A Novel Model to Promote the Life Standards of Low-income Group by E-marketing Modern Technology: A Case Study of Iran

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Abstract

Objectives: Reasonable pricing for IT technologies has led to an increase in the internet penetration ratio among low-income group. This research presents a model for improving BOP life-style using e-marketing tools. **Methods/Analysis:** The research type is developmental-applied. Firstly, the conceptual model and secondly, the operational model have been proposed. Additionally, the research is of the correlation type. Structural Equation Modeling (SEM) has been selected as the methodology. The statistical population is the BOP of Tehran. The sample size is estimated based on the Morgan's table for 330. The sampling method is Purposive. The research tool is questionnaire that verified by Cronbach Alpha. **Findings:** The suggested model in the present research is aimed at the BOP and through asking the BOP individuals about their thoughts, shopping behavior and opinions has studied the direct and indirect effects of use of electronic marketing tools on awareness-raising and empowerment of the BOP. Results indicated e-marketing tools are widely used among the BOP individuals. This research also determined that awareness-raising is the only way to affect the consumption basked of the BOP and to improve it. On the other hand awareness-raising leads to empowerment of the BOP and they can take up management of the goods in their consumption basket and improve it. The findings of this research have direct usage in improvement of life standards of BOP individuals, increasing benefit margin of production establishments and also creation of healthy rivalry among active enterprises. **Novelty/ Improvement:** The novel model of this research leads to an eye-catching improvement in the BOP consumption basket. This improvement can be achieved through purchasing cheaper, more diverse, and better quality goods.

Keywords: BOP, Bottom of the Pyramid, E-Marketing Technology, E-Marketing Tools, Life Standards, Low-Income Group

1. Introduction

The life style of the Bottom Of the Pyramid (BOP) individuals differs from the middle or higher levels of the social pyramid. There are disagreements among economists and experts in this field on the definition of the low-income group. As some researchers have set the monthly income of less than 4,500,000 IRR (Rials) as the basis and some others considering the difference in the expenditure levels in different countries have set the monthly income range between 12,000,000 to 23,000,000 IRR as the basis[1]. Recent estimates indicate that 65 percent of the world population currently falls into the low-income category and this is nearly a four-billion population[2].

Experts in marketing for the BOP have underlined that business models and plans which are designed for entering this market must aim at ensuring bilateral success of all stakeholders, especially the customers. Success of such plans requires participation by the BOP and attracting their trust and confidence which in turn makes use of modern marketing technology especially electronic marketing necessary. It is noteworthy that electronic marketing tools and relevant topics are quite modern and possess great capabilities in resolving economic and management-related issues. On the other hand implementation of solutions provided in valid research in the BOP field faces various limitations due to geographical vastness and the large number of individuals in this group

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and, most importantly lack of clear formal statistics in this field[3].

The informatics and communications infrastructure necessary for employment of electronic marketing tools have been created in Iran in the recent years. Reasonable pricing for using the internet and cellular services by the BOP has led to an increase in the internet penetration ratio among various groups of the population. The present research intends to provide a model for improvement of the consumption basket of the BOP through using accessible electronic marketing infrastructure and tools. This improvement will eventually results in an improvement in the life style of the BOP.

2. Hypothetical Basis of the Research

The science of marketing is one of the most effective factors in the livelihood of all the groups of any society. In the past decade many experts in the fields of marketing and researchers focused on poverty line have studied the potential and practical challenges of the BOP market through a large number of research articles and papers. These researchers believe that the BOP market is an unknown realm and the known elements of this market are of a different nature compared to the known elements of conventional markets. The research conducted in this area shows that the BOP market is one with various layers[4].

Therefore, adoption and implementation of comprehensive strategies in this market would be an erroneous undertaking. Researchers in the field of BOP have deliberated the political, cultural and economic challenges existing in the BOP community and have concluded that in order to effectively implement strategies a close cooperation and coalition between companies and governments is inevitable. Among the technologies that have affected large-scale plans as well are the internet and electronic tools in the field of information and communication[5]. Latest formal researches published by the management center for national development of internet indicate that the internet penetration ratio in Iran, with over 40 million active users, is over 53 percent. This ratio stands at nearly 77 percent in the Tehran (capital city of Iran) metropolitan area. According to the formal report by this center there are over 9,400,000 active internet users in the capital city. This wide use of internet with its relatively low

cost provides a special capacity to improve the efficiency of poverty alleviation strategies. Availability of this technology in the majority of places in the country even in deprived and rural areas has made it possible to utilize it in economic, social and cultural development plans.

