

# A New Paradigm to Evaluate the BOP Population by Considering the Effects of Inflation Rate: A Real Case Study

Dr. Nasrin Jazani and Ahdieh Sadat Khatavakhotan

**Abstract**—Despite disagreements in Bottom of the Pyramid definition, there is a common idea declares that the Bottom of the Pyramid market with billions potential consumers is the most profitable market. The huge 2.5 to 4 billion low income population is the main goal of global marketing plans. The research done in the recent years shows that Bottom of the Pyramid marketing has remarkable benefits for companies and also social and cultural improvements for poor level of the society. In this paper a case study has discussed BOP market size in Iran in subsequent years 2007 and 2008. The suggested model helps calculating the Bottom of the Pyramid population. In this model two variables are assumed: inflation rate and income rate. The reason is the annual increasing inflation rate in Iran which makes the purchasing power less gradually. However, most marketing experts have only considered \$2 daily income as BOP border. Calculating the approximate population of low income people in Bottom of the Pyramid in Iran helps to support them by predefined enrichment plans. The inflation rate, population growth rate, and average income applied in the case study are all extracted from formal reports of Central Bank of the Islamic Republic of Iran and Statistical Centre of Iran.

**Index Terms**—BOP Population, Household Expenditure, Inflation Rate, Purchasing Power

## I. INTRODUCTION

Bottom Of the Pyramid or Base Of the Pyramid (BOP) is defined as a common vocabulary in economics and business. There are some disagreements in defining low income group amongst economics experts and professionals. Some researchers consider the classification based on annual salary less than \$1500 while the others define lower than \$700 or even \$400. However the most applicable and reliable definition of BOP group refers to Karnani that emphasizes 2.5 billion people of the world population pass their lives hardly with less than \$2 a day [1]. Various papers discussed BOP and BOP marketing to gain benefits from this BOP trillion dollar potential market [2]. This trend is accelerating during last two years although the criticizing aspects of BOP are also increased. For example despite the initial attention to the BOP market plans, these plans did not make any eye catching improvement in poor people lifestyle. The BOP marketing plans are just focused to absorb a part of 13 to 15

trillion dollar of BOP consumer price index. However the related research by economics professionals declares that the BOP consumer price index estimation is not realistic and the real size of the BOP global market is just 360 billion dollar [3].

The outcomes of researches done in BOP area have applied in the current paper. The authors presented a novel model based on two important variables, respectively increasing inflation rate and income rate. The model calculates the BOP population. The latest available formal data announced by Central Bank of the Islamic Republic of Iran (CBI) and Statistical Centre of Iran (SCI) belong to 2008. These data applied in the model and the case study is completed by sketching the related diagrams and tables. In the next section a brief BOP literature review is discussed.

## II. BRIEF LITERATURE REVIEW FOR BOP

Prahalad has discussed about BOP in various papers since ten years ago. He initiated the BOP idea by discussing about fortunes at the bottom of the pyramid. Other researchers continued his way and analyzed different aspects of BOP in some case studies. The BOP streamline has started almost 2002 and still continues. Among all the BOP studies, real case studies of lower income countries and the Third World region are remarkable. Micro loans and petit packaging in hypermarkets are the two most famous activities done by suppliers for this level of people. There is another category of literature which recently discusses about the ethical issues and concerns in BOP marketing. Table 1 depicts a brief literature review about BOP. The chronic arrangement of this table shows the gradual improvement in this important issue.

TABLE I: A BRIEF LITERATURE REVIEW FOR BOP

Name / Year	Title of Research / Brief Content
Prahalad, and Hart, 2002	<i>Fortunes at the BOP</i> [4] : Increasing BOP purchasing power
Kim and Mauborgne, 2005	<i>Blue Ocean Strategy</i> [5] : Creating extra value for lower level
Pitta, Guesalaga, and Marshall, 2008	<i>The quest for the fortune at the BOP: potential and challenges</i> [6] : NGOs should support extra costs of BOP especially in medical care
Bang and Joshi, 2008	<i>Conceptualization of Market Expansion Strategies in Developing Economies</i> [7] : Different cultures in BOP level is an obstacle for integrated strategy

Manuscript received September 21, 2011; revised September 30, 2011.

