Consumer Demographics and Irrational Behaviour – An Empirical Study

Rishita Das[1]
Munish Jindal[2]

Abstract

Irrationality in Consumer Behaviour has been studied very theoretically over the years. The paper proposes a quantitative measure of irrationality and studies the relationship between irrational behaviour and certain consumer demographics like age, gender and earner vs. non earners. The study was done on the last purchase of consumer durables. Two population z test and regression were the statistical tools used to find the relationships. The study finally introduces the concept of perceived irrationality, which is more practical from the consumer's point of view.

Keywords: *Irrationality, Measurement, Demographics*

Introduction

"The irrationality of a thing is no argument against its existence, rather a condition of it (Nietzcshe, 1878). Based on this vision, Gary S. Becker was perhaps the first man to have formally studied the irrational consumer behaviour. At his time the single accepted definition of rational behaviour was consistent maximization of utility function (Becker, 1962). Amidst strong criticisms against this theory, Becker put forward an argument that encompassed both rationality and irrationality. Soon after, his theories were put under question that the demand curve of irrational behaviour was not only related to the price but also the income (Chant, 1963). And true as well. As we move through the paper it would be prominent that irrationality index has got a lot to do with income groups. Few years later, when Keynesian economics fell flat and could not meet the crisis, again research gave way to understanding irrational behaviour. Keynesian economics was also based on the micro-economic foundation of rational behaviour. But it was seen that people at times act downright irrationally and make all theories blunt (Akerlof, Yellen 1987). So by then it was clearly acknowledged that consumer behaviour was practically irrational and irrationality is an implicit economic variable.

Thereafter came in the formal models of irrational behaviour. Several such models were studied and explored and the model based on psychological feeling of ambivalence was put in the

[1] Research Associate, School of Management, University of Engineering and Management Jaipur
[2] Founder & CEO of HoverRobotix and Founder President of MENTORx

forefront (Opaluch, Segerson 1989). In a game theoretic model, it was proved players deliberately act irrationally for additional gains later (Yueng, 2006). An optimum irrational behaviour model was developed to prove irrational behaviour can improve welfare in the market (Feigenbaum et al, 2011). Lens model was proposed for irrational purchase behaviour that consumers look at the outside world and form their individualistic preferences (Manhas, 2012). Hence, each customer's viewpoint would be different. What effects irrational behaviour has also been researched as prices-quality effect, framing, lacking effect etc. (Partner, 2015).

All these studies that were briefly discussed explains irrationality from various angles. But what do we do with it, if a marketier cannot predict the irrationality of its customer? This paper tries to develop a relationship between irrationality and consumer demographics that would help understand the customer behaviour better under a more practical scenario. At first, we propose a quantitative measure of irrationality based on consumer surplus and thereafter link it to consumer demographics through empirical study on consumer durables mostly. However, other less priced products are also considered for the group of non-earners. The sole purpose of taking consumer durables is that the fluctuations in the irrationality are more prominent because of the high price. The model can be extended to other goods as well with certain limitations that will be discussed in the latter part of the paper.

Methodology

An empirical study was conducted on a sample of 200 people to collect responses regarding their latest purchase of consumer durables. The data of only the latest purchase was considered since it would have been easier for the respondent to remember the three different price – Maximum, Minimum and the Actual. Details of this issue will be discussed in the next section. The demographics of the samples are presented in Fig 1(a), 1(b).

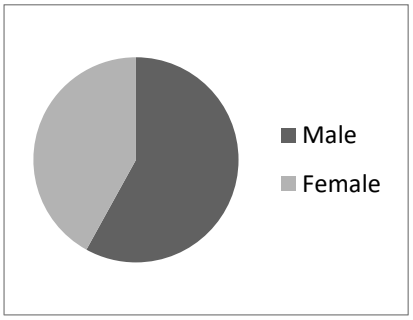


Figure 1(a)

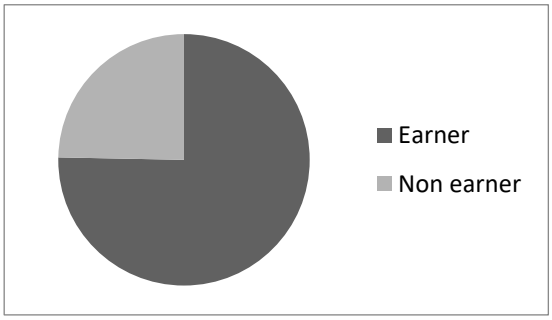


Figure 1(b)

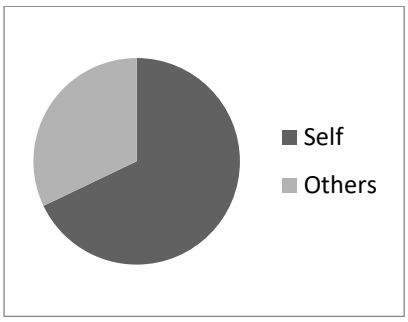


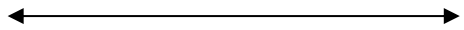
Figure 1 (c)

Thirty-eight responses were rejected because of non-conformity of the required information. A net sample of 162 respondents was carried out for statistical analysis. The primary evaluation was done based on gender, earners vs. non-earners, buying for themselves or others, number of dependents and age. Figure 1(a) represented 94 male and 68 female respondents. In fig 1(b) we see 122 earners and 40 non-earners i.e. students or housewife. Few retired category responses were also observed but since they had number of dependents, they were also considered earners. Fig 1(c) projects whether the commodity was purchased for themselves or others. 110 respondents purchased for themselves and 52 for others. This differentiates the respondents into customers and consumers.