Findings of scientific research and studies in the recent years indicate that the livelihood of the BOP individuals faces various problems and requires special management especially by the same individuals themselves. This management can be conducted through improvement of the consumption basket of this group and this is the most important topic that is addressed in the present research. A wide range of population in developing countries such as Iran consists of the low-income groups. Since a large proportion of this group's income is allocated to purchasing essential goods and services, adjusting the consumption basket of the BOP is one of the most critical issues that strategic manager face. This improvement can be achieved through lowering expenditures and improving the quality of goods and services. On the other hand electronic marketing has much higher capacities than traditional marketing and by employing its tools purchasing goods and service can be improved. Use of these tools to improve goods and services in the consumption basket of the BOP in terms of quality is an important issue which is the basis of the present research.

3. Research Background

Several articles have been published on the field of the BOP in the past decade. The majority of these have been case studies in very poor regions and countries such as India, Caracas, Sudan and South Africa. Research topics have covered marketing cheap vehicles, micro-finances, production of detergents in small economical packages and employment of the BOP housewives in retail[6,7]. The notable point is that the majority of these studies are of a journalistic nature and proposed models in the field of the BOP are very limited[8]. Followed by extensive study in this field the researcher realized that high level of sensitivity in countries regarding issues related to this group from the one hand and the tempting worldwide multi-billion Dollar market on the other has caused governments to exert wide control over such studies and researches, so that many countries refrain from providing accurate and formal statistics on the poverty line and their BOP population. The above-mentioned limitations are serious obstacles hindering the progress of effective studies in this

field[9]. A number of articles that have played a major role in studies in the field of the BOP are briefly introduced in the following paragraphs.

Prahalad as the pioneer of the base of the pyramid discussions introduced the main characteristics of the BOP market and its unique features in a study in 1998. Afterwards in various articles he underlined that the BOP market is a profitable one due to the existence of billions of potential customers. In 2006, considering the definition of the BOP in the social and economic pyramid, he considered this 2.5 to 4 billion population as the target group for BOP development plans. Today this population stands at over four and a half billion. Findings of studies in the recent years indicate that focusing on this group not only will promise large profit for the companies but it will also lead to positive social effects through provision of services and products for the BOP.

In 2002 Prahalad and Hart published an article entitled 'opportunities in the BOP market' and introduced the mentioned market as a global opportunity for organizations and companies. The commercial infrastructure considered by the above researchers included four dimensions as follows: 1) Increasing purchasing power, 2) Improving the distribution system, 3) Reforming local options and 4) Improving culture of the consumers. Each of the stated dimensions impacts the others and is affected by them simultaneously and the key for success of any marketing strategy in the field of the BOP is taking all these dimensions into account.

Pitta, Guesalaga and Marshall provided five major pointers to companies that plan to make profit by provision of services to the BOP: Firstly, previous models would be of no applicability in the BOP-related strategies[10]. Secondly, any naive assumptions that creation of changes in products and selling them to the BOP would provide the company with a sustainable and certain profit will ultimately fail. In other words, companies must have accurate information and thorough knowledge of the real needs of the BOP in order to eliminate those needs and creating needs for the BOP through advertisement as done in other marketing methods suitable for middle-class and upper-class groups would prove to have rather small effect. Thirdly, to succeed in the BOP market the companies must get close to the BOP and providing prescriptions without close contact would be futile. Fourthly, elimination of additional costs is only viable to the point that only essential cost of the product or the service is taken from the consumer which requires financial management,

industrial accounting, process of calculating the total cost and optimization of production lines. The fifth and the last one, stipulated by Pitta, is that some products are of no use to poor or very poor individuals, therefore, their customization or localization would be tantamount to failure[11].

