

PRODUCT ANALYSIS ON HP LAPTOPS

BUSINESS ECONOMICS – MICRO

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ROLL NO – 11

INDEX

Sr no.	Particulars	Page number
1	Introduction	2
2	Demographic analysis	3
3	Product Analysis	3
4	Demand Analysis	5
5	Industry Analysis	6
6	Supply Analysis	8
7	Price Elasticity	10
8	Income Elasticity	12
9	Cross Elasticity	13
10	Regression Analysis	14
11	Extra analysis - Impact of the pandemic	15
12	Conclusion	16
13	Bibliography	18

INTRODUCTION

In this era of digitalization, computers have become an integral part of our lifestyles. The first computers man made were desktop computers. To solve the issue of portability, laptops came into existence. Laptops can be moved easily, can be used anywhere and they don't require a constant source of energy. Laptops have gained massive popularity in the last two decades and have become a necessity for every household and businesses as well.

The Hewlett-Packard Company, commonly shortened to HP, was an American multinational information technology company headquartered in Palo Alto, California. HP developed and provided a wide variety of hardware components, as well as software and related services to consumers, small and medium-sized businesses (SMBs), and large enterprises, including customers in the government, health, and education sectors. The company was founded in a one-car garage in Palo Alto by Bill Hewlett and David Packard in 1939. The company grew into a multinational corporation widely respected for its products. HP was the world's leading PC manufacturer from 2007 until the second quarter of 2013, when Lenovo moved ahead of HP. HP specialized in developing and manufacturing computing, data storage, and networking hardware; designing software; and delivering services.

The report below summarises the laptops market in the country and the overall demand for laptops, further diving deep into the demand for HP Laptops specifically. I have performed a survey, using Google forms, to collect data for my report. The form was circulated to friends and family and I got a total of **42 responses**.

The link for my survey is present in the bibliography.

BODY

Demographics of the population for the survey

The survey was conducted via Google forms and it was circulated using the Whatsapp messenger. Majority of the respondents were students between the age of 18 and 25. However, there were some respondents in the age group of 25 to 40 who were approached to add diversity to the population. All the respondents live in metropolitan cities in India, most of them residing in Mumbai. 2 respondents were from a foreign country and their responses have been ignored as I have strictly confined my research to India. Most of the people in my network belong to high-income groups hence there is such a bias present in the population for my survey.

Product Analysis

- HP laptops are a product of the IT sectors. Laptops and similar products are used worldwide, with higher volumes used in developed countries and lesser in developing ones.
- Features

A laptop has innumerable features nowadays. The following are some of the features of laptops, ranked in the order from most important to least important (as per the survey conducted):

 1. Processor and speed
 2. Display and audio
 3. Value for Money
 4. Brand
 5. Added features
 6. Trend and social influence
- Pricing

Laptops begin from the range of INR 20,000 and go beyond the price of INR 2 lacs. With the various add-ons available in the market, it is difficult to put an upper limit on the price range. However, the most expensive laptops available are gaming laptops and advanced laptops with high memory and speed for running large, complex programs. Please note that supercomputers are not considered a part of this product range. Hence the basic models are affordable by the middle class and above of the

nation. Various offers like EMIs make it more convenient for the common man to purchase such items. Those who still can't afford a laptop either purchase a second-hand version or don't purchase a laptop and go to 'cyber cafes' for all essential work.

- Availability

Laptops are easily available in towns and cities in the country. Since the beginning of e-commerce, laptops have become even easier to purchase as they can be delivered to one's doorstep. Following are the places where you can purchase a laptop, ranked in order of preference (as per the survey conducted):

1. Physical electronic supermarkets
2. E-commerce platforms
3. Company showrooms
4. Company website

This can be mainly due to the reason that the first two have a wider variety of products and it is well-established that Indians usually like being given a variety of products to choose from. Those who are not very sure about the product they want to purchase also crave the human guidance and affirmation that they get from a physical store hence the inclination towards those.

