of utility is slightly atypical in that our model is based on perceived utility. Even without consuming a particular brand, a consumer forms an idea about it (this is ensured by the informative role of advertising), and has certain expectations of utility from it. Past experiences and new information from advertisements are both used by the consumers in the target group in forming an expectation of utility from the two brands in question. More importantly, for a brand that has not been consumed by an individual, advertising (in all its forms) is the only channel through which a consumer can form an expectation of utility.

With little mathematics we can show that change in δ and α will change the shape of the indifference curve. Those changes are given in the following graph.

Figure 1: Responsiveness of indifference curve with change in δ and α



So, as δ increases elasticity of substitution σ decreases and the indifference curve becomes less and less curved (convex). Mathematically,

$$\frac{d\sigma}{d\delta} = -\left(\frac{1}{\delta-1}\right)^2$$

This is shown in panel *a*. In panel *b* we show the case of increase in α . In α increases then indifference curve is likely to rotate around $y = x$ ray. For $y > x$ region $\frac{dx}{d\alpha} > 0$ and

for $x > y$ region $\frac{dx}{d\alpha} < 0$.

From this basic setup first we would like to determine the utility maximizing demand of good x and y . This will form the benchmark of consumer behavior. We assume that the brands x and y , are well within the budget of the individuals forming the target group, and that expenditure on either brand will not exhaust their budget. In such a case, the target

Rahman & Bakr

consumer group, regarded as a single entity will allocate its expenditure as per the law of equi-marginal utility. Since neither of the brands are undesirable, and a certain proportion of the consumer group will inevitably prefer one brand over the other, the consumer group itself will consume both brands x and y , until the following condition holds. First order conditions tell (assuming zero transaction cost):

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = \frac{MU_z}{P_z}$$

Where,

$$MU_x = \gamma \alpha x^{\delta-1} [\alpha x^\delta + (\beta - \alpha)y^\delta + (1 - \beta)z^\delta]^{\frac{\gamma}{\delta}-1} \quad MU_x = \gamma (\beta - \alpha) y^{\delta-1} [\alpha x^\delta + (\beta - \alpha)y^\delta + (1 - \beta)z^\delta]^{\frac{\gamma}{\delta}-1}$$

$$MU_x = \gamma (1 - \beta) z^{\delta-1} [\alpha x^\delta + (\beta - \alpha)y^\delta + (1 - \beta)z^\delta]^{\frac{\gamma}{\delta}-1}$$

Prices here are relative, i.e.

$$p_x = \frac{P_x}{P_z}, \quad p_y = \frac{P_y}{P_z} \quad \text{and} \quad p_z = 1$$

Substituting these expressions and applying some algebraic manipulation we get

$$\frac{x}{y} = \left[\frac{\alpha p_y}{(\beta - \alpha) p_x} \right]^{\frac{1}{1-\delta}}$$

Now we are in a position to determine the relevant effects of change of α and δ on relative demand of advertised good. First we check the responsiveness with respect to α

$$\begin{aligned} \frac{x}{y} &= \left[\frac{\alpha p_y}{(\beta - \alpha) p_x} \right]^{\frac{1}{1-\delta}} \\ \Rightarrow \frac{\partial(x/y)}{\partial \alpha} &= \left[\frac{p_y}{p_x} \right]^{\frac{1}{1-\delta}} \frac{1}{1-\delta} \left[\frac{\alpha}{(\beta - \alpha)} \right]^{\frac{1}{1-\delta}-1} \frac{\beta}{(\beta - \alpha)^2} \end{aligned}$$

Following usual signs we get $\frac{\partial(x/y)}{\partial \alpha} > 0$. This tells that as α increase demand of advertised good relative to its non-advertised competitor will unconditionally increase.