On the subject of improving the share of electronic products in the consumption basket of the BOP Subramanian published a research paper in 2008 titled 'coherent solution to understanding behavior of BOP consumers'. This paper is critical of the studies conducted on the issue of the BOP market. This research puts emphasis on the fact that sustainability of such marketing efforts has always been questionable and as a result the approach of institutions has been short-term and could be considered as acts of profiteering through provision of low-quality goods and services. It is emphasized in this research that the BOP market is a 5-trillion-dollar market including food items at nearly 3 trillion dollars, energy at 500 billion dollars, and housing at 3 billion dollars and transportation at 2 billion dollars as the four highest proportions of this market.

The notable point is the share of information and technology which in the BOP market constitutes a one-percent proportion of the consumption basket at 50 billion dollars. In view of the fact that information and technology are the necessary infrastructures for cultural development and improving awareness among all people, especially the BOP, allocation of this inconsequential share sheds light on the cause of strategic disappointments in the BOP-related fields. Publishers of this paper have stated that a coherent marketing network which covers improving standard of living levels is the only solution to ensure sustainability of BOP marketing policies.

Aneel Karnani, one of the most prominent experts in the field of the BOP, published an article in 2009 titled 'romanticizing the poor'. In this article he stated that current marketing strategies, in the field of the BOP and the poor are quite vague and are bereft of necessary planning. It is also emphasized in this study that only policies based on entrepreneurship and awareness-raising among the consumers could lead to sustainable development in the field of marketing[12]. According to Karnani, creation of such long-term plans on vast geographical expanses is only possible through cooperation among governments, commercial companies and non-profit organizations. The invaluable point that is underlined by Karnani is the employment of the harmful marketing policy which is

centered on provision of products with lower priorities and using advertisement as a tool. He noted that the safety margin of the economic life of the BOP individuals is very narrow and their vulnerability ratios are very high.

In order to elaborate the importance of market share of the BOP individuals, Guesalaga and Marshall conducted a research and concluded that poor individuals might be considered powerful consumers[13]. For instance, a low-income employee who supports a 10-person family is equal to a middle-class employee who only supports one person in terms of amount of shopping, while each person in the 10-person family benefit a smaller amount of services. It is claimed in this research that micro-finances can be considered a source of sustainable, reliable, and long-term income for financial institutions such as banks.

4. Provision of Hypotheses and Conceptual Model of the Research

The foundation for the conceptual model of the present research is the model chain which begins with creation of awareness on promotion of goods with better quality and prices and leads to improvement of consumption basket and consequently improvement of the standard of living levels of the families. Clearly, electronic marketing tools have been selected as the means for awareness creation[14]. Tools which are based on infrastructures such as information technology and communications and connect with the target group individuals through e-mail, SMS and online social networks and even intelligent billboards and information kiosks.

Figure 1 illustrates the conceptual model of this research. Based on this model E-marketing tools have
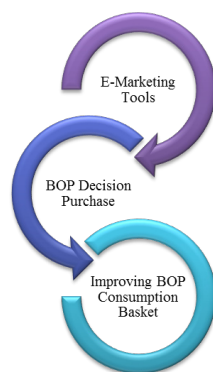

Figure 1. Conceptual Model of the Research.

an impact on the decision to purchase goods among the BOP individuals and their decisions lead to improvement in their consumption basket.

4.1 Research Hypotheses

- Use of electronic marketing tools is effective when it comes to awareness-raising among the BOP individuals.
- Use of electronic marketing tools is effective when it comes to increasing the empowerment of the BOP individuals.
- Raising the awareness of the BOP is effective in improving their empowerment.
- Raising the awareness of the BOP is effective in improving their consumption basket goods.
- Increasing the empowerment of the BOP is effective in improving their consumption basket goods.

5. Research Methodology

5.1 Research Type

The present research is developmental-applied in terms of goals and objectives. In the first step the conceptual model of the research has been formed on the basis of background and research literature and in the second step the developed operational model has been proposed. The findings of this research have direct usage in improvement of life standards of BOP individuals, increasing benefit margin of production establishments and also creation of healthy rivalry among active enterprises.

Additionally, the present research based on the nature of descriptive data is of the correlation type. One of the most common types of correlation-based research is Structural Equation Modeling (SEM) or multivariable analysis which has been selected as the methodology for the present research considering the nature of the studied variables.