At first the measure of irrationality was developed and then independent sample z test was conducted for identifying the degree of irrationality based on earners and non-earners and gender. Simple regression was conducted for identifying relationship between each of the other dependent variables and irrationality.

Measurement of Irrationability

Measurement of buyer's irrational behaviour is a new proposition of this paper. No close literature exists on measuring irrationality. The primary reason being irrationality is never an absolute value. No one can be perfectly rational or perfectly irrational. Fig 2 shows the rationality-irrationality continuum. There both sides extend to infinity and buyers fall somewhere in the middle.



Perfectly rational **Perfectly irrational**

Figure 2: Rationality Continuum

This paper proposes a measurement based on the cost of the product. Three information were collected from the survey: 1. The actual cost of the product, 2. The minimum price that the buyer had in mind and 3. The maximum price he would have paid to purchase the product.

The measurement had two components. One, the cost with respect to the minimum price, given as C/Min. The thing it measures is whether the actual price is lower than the minimum price. If it is so, the buyer is rational. We assume that the buyer has searched enough to get an estimate of the lowest cost. If the quotient gets higher that 1, it signifies irrationality. The higher it is,

the more irrational the buyer is. As stated in figure 2, there is no limit of irrationality. The second component is C/Max, i.e. cost of the product by the maximum price he would have paid. Here closer the maximum price is to the actual the more rational the buyer is. Some exceptions are where the buyer purchases the product at a cost higher than the maximum perceived amount. For them the value would be greater than 1 and they are profoundly irrational. So the measure of irrationality is given by the addition of the two components: ***C/Min + C/Max***.

Analysis

Two population z test was carried out to analyze variation of irrationality over gender, earners-non-earners and consumers and non-consumers. The tests were carried out at 5% significance level. All the tests were right-tailed, hence the critical value of z was 1.65. The z statistic was as follows:

$z = \frac{\overline{x1} - \overline{x2}}{\sqrt{\frac{s1^2}{n1} + \frac{s2^2}{n2}}}$ where the numerator is the difference between the mean irrationality of two different groups, n_is are the sample sizes of two groups and s_is are the standard deviations of each group. Since the sample size of each group is large enough (≥ 30), the degree of freedom is high enough to approximate t distribution to z and z test were conducted for each hypothesis. One example of the hypotheses are given as

H0: $\mu m \geq \mu f$; H1: $\mu m < \mu f$, where H0 is the null hypothesis stating the mean irrationality of males are more or equal to mean irrationality of females and H1 is the alternate hypothesis that males are less irrational. Accordingly, several hypotheses pair was developed and tested by z statistic. However, the regression coefficients were not significant enough to state any influence of number of dependents or age on irrationality (in general).

Findings

From the hypotheses developed, the following insights could be drawn about the degree of irrationality of several categories of respondents.

- Men are more rational than women, however women shows less perceived irrationality
- Non earners are more irrational than earners
- Irrationality decreases with age
- Irrationality increases with higher income but trade off takes place because of less search cost
- No. of dependents together with income and gender affect irrationality
- Lesser dependents, higher income, male – most irrational
- More dependents, lesser income, female – most rational

- Consumers are more irrational than the non-consumers
- Male non consumers are less irrational than the female non-consumers
- Non consumers with higher income are more irrational than the consumers

Challenges in Modern Recruitment in India

While the recruitment process have become more efficient and data driven mainly, challenges remain as seen now - the digital division in India still prevents many job seekers, particularly in rural areas, from accessing online job portals and leveraging digital tools (Kumar, 2017). Furthermore, there *are* concerns about data privacy and the potential for bias in AI based hiring processes that have been significantly raised (Bhatia, 2019) over the last decades. Secondly, a major challenge is the mismatch between the skills demanded by the market and that the skills possessed by job seekers (potential employees). Despite India's large talent pool, many graduates lack the practical skills (soft skills) needed by employers, leading to a persistent 'skills gap' (Sharma & Rao, 2022). This has prompted companies to invest heavily in upskilling and reskilling initiatives to bridge the gap.

Future Scope

This research was conducted only on consumer durables which can be extended to other goods and services. However, measuring irrationality over services would be more perceptual in nature. Secondly, only commodity market was involved here. At the macro level, labour and money market could also be brought in, like irrational investment or irrational wage acceptance etc. Thirdly, we plan to derive an Irrationality Index based on buyer's demographic and socio-economic variables.

References

Becker, G. S. (1962). Irrational behaviour and economic theory. *Journal of Political Economy, 70*(1), 1–13. https://doi.org/10.1086/258584

Chant, J. F. (1963). Irrational behaviour and economic theory: A comment. *Journal of Political Economy*, *71*(2), 205–206. https://doi.org/10.1086/258762

Opaluch, J. J., & Segerson, K. (1989). Rational roots of "irrational" behaviour: New theories of economic decision-making. *Northeastern Journal of Agricultural and Resource Economics, 18*(2), 81–95. https://doi.org/10.1017/S0899367X00001973

Yeung, D. W. K. (2006). An irrational-behaviour-proof condition in cooperative differential games. *International Game Theory Review*, *8*(4), 399–410. https://doi.org/10.1142/S0219198906001040

Feigenbaum, J., Caliendo, F. N., & Gahramanov, E. (2011). Optimal irrational behaviour. *Journal of Economic Behaviour & Organization*, *78*(3), 202–214. https://doi.org/10.1016/j.jebo.2011.01.002

Parikshat, S., & Manhas, P. (2012). A review and conceptual framework of 'irrational influences' on consumer purchase behaviour. *Pranjana: The Journal of Management Awareness*, *15*(1), 1–15.

Hinterhuber, A. (2015). Violations of rational choice principles in pricing decisions. *Industrial Marketing Management*, *47*, 65–74. https://doi.org/10.1016/j.indmarman.2015.02.007