Next we check the responsiveness with respect to δ

$$\frac{x}{y} = \left[\frac{\alpha p_y}{(\beta - \alpha) p_x} \right]^{\frac{1}{1-\delta}}$$

Taking log transformation both sides and then applying derivative operator we get,

Rahman & Bakr

$$\frac{\partial(x/y)}{\partial\delta} = \frac{x}{y} \left(\frac{1}{1-\delta} \right)^2 \ln \left[\frac{p_y}{p_x} \frac{\alpha}{(\beta-\alpha)} \right]$$

Using the same reasoning, we can say,

$$\frac{\partial(x/y)}{\partial\delta} > 0 \quad \text{If } \frac{p_y}{p_x} > \frac{(\beta-\alpha)}{\alpha}$$

This condition tells us the increase in substitutability (through persuasive advertising) will not unconditionally increase the demand for advertised good. Rather it will be effective only when price of one of the competing brands is disproportionately higher than its contribution in the utility function. So in differentiated market a producer will try to make her products even more differentiated only when price schemes are more skewed than the contribution to utility. Otherwise it would be better for her to go for less differentiation.

Now we check the responsiveness with respect to p_x

$$\frac{x}{y} = \left[\frac{\alpha p_y}{(\beta-\alpha)p_x} \right]^{\frac{1}{1-\delta}}$$

Applying derivative operator both sides we get,

$$\frac{\partial(x/y)}{\partial p_x} = \left[\frac{\alpha}{(\beta-\alpha)} \right]^{\frac{1}{1-\delta}} \frac{1}{1-\delta} \left[\frac{p_y}{p_x} \right]^{\frac{1}{1-\delta}-1} p_y (-1) \frac{1}{p_x^2}$$

Considering usual signs $\frac{\partial(x/y)}{\partial p_x} < 0$

This tells that if because of advertising price increases then that can actually decrease demand unconditionally which then needs to be compensated by the other positive effects to get an overall increase in demand.

Now we check the responsiveness with respect to β

$$\frac{x}{y} = \left[\frac{\alpha p_y}{(\beta-\alpha)p_x} \right]^{\frac{1}{1-\delta}}$$

Applying derivative operator both sides we get,

$$\frac{\partial(x/y)}{\partial\beta} = \left[\frac{p_y}{p_x} \right]^{\frac{1}{1-\delta}} \frac{1}{1-\delta} \left[\frac{\alpha}{(\beta-\alpha)} \right]^{\frac{1}{1-\delta}-1} \left[\frac{\beta \frac{\partial\alpha}{\partial\beta} - \alpha}{(\beta-\alpha)^2} \right]$$

$$\Rightarrow \frac{\partial(x/y)}{\partial\beta} > 0 \quad \text{If } \beta \frac{\partial\alpha}{\partial\beta} > \alpha$$

This tells that for generic advertising one of the brands will be disproportionately gainer if its share in utility function is higher than its competing brand.

These results are derived for CES utility function with the same degree of substitutability (δ) between x, y and z . However, our results are perfectly compatible with the use of a nested CES functional form, which would allow for varying degrees of substitutability between the variables.

Summarizing these results we get the desired effect of shifting consumers away from brand y and towards brand x through persuasion only when the effect of persuasion enters into the picture through α the factor of that particular good in utility functions. Other than that increase in demand is conditional.

Most previous studies of advertising have ignored the role of substitutability between brands. We found that depending upon the situation producer may like to differentiate her product or make her product more substitutable.

Now lets look into the case where due to advertising α changes through two ways, first it is directly affected by the advertising campaign and then due to change in p_x . In that case the mathematical expression will be

$$d(x/y) = \frac{\partial(x/y)}{\partial\alpha} d\alpha + \frac{\partial(x/y)}{\partial p_x} \frac{\partial p_x}{\partial\alpha} d\alpha$$