Also, the research statistical population is the low income people of Tehran, the capital city of Iran who lives in rural areas and their income is less than 12,000,000 IRR. In addition the sample size is estimated based on the Morgan's reference table for 330. Therefore, 370 questionnaires were distributed by Snowball sampling method and 330 appropriate copies have been chosen to analyze.

The researcher designed a questionnaire to gather the data from low-income group. The validity and reliability

of the research tool (questionnaire) is verified by Cronbach Alpha together with the experts' modifications and changes on the aforementioned questionnaire. The Cronbach Alpha was tested over a sample of 30 and acceptable amounts were earned for each two variables.

5.2 Testing the Main Hypotheses of the Research through Structural Equation Modeling

The multivariable analysis is the most common and appropriate analytical method used in research in the field of behavioral sciences. The problems discussed in behavioral sciences are of a multivariable nature and, therefore, they cannot be studied and solved using two-variable methods (where for every run, an independent variable and a dependent variable are considered). The path analysis and structural equation analysis are the main advanced statistical methods which can be used in the multivariable analysis. These two methods are used to study causal relationships between variables in the existence of independent, proxy, and dependent variables. In the path analysis, the variables are observed variables, whereas in the structural equation modeling, the variables are all latent variables. In the present research, the multivariable analysis was conducted in order to approve/support or reject the hypotheses.

In short, structural equation modeling is a method through which relationships between research variables (independent and dependent) can be studied simultaneously while taking latent variables into consideration as well.

The structural equation modeling method is one of the main modern methodologies to solve complex models with causal relationships in social sciences. This model enables the researcher to demonstrate the simultaneous effects of variables on each other with emphasis on the role of measurement errors. In view of the fact that the majority of social sciences concepts are of a latent nature and do not yield to direct observation, measurement, or examination, the use of other variables makes them observable. Thus, the structural equation technique has come to widespread use in this scientific field. Concisely, this method examines the measurement errors (percentage of unexplained variance) for each item.

There are various methods to conduct structural equation modeling. One of the existing methods is the covariance-based structural equation modeling method.

These equations are used for normal variables and large sample volumes. Accordingly, in the present research, the LISREL software was employed to solve the model. Among the relevant software packages, the LISREL software is more commonly used. Consequently, the LISREL software was utilized in the present research to perform structural equation modeling.

Figure 2 shows the operational model for the research. This model was provided to study the effects of the independent variables of the research (level of use of electronic marketing tools) on the dependent variables (raising awareness among the BOP, increasing empowerment among the BOP, and improving the BOP household consumption basket).

5.3 Testing the Model for Household Consumption Basket Goods

Structural models include a set of correlational relationships. The H0 is used for rejecting meaningful relationships and the H1 is used for approving meaningful relationships, and it is essential that they be studied. In correlational relationships, the H0 and H1 are as follows: H0 means the two variables have no meaningful effect on each other. H1 means the two variables have a meaningful effect on each other.

The common and standard error level for studying relationships is 0.05, and the level of certainty is 0.95. On the 5-percent error level, the points of significance are in the 1.96 and –1.96 normal curves. If the meaningfulness
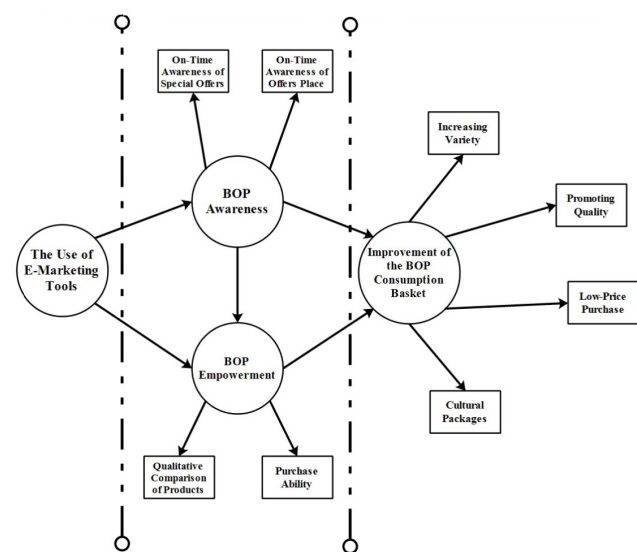

Figure 2.   The Operational Model of the Research.

coefficient of the correlation test (T-VALUE) is over 1.96, the H0 is rejected and the H1 is approved and vice versa. In other words, in the normal curve, if the observed error level falls within the 1.96 to –1.96 span, the H0 and a lack of a meaningful relationship between the variables is approved and if the observed error level is greater than the 1.96 point of significance and smaller than the –1.96 point of significance, the H1 and existence of a meaningful relationship is approved.