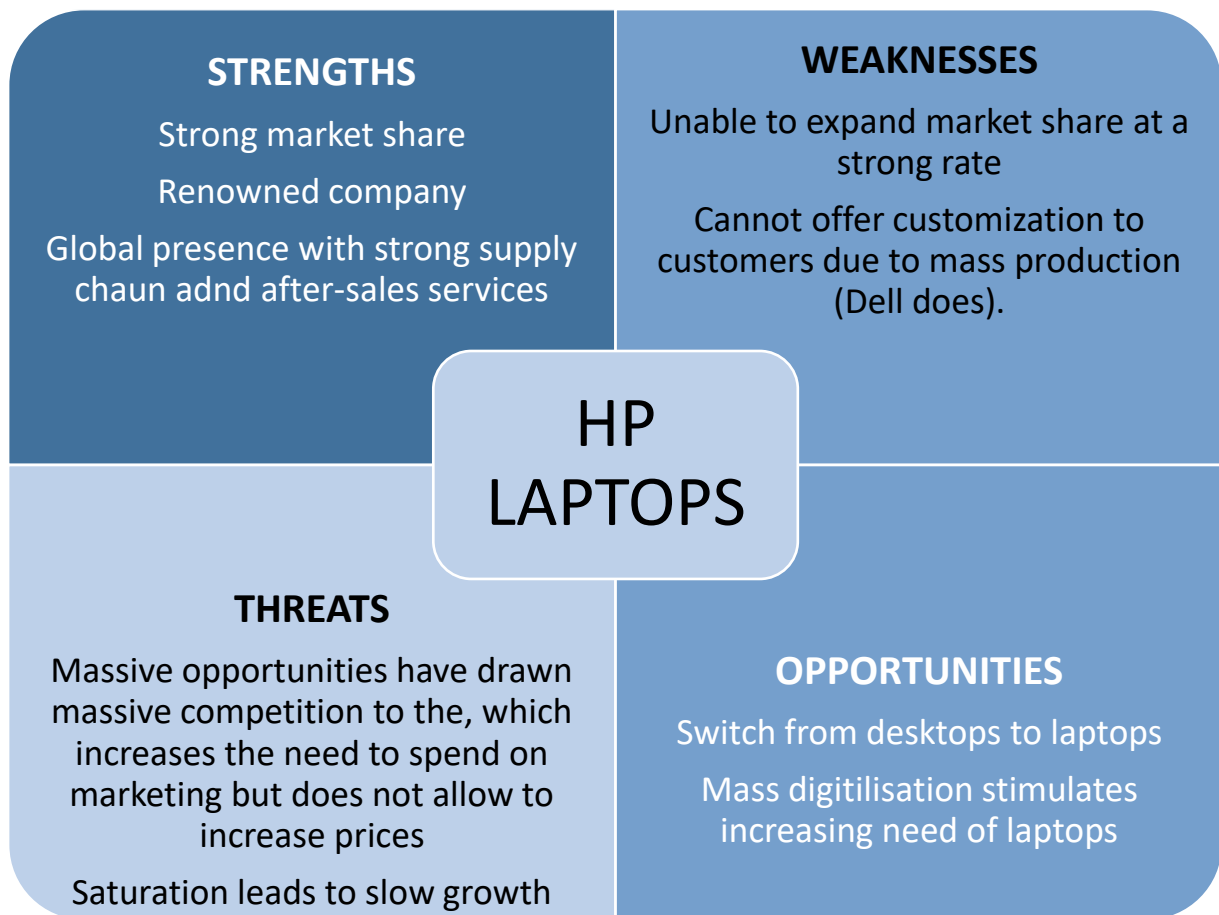
- Utility

A laptop has utility to almost everyone nowadays. Below are the most common uses of a laptop, listed in order (as per the survey conducted):

1. Education
2. General usage and entertainment
3. Work
4. Gaming

A very important point here is that gaming is no longer a mode of time-pass, it has grown to become an actual industry. The global gaming computer market size was valued at \$40.13 billion in 2020, and is projected to reach \$145.93 billion by 2030

- SWOT Analysis



Demand for the product