Since $\frac{\partial(x/y)}{\partial\alpha} > 0$ so we get

$$\left[\frac{p_y}{p_x} \right]^{\frac{1}{1-\delta}} \frac{1}{1-\delta} \left[\frac{\alpha}{(\beta-\alpha)} \right]^{\frac{1}{1-\delta}-1} \frac{\beta}{(\beta-\alpha)^2} d\alpha + \left[\frac{\alpha}{(\beta-\alpha)} \right]^{\frac{1}{1-\delta}} \frac{1}{1-\delta} \left[\frac{p_y}{p_x} \right]^{\frac{1}{1-\delta}-1} p_y (-1) \frac{1}{p_x^2} \frac{\partial p_x}{\partial\alpha} d\alpha > 0$$

$$\Rightarrow \frac{\beta}{\alpha(\beta-\alpha)} > \frac{1}{p_x} \frac{\partial p_x}{\partial\alpha}$$

$$\Rightarrow \frac{\beta}{(\beta - \alpha)} > \frac{\left(\frac{\partial p_x}{p_x}\right)}{\left(\frac{\partial \alpha}{\alpha}\right)}$$

The above inequality tells us that consumers will only shift away from brand y towards brand x if the ratio of weight of the good and the weight of the competing brand $\frac{\beta}{(\beta - \alpha)}$ is greater than the elasticity of price with respect to the weight of the advertised brand $\frac{\left(\frac{\partial p_x}{p_x}\right)}{\left(\frac{\partial \alpha}{\alpha}\right)}$.

Assuming the weight of the good is a constant, we can have two cases.

(i) For $\frac{\left(\frac{\partial p_x}{p_x}\right)}{\left(\frac{\partial \alpha}{\alpha}\right)} < 1$, advertising will always have the desired effect.

(ii) However, $\frac{\left(\frac{\partial p_x}{p_x}\right)}{\left(\frac{\partial \alpha}{\alpha}\right)} > 1$ implies that p_x increase by a much larger percentage than the

weight of brand x . Then $\frac{\beta}{(\beta - \alpha)}$ increases by a much smaller percentage

than $\frac{\left(\frac{\partial p_x}{p_x}\right)}{\left(\frac{\partial \alpha}{\alpha}\right)}$.

Hence, if the elasticity of p_x with respect to advertising is sufficiently greater than one, advertising may actually have the opposite effect, and consumers may shift away from the product due to higher prices. This is especially important if the cost of changing preferences is an increasing function. If the cost of marginally increasing the weight of brand x rises with respect to the weight, then there will inevitably come a point when the inequality will fail to hold. Such a scenario is quite plausible since it will require much more effort (and hence expenditure) to convince the proportion of consumers that are loyal to the competing brand, and hence the cost of changing consumer preferences will increase at an increasing rate.

However, as long as elasticity is less than unity, advertising will always result in shifting consumers away from the competing brand towards the advertised brand. Obviously, the

Rahman & Bakr

efficiency of the ability of advertising to increase the weight of the brand in the utility function is of the utmost importance. A campaign that does not succeed in increasing the weight of the brand is unsuccessful advertising, and will not have any result on demand. In addition, it is important to note that this analytical setting is only limited to when one brand is advertising. In reality, when competing brands are advertising, the final effect on the weights will depend on the vector summation of the forces attempting to change preferences.

4. Conclusion

Staying within neoclassical profit maximizing decision maker setup our model assumes a rational group of consumers whose preference structure can be represented by a single utility function. We also assume complete information with regards to prices and existence of the brands. We assume that the prices are such that the optimum quantity of consumption of the brands in question lies within the budgetary constraint of the individuals of the target group. We also assume a continuous utility function and perfectly divisibility in the marginal utility of brands. Based on such stylized model we have found that persuasive advertising is not always demand enhancing. In certain circumstances they can enhance demand of a particular advertised brand over its non-advertised competitor but in certain other conditions it can have opposite effect.