Figures 3 and 4 show the results of testing the model in standard estimation and coefficient significance test modes.

6. Testing the Modified Model of the Research

The final test in previous section for consumption basket products resulted in rejecting the second hypothesis. This hypothesis showed the effect of the level of use of electronic marketing tools on increasing empowerment among the BOP. The rejection of this hypothesis did not refute the impact of the use of electronic marketing tools on increasing empowerment, and only a direct effect was rejected. In other words, as is shown by the model, this effect through stimulating the awareness-raising factor could exert an impact on increasing empowerment; i.e. it would indirectly have a positive effect on the BOP empowerment. A reviewing and reexamining of the research literature also rendered the rejection of this hypothesis probable. Because according to the provided model, the BOP would be empowered in consequence of a rise in their awareness level, which in turn would lead to empower them through the use of electronic marketing tools. Therefore, a direct path between the use of electronic marketing tools and BOP empowerment seems improbable. In view of this clarification, the model was modified and re-tested.

In testing the modified model, the direct relationship between the level of use of electronic marketing tools and increasing empowerment among the BOP was omitted. Figure 5 shows the modified operational model of the research.

The results of the testing for the household consumption basket products are presented separately in Figures 6 and 7.
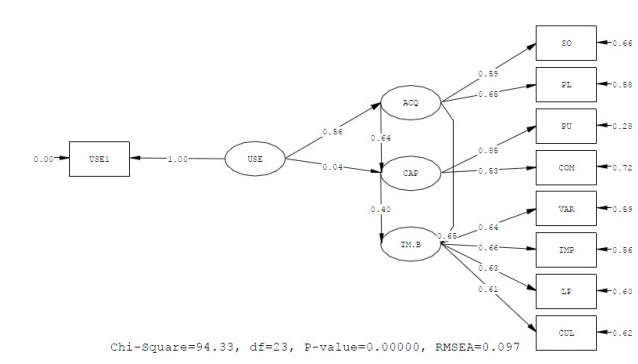

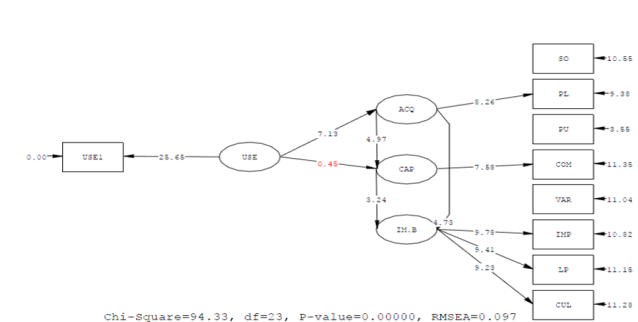**Figure 3.** Testing the Model in Standard Estimation Mode.

Figure 5. The Modified Operational Model of the Research.

Figure 4. Testing the Model in Coefficient Significance Test Mode.

Figure 6. Testing the Modified Model in Standard Estimation Mode.