Dr. Nasrin Jazani, Ahdieh Sadat Khatavakhotan, department of Business Management, Faculty of Management and Accounting, Shahid Beheshti University, Tehran, Iran

Wood, and Franzak, 2008	<i>Successful marketing by multinational firms to the BOP [8] : Empathy with BOP instead of marketing</i>
Sridharan, and Viswanathan, 2008	<i>Marketing in subsistence marketplaces: consumption and entrepreneurship in a South Indian context [9] : South India case study</i>
Ireland, 2008	<i>Lessons for successful BOP marketing from Caracas' slums [10]: Caracas case study</i>
Rangnekar, 2009	<i>Nano Strategy: Focusing on the Bottom of the Pyramid [11] : Presenting Nano services with reasonable quality and cost</i>
Habib, and Zurawicki, 2010	<i>The Bottom Of The Pyramid: Key Roles For Businesses [12] : Low income people in crowded families are profitable customers</i>
London, Anupindi, and Sheth, 2010	<i>Creating mutual value: Lessons learned from ventures serving BOP [13] : Evaluating 64 investing companies which support BOP</i>
Santos, and Rufin, 2010	<i>Global village vs. small town: Understanding networks at the BOP [14] : Comparing top of the pyramid and bottom of the pyramid features</i>
Karnani, 2011	<i>Microfinance needs regulations [15]:Improving microloan strategies</i>

### III. A MODEL FOR ESTIMATING BOP MARKET SIZE IN IRAN CASE STUDY

The BOP markets in the current literature basically have considered annual income for lower level of the society as a border line. In this paper Iran BOP market is targeted. Iran is located in Middle East in strategic location with reported 72 million populations in 2008 [16]. This is a developing country with %53.3 youth level. The increasing rate of inflation affects the economic growth, although it is more controlled in the past two years. Figure 1 shows the inflation rate since 2007 in Iran economy.

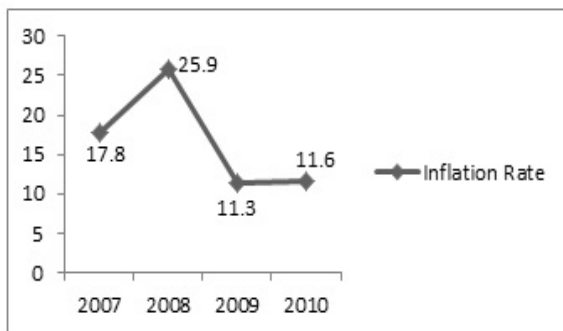


Fig. 1. Inflation rate in subsequent years (extracted from CBI) [17]

The suggested model estimated the BOP population of Iran in subsequent years 2007 and 2008 based on income rate alongside the inflation rate. By calculating purchasing power (PP) which is directly dependent on consumer price index

(CPI) reported by CBI, the inflation rate is interfered in the model:

$$\text{Purchasing Power (PP)} = \text{Income} * (1 - \text{Inflation})$$

It makes the model and results more dynamic and realistic. As it is clear in Figure 1, the inflation rate of 2007 is %17.8. Also the income rate of tenth ranking (deciles) are in 2007 are announced by Statistical Centre of Iran [18]. The center had used sampling method and around 900 samples in urban and 900 samples in rural areas are chosen. Table 2 shows the average expenditure/income ratio separately for 2007 and 2008. This ratio is decreased in 2008. Also as it is reported by CBI the general consumer price index is increased in 2008 comparing 2007. In this research the initial year is considered 2007. Based on the formal announcement of the Central Bank of the Islamic Republic of Iran (CBI) the inflation rate had increased approximately %18 in average since 2007. Also Statistical Centre of Iran (SCI) reported almost %9.8 average growth in incomes from 2007. Therefore, purchasing power decreased approximately %8 each year.