References

- Bain, JS 1956, *Barriers to New Competition: Their Character and Consequences in Manufacturing Industries*, Harvard University Press, Cambridge, USA.
- Becker, GS & Murphy, KM 1993, 'A Simple Theory of Advertising as a Good or Bad', *Quarterly Journal of Economics*, vol.108, no. 4, pp. 942-64.
- Belk, RW 1995, 'A hyperreality and globalization: Culture in the age of Ronald McDonald', *Journal of International Consumer Marketing*, vol. 8, no. 3/4, pp. 23– 37.
- Bhat, S & Reddy, SK 1998, 'Symbolic and functional positioning of brands', *Journal of Consumer Marketing*, vol. 15, no. 1, pp. 32–47.
- Braithwaite, D 1928, 'The Economic Effects of Advertisement', *Economic Journal*, vol. 38, no. 149, pp. 16-37.
- Brester, GW & Schroeder, TC 1995, 'The Impacts of Brand and Generic Advertising on Meat Demand', *American Journal of Agricultural Economics*, vol. 77, pp. 969-979.
- Brown, S 1995, *Postmodern marketing*. London, Routledge.
- Brown, S 1997, *Postmodern marketing two: Telling tales*, London, Routledge.
- Chamberlin, E. 1933, *The Theory of Monopolistic Competition*, Harvard University Press, Cambridge, USA.
- Comanor, WS & Wilson, TA 1967, 'Advertising, Market Structure and Performance', *The Review of Economics and Statistics*, vol. 49, pp. 423-40.
- Comanor, WS & Wilson, TA 1974, *Advertising and Market Power*, Harvard University Press, Cambridge, USA.
- Dixit, A & Norman, V 1978, 'Advertising and Welfare', *The Bell Journal of Economics*, vol. 9, no. 1, pp. 1-17.
- Dodds, WB, Monroe, KB & Grewal, D 1991. 'Effects of price, brand, and store information on buyers' product evaluation', *Journal of Marketing Research*, vol. 28, pp. 307–319.

Rahman & Bakr

- Echtner, C 1999. 'The semiotic paradigm: Implications for tourism research', *Tourism Management*, vol. 20, no. 1, pp. 47–57.
- Elliott, R 1997, 'Existential consumption and irrational desire', *European Journal of Marketing*, vol. 31, no. 3–4, pp. 256–289.
- Epstein, JM, & Axtell, R 1996, *Growing artificial societies: Social science from the bottom up*, MIT Press, Boston, USA.
- Firat, F & Venkatesh, A 1995, 'A liberatory postmodernism and the re-enchantment of consumption', *Journal of Consumer Research*, vol. 22, pp. 239–267.
- Fischer, E 2000, 'Consuming contemporaneous discourses: A postmodern analysis of food advertisements targeted toward women', *Advances in Consumer Research*, vol. 27, pp. 288–294.
- Fournier, S 1991, 'Meaning-based framework for the study of consumer/object relations', *Advances in Consumer Research*, vol. 18, pp. 736–742.
- Fournier, S 1998, 'Consumers and their brands: Developing relationship theory in consumer research', *Journal of Consumer Research*, vol. 24, No. 4, pp. 343–373.
- Funk, TF, Meilke, KD & Huff, HB 1997, 'Effects of Retail Pricing and advertising on Fresh Beef Sales', *American Journal of Agricultural Economics*, vol. 59, No. 3, pp. 533-537.
- Gilbert, N & Troitzsch, K 2005, *Simulation for the social scientist*, 2nd edition, Open University Press.
- Goddard, EW & Amuah, AK 1989, 'The Demand for Canadian Fats and Oils: A Case Study of Advertising Effectiveness', *American Journal of Agricultural Economics*, vol. 71, no. 3, pp. 741-749.
- Hall, J, Robertson, N & Shaw, M 2001, 'An investigation of perceived value and consumable goods', *Asia Pacific Advances in Consumer Research*, vol. 4, pp. 350–354.
- Hogg, MK, Cox, AJ & Keeling, K 2000, 'The impact of selfmonitoring on image congruence and product/brand evaluation', *European Journal of Marketing*, vol. 34, no. 5/6, pp. 641–666.
- Holland, JH 1995, *Hidden order: How adaptation builds complexity*, Addison-Wesley, Reading, USA.
- Holt, D 1997, 'A poststructuralist lifestyle analysis: Conceptualizing the social patterning of consumption in postmodernity', *Journal of Consumer Research*, vol. 23, pp. 326–350.
- Johnson, JP & Myatt, DP 2006, 'On the Simple Economics of Advertising, Marketing, and Product Design', *The American Economic Review*, vol. 96, no. 3, pp. 756-784.
- Kaiser, HM 1997, 'Impact of National Generic Dairy Advertising on Dairy markets, 1984-1995', *Journal of Agricultural and Applied economics*, vol. 29, No. 2, pp. 303-313.
- Kaldor, NV 1950, "The Economic Aspects of Advertising," *Review of Economic Studies*, vol. 18, pp. 1-27.
- Kantamneni, SP & Coulson, KR 1996, 'Measuring perceived value: scale development and research findings from a consumer survey', *The Journal of Marketing Management*, vol. 6, no. 2, pp. 72-86.
- Kinnucan, H & Belleza E 1991, 'Advertising Evaluation and Measurement Error: The Case of Fluid Milk in Ontario', *Canadian Journal of Agricultural Economics*, vol. 39, pp. 283-297.

