

THE DISCOUNT SYNDROME

Yesterday, I went to the mall with my family. I have gone a lot of times before. As I walked around, I saw many signs in my favourite game shop saying, "Buy 2 footballs get 1 basketball free", "Buy 2 video games and get upto 50% off". I got attracted to them a lot believing that I would get 50% off on both the video games, so I requested my mother. As usual, I got denied for buying the games. Now that the repeated exposure has made me so curious about those signs, I think "if the companies keep giving a discount to the customers, then how will they run their shop and how will they earn a profit? As I researched about this, I found out that they still make a good profit. I was in a confused state- how is this even possible? So, I turned on the mathematical side of my brain and analysed the situation carefully.

At first, the phrase "Upto 50% off" seems straightforward. The important part is upto. What it actually means is-

$$0\% < \text{discount} < 50\%$$

This means that only some products are at 50% discount, not all of them. In reality, only a few products get a discount. A lot of them are at 10-30% off and some products are at the same price. To understand this phenomena, we need to see the numbers and not just what comes in our brain.

Some terms need to be understood, like-

Cost price- the price which the company pays

Marked price- the price of the product

Selling price- the price at which the customer buys the product.

The profit of the company depends upon how much the customer buys the product and the money that the company spends for making the product. If the price that the company pays is less than that paid by the customer, it is a profit. If the price paid by the company is higher than paid by the customer, then the company suffers a loss.

To understand what actually happens, you must look beyond the price tag and look into the mathematics behind it

Let-

CP= cost price

MP=marked price

SP= selling price

$$SP = MP(1 - (\text{discount}/100))$$

Where the discount is the reduction of the price of the product.

The logic behind the formula is that if a product has a 20% discount, then the price paid by you is 80% of the marked price.

So instead of subtracting manually, you can

- 1) Convert the percentage into decimal- $20/100 = 0.2$

2) Remaining price= $1 - 0.2 = 0.8$

So $SP = 0.8 * MP$

Let the MP be 1000\$ and discount be 20%

$SP = 1000 * (1 - 0.2)$

$= 1000 * (0.8)$

$= 800$

This is way easier for calculation, rather than subtracting 200\$.

At first I used to believe that a company would actually be at a loss by giving such a heavy discount. But, I was wrong. The marked price is not fixed but chosen by purpose. For example, if a product requires \$500 to make. The company marks the price of the product as \$1200 instead of at \$700 or at \$800. By putting a 50% discount, the customer is forced to believe that they are saving half the amount by paying \$600. However, the company is still making a profit of \$100. What seems like a good deal, is actually just a clever plan. As I looked closer, I realised that the sale is not random, it is a fully thought plan. A few products are priced at such a low cost so that people can be attracted to them. Most of the products in the store are actually at a small discount (10-20%) so that the company can make a steady profit. The newly manufactured products do not have such a high discount so that the company can make more and more cash.

What I found interesting during my research is how everything fits together. A simple phrase like "50% off" can influence a lot of people into buying the company's product, getting rid of the old products in order to manufacture new ones, and promote the new products at an insanely high price. It is not a marketing trick, instead a system where math and human behaviour work together.

One of the strategies of companies is based on the concept of "price elasticity of demand". According to the law, when the price of the product decreases, then the demand increases and vice versa. So, maybe what could have happened was that the company may have seen that their sales of games had gone down, so they put up a sign saying "50% off", which naturally attracts customers. By putting a high discount percentage on the board like 50%, may also feel like a "steal deal" for the customers, ultimately making them buy the product. By attracting loads of customers, it is natural that the sales increase by making a skyrocket in the production of the goods.

This also may be a psychological play on the minds of the people, making them think that a low price is good for this product. It actually does not mean that all the products in the store are not being sold for 50% off, some may have 50% off, some higher, and some lower. This strategy forces a lot of customers to buy their product, and the volume of the sales increases. However, the customers are naturally attracted to the highest number mentioned. This creates excitement and curiosity among them, drawing more people into buying from

their stores. Another factor of this strategy is the principle of loss diversion. Due to the discounts being given to the people for a specific time period, this creates a sense of urgency in their minds that they need to buy the product otherwise they will lose it forever. This is why people do not calculate percentages while buying the product. Instead, they do what feels better, and not look at the numbers. This ultimately increases their impulsiveness to buy the product.

This has changed the way I look at something as ordinary as shopping centers. Now that I see the big sign board outside the store, I do not see just a discount, but I see how big the problem is with the prices shown, playing a trick on people. I also observe a pricing plan that is carefully thought out and a strategy that influences what people decide to do. What used to seem like a simple offer now seems like a complicated equation. One that balances how attractive something is, how people think about it and how much money is made. Learning about this taught me something new: math is not just something you learn in school. It is all around us shaping how we think, decide and act. The time someone sees "Up to Fifty Percent Off" they might just see a good deal. I see something more. A story about numbers, written in a way that influences how people think. This is what makes mathematics truly fascinating—it exists everywhere, even in places where we least expect it.