TABLE II: THE AVERAGE EXPENDITURE / INCOME RATIO IN 2007 FOR EVERY FAMILY IN IRAN.

	2007
Income	88219386
Expenditure	94214107
Expenditure/Income	% 1.068

TABLE III: THE AVERAGE EXPENDITURE / INCOME RATIO IN 2008 FOR EVERY FAMILY IN IRAN

	2008
Income	93602834
Expenditure	99191330
Expenditure/Income	% 1.059

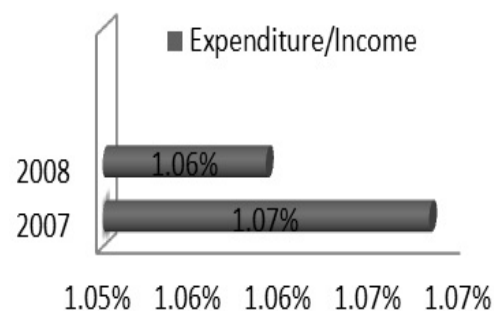


Fig. 2. A comparison Expenditure/Income rate

In Tables 4, the results of final calculations of purchasing power in 2007 are inserted. Based on the BOP border, \$2 daily income, it is clear that in 2007 the first three tenth are located in BOP level. However in 2008, the first four tenth are placed in BOP as it is shown in table 5. Table 5 has another column named purchasing Power. The Purchasing power rate of 2008 is calculated by both variables of the proposed model, inflation rate of 2007 which is %17.8 and the income rate for every tenth ranking (deciles).

TABLE IV: INCOME AND EXPENDITURE RATES IN 2007

	2007 (\$)	
	Income	Expenditure
1 <sup>st</sup> Tenth	393	420
2 <sup>nd</sup> Tenth	548	585
3 <sup>rd</sup> Tenth	696	743
4 <sup>th</sup> Tenth	821	Non-BOP
5 <sup>th</sup> Tenth	948	Non-BOP
6 <sup>th</sup> Tenth	1180	Non-BOP
7 <sup>th</sup> Tenth	1400	Non-BOP
8 <sup>th</sup> Tenth	1760	Non-BOP
9 <sup>th</sup> Tenth	2400	Non-BOP
Last Tenth	5000	Non-BOP

TABLE V: INCOME AND EXPENDITURE RATES AND PURCHASING POWER FOR EVERY TENTH IN 2008

	2008 (\$)		
	Income	Expenditure	PP
1 <sup>st</sup> Tenth	431	456	354
2 <sup>nd</sup> Tenth	602	638	495
3 <sup>rd</sup> Tenth	764	809	628
4 <sup>th</sup> Tenth	901	954	741
5 <sup>th</sup> Tenth	1040	Non-BOP	Non-BOP
6 <sup>th</sup> Tenth	1295	Non-BOP	Non-BOP
7 <sup>th</sup> Tenth	1538	Non-BOP	Non-BOP
8 <sup>th</sup> Tenth	1932	Non-BOP	Non-BOP
9 <sup>th</sup> Tenth	2635	Non-BOP	Non-BOP
Last Tenth	5490	Non-BOP	Non-BOP

By comparing Table 4 and 5, it is clear that one more row is added to BOP level. In 2007 the first three tenths were located in BOP stage, although in 2008, four tenths are in BOP.

Figure 3 shows the purchasing power rate for every tenth of the society. For the first tenth the Purchasing Power rate is 420 \$, while this amount for the last tenth increased to 5340 \$ (see figure 3).