Rahman & Bakr

- Kleine III, RE, Kleine, SS & Kernan, JB 1993, 'Mundane consumption and the self: A social-identity perspective', *Journal of Consumer Psychology*, vol. 2, no. 3, pp. 209–235.
- Krishnamurthi, L & Raj, SP 1985, 'The Effect of Advertising on Consumer Price Sensitivity', *Journal of Marketing Research*, vol. 22, pp. 119-29.
- LeBaron, B 2000, 'Agent-based computational finance: Suggested readings and early research', *Journal of Economic Dynamics and Control*, vol. 24, no. 5–7, pp. 679–702.
- Marshall, A 1920, *Industry and Trade: A Study of Industrial Technique and Business Organization; and of Their Influences on the Conditions of Various Classes and Nations*, 3rd ed. Macmillan & Co, London.
- Miller, JH & Page, S 2007, *Complex adaptive systems: An introduction to computational models of social life*, Princeton University Press.
- Packard, V 1957, *Hidden Persuaders*, D. McKay Co. New York, USA.
- Petrick, JF 2002, 'Development of a multi-dimensional scale for measuring perceived value of a service', *Journal of Leisure Research*, vol. 34, no. 2, pp. 119–136.
- Pham, MT, Cohen, JB, Pracejus, JW & Hughes, GD 2001, 'Affect monitoring and the primacy of feelings in judgment', *Journal of Consumer Research*, vol. 28, pp. 167–188.
- Piggott, NE, Chalfant JA, Alston JM & Griffith GR 1996, 'Demand Response to Advertising in the Australian Meat Industry', *American Journal of Agricultural Economics*, vol. 78, pp. 268-279.
- Pollak, RA & Wales TJ 1992, *Demand System Specification and Estimation*, Oxford University Press, Oxford, UK.
- Robinson, J 1933, *Economics of Imperfect Competition*, MacMillan and Co. London, UK.
- Shawarz, N 2000, 'Social judgment and attitudes: Warmer, more social, and less conscious', *European Journal of Social Psychology*, vol. 45, no. 513–523.
- Shiv, B, Edell, JA & Payne, JW 1997, 'Factors affecting the impact of negatively versus positively framed advertising messages', *Journal of Consumer Research*, vol. 24, pp. 285– 294.
- Siemer, M & Reizenzein, R 1998, 'Effects of mood on evaluative judgments: Influence of reduced processing capacity and mood salience', *Cognition and Emotion*, vol. 12, pp. 783–850.
- Sirgy, J & Johar, JS 1999, 'Toward an integrated model of self-congruity and functional congruity', *European Advances in Consumer Research*, vol. 4, pp. 252– 256.
- Spence, M 1980, 'Notes on Advertising, Economies of Scale, and Entry Barriers', *Quarterly Journal of Economics*, vol. 95, pp. 493-507.
- Telser, LG 1962, 'Advertising and Cigarettes', *Journal of Political Economy*, vol. 70, pp. 471-99.
- Telser, LG 1964, 'Advertising and Competition', *Journal of Political Economy*, vol. 72, pp. 537-62.
- Voase, R 2002, 'Rediscovering the imagination: Investigating the active and passive visitor in the 21st century', *International Journal of Tourism Research*, vol. 4, pp. 391–399.