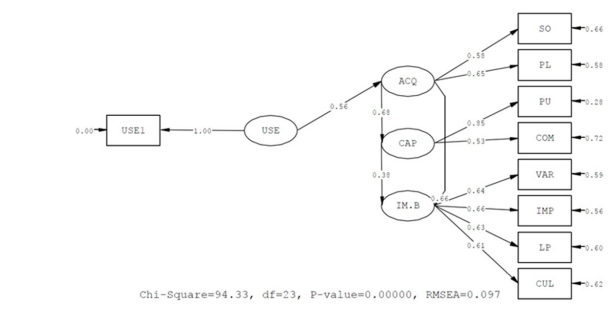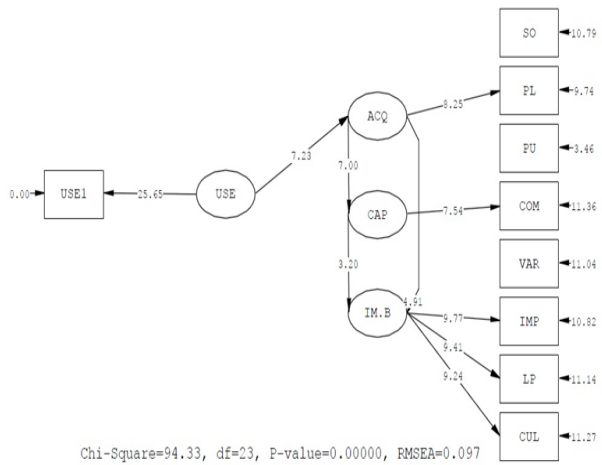**Figure 7.** Testing the Modified Model in Coefficient Significance Test Mode.

7. Results and Discussion

The test of the conceptual model in Section 5.3 resulted in rejecting the second hypothesis. This hypothesis showed the effect of the level of use of electronic marketing tools on increasing capability among the BOP. The rejection of this hypothesis did not refute the impact of the use of electronic marketing tools on increasing capability, and only a direct effect was rejected. In other words, as is shown by the model, this effect through stimulating the awareness-raising factor could exert an impact on increasing capability; i.e. it would indirectly have a positive effect on the BOP capability. Table 1 shows the relationship between the variables of the model.

Table 1. Causal relationship between the variables (main hypotheses)

Main Hypotheses	Standard Estimation	T-VALUE	
1- The impact of using e-marketing tools On BOP awareness	0.49	7.13	✓ Approved
2- The impact of using e-marketing tools On BOP empowerment	0.71	0.45	× Rejected
3- The impact of BOP awareness on BOP empowerment	0.64	4.97	✓ Approved
4- The impact of BOP awareness on improving BOP basket	0.29	4.73	✓ Approved
5- The impact of BOP empowerment on improving BOP basket	0.40	3.24	✓ Approved

Table 2. The Goodness-of-fit indices for the Conceptual Model

Index	Standard Limit	The Earned Amount
χ^2/df	Less than 3	4.10
RMSEA	Less than 0.1	0.097
AGFI	More than 0.8	0.88
GFI	More than 0.9	0.94
NFI	More than 0.9	0.94

A reviewing and reexamining of the research literature also rendered the rejection of this hypothesis probable. Because according to the provided model, the BOP would be empowered in consequence of a rise in their awareness level, which in turn would lead to an increase in their capabilities through the use of electronic marketing tools. Therefore, a direct path between the use of electronic marketing tools and BOP empowerment seems improbable. In view of this clarification, the model was corrected and re-tested.

In testing the corrected model, the direct relationship between the level of use of electronic marketing tools and increasing capability among the BOP was omitted. The results of the testing for the household expenditure basket are presented below.

Table 4 depicts the estimation results for products respectively and indicate relative appropriateness of the indices. Concerning the LISREL output, the ratio of χ^2 to df was 4.10. It is noteworthy that the RMSEA value

Table 3. Causal relationship between the variables (main hypotheses in corrected model)

Main Hypotheses	Standard Estimation	T-VALUE	
1- The impact of using e-marketing tools On BOP awareness	0.49	7.13	✓ Approved
2- The impact of using e-marketing tools On BOP empowerment	0.71	0.45	✓ Approved
3- The impact of BOP awareness on BOP empowerment	0.64	4.97	✓ Approved
4. The impact of BOP awareness on improving BOP basket	0.29	4.73	✓ Approved
5- The impact of BOP empowerment on improving BOP basket	0.40	3.24	✓ Approved

Table 4. The Goodness-of-fit Indices of the Corrected Model

Index	Standard Amount	The Earned Amount
χ^2 / df	Less than 3	4.10
RMSEA	Less than 0.1	0.094
AGFI	More than 0.8	0.89
GFI	More than 0.9	0.94
NFI	More than 0.9	0.94

for goods stood at 0.094 and that that the allowed limit for RMSEA is 0.1. The AGFI, GFI, and NFI indices were 0.89, 0.94, and 0.94, correspondingly, all of which indicate appropriate model goodness of fit.

8. References

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