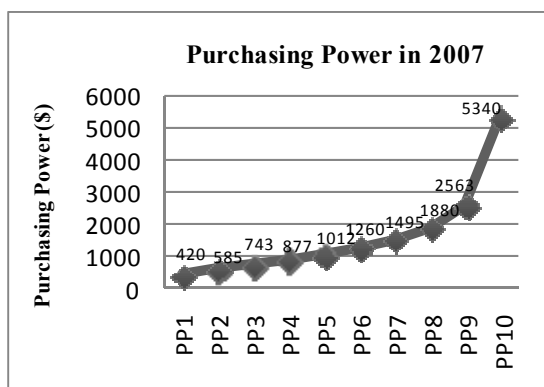


Fig. 3. Purchasing Power in 2007

Figure 4 shows the Purchasing Power for year 2008. This ratio is started by 354 \$ for the first tenth and ended by 4513 \$ for the last tenth. It is clear that the Purchasing power rate is decreased in 2008 (see figure 4).

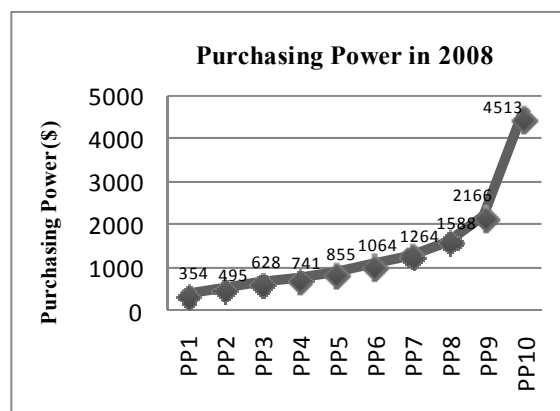


Fig. 4. Purchasing Power in 2008

Figure 5 sketches the results of Table 4 and 5. It also compares figures 3 and 4 amounts. The dashed BOP border line in the figure brightly proves that in 2007, third tenth is in BOP threshold, while in 2008 one more tenth is joined to BOP and fourth tenth is also placed in BOP threshold.

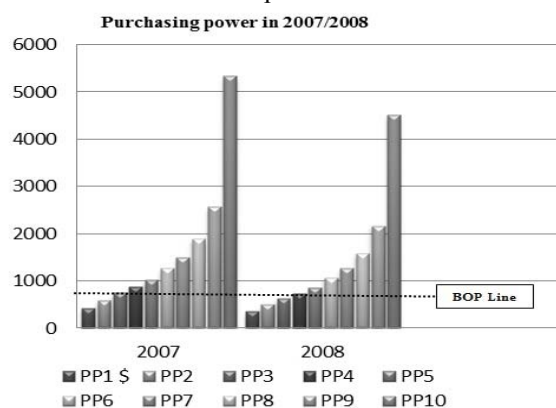


Fig. 5. BOP markets based on purchasing power (PP) in 2007 and 2008

The final and the most important step is to find the population of BOP in 2007 and 2008. The BOP populations for the first three tenths in 2007 and first four tenths in 2008 are calculated based on the average number of the samples in each tenth ranking. The average number of samples in 2007 and 2008 are almost between 2.77 persons and 4.77 persons [18]. By increasing the inflation rate, the purchasing power will decrease. Therefore, the BOP population increases. To stop this trend, the authorities consider subsidiaries and financial aids to control the BOP population. Table 6 presents the population of BOP in the aforementioned years.

TABLE VI: IRAN BOP POPULATION IN 2007 AND 2008

Tenth Ranking	2007	2008
1 <sup>st</sup>	5000000	5040000
2 <sup>nd</sup>	6430000	6480000
3 <sup>rd</sup>	7143000	7200000
4 <sup>th</sup>	Non applicable	7200000
Total	18573000	25920000

The results show that the BOP population in Iran has

increased in 2008. The low income population of 2007 is 18573000 persons, while in 2008 it converted to 25920000 persons. This result which is based on consumer price index and inflation rate will help to support BOP. On the other hand, obtaining the exact amount will lead to monitor and mitigate the potential factors.

#### IV. CONCLUSION

Entering a trillion dollar potential market such BOP market has both opportunities and threats. The huge size of the market makes it more risky. Therefore, accurate contingency plans are needed to handle any upcoming issue. On the other hand, the ethical issues are the main concerns of the BOP market researchers. Investing companies should consider the cultural and social lifestyle of poor people and create mutual value and benefits for both sides.

In this paper the population of BOP market of Iran is calculated for 2007 and 2008. However most of the marketing experts considered \$730 annual income as a border of BOP, purchasing power (PP) and inflation rate could be appropriate compliments for income which are recommended. By considering the reported Iran inflation rate of year 2007, the population of BOP has converted from 18573000 persons to 25920000 persons. Also the difference between top of the pyramid and bottom of the pyramid is increasing gradually. Obtaining BOP population for each year will help to plan accurately for low income level of the society and will make the BOP monitoring and mitigation process possible in the near future.

#### REFERENCES

- [1] Karnani, A. (2009). Romanticizing the Poor. *Stanford Social Innovation Review*, 7(1), 38-43.
- [2] Spitzack, H. (2011). An integrated model of humanistic management: JBE. *Journal of Business Ethics*, 99, 51.
- [3] Subrahmanyam, S. & Tomas Gomez, J. (2008). Integrated approach to understanding consumer behaviour at bottom of pyramid. *The Journal of Consumer Marketing*, 25(7), 402-412.
- [4] Prahalad, C. K. & S. Hart. (2002). 'The Fortune at the Bottom of the Pyramid', *Strategy Business* 26, 2-14.
- [5] Kim, W.C., Mauborgne, R. (2005). *Blue Ocean Strategy*. Harvard Business School Press, Boston, Ma.
- [6] Dennis A., Pitta, Guesalaga, R. & Marshall, P. (2008). The quest for the fortune at the bottom of the pyramid: potential and challenges. *The Journal of Consumer Marketing*, 25(7), 393-401.
- [7] Bang, Vasant V. & Joshi, L. (2008). Conceptualization of Market Expansion Strategies in Developing Economies. *Academy of Marketing Science Review*, 2008, 1.
- [8] Van R. Wood, Dennis A. Pitta, & Frank J. Franzak. (2008). Successful marketing by multinational firms to the bottom of the pyramid: connecting share of heart, global "umbrella brands", and responsible marketing. *The Journal of Consumer Marketing*, 25(7), 419-429.
- [9] Sridharan, S. & Viswanathan, M. (2008). Marketing in subsistence marketplaces: consumption and entrepreneurship in a South Indian context. *The Journal of Consumer Marketing*, 25(7), 455-462.
- [10] John Ireland. (2008). Lessons for successful BOP marketing from Caracas' slums. *The Journal of Consumer Marketing*, 25(7), 430-438.
- [11] Rangnekar, S. (2009). Nano Strategy: Focusing on the Bottom of the Pyramid. *SIES Journal of Management*, 6(2), 53-56.
- [12] Habib, M., & Zurawicki, L. (2010). The Bottom Of The Pyramid: Key Roles For Businesses. *Journal of Business & Economics Research*, 8(5), 23-32.
- [13] London, T., Anupindi, R., Sheth, S. (2010). Creating mutual value: Lessons learned from ventures serving base of the pyramid producers, *Journal of Business Research*, Volume 63, Issue 6, Subsistence Marketplaces: Sustainable Consumption and Commerce For a Better World, June 2010, Pages 582-594, ISSN 0148-2963.
- [14] Rivera-Santos, M., Rufin, C. (2010). Global village vs. small town: Understanding networks at the Base of the Pyramid, *International Business Review*, Volume 19, Issue 2, International Business, Corporate Social Responsibility and Sustainable Development, April 2010, Pages 126-139, ISSN 0969-5931.
- [15] Karnani, A. (2011). Microfinance needs regulations. *Stanford Social Innovation Review*, 9(1), 48-53.
- [16] Asia-Pacific Population Journal, United Nations. "A New Direction in Population Policy and Family Planning in the Islamic Republic of Iran"
- [17] Official Website of the Central Bank of the Islamic Republic of IRAN: <http://www.cbi.ir/simplelist/1418.aspx>
- [18] Official Website of the Statistical Centre of IRAN: <http://amar.sci.org.ir/Detail.aspx?Ln=F&no=263466&S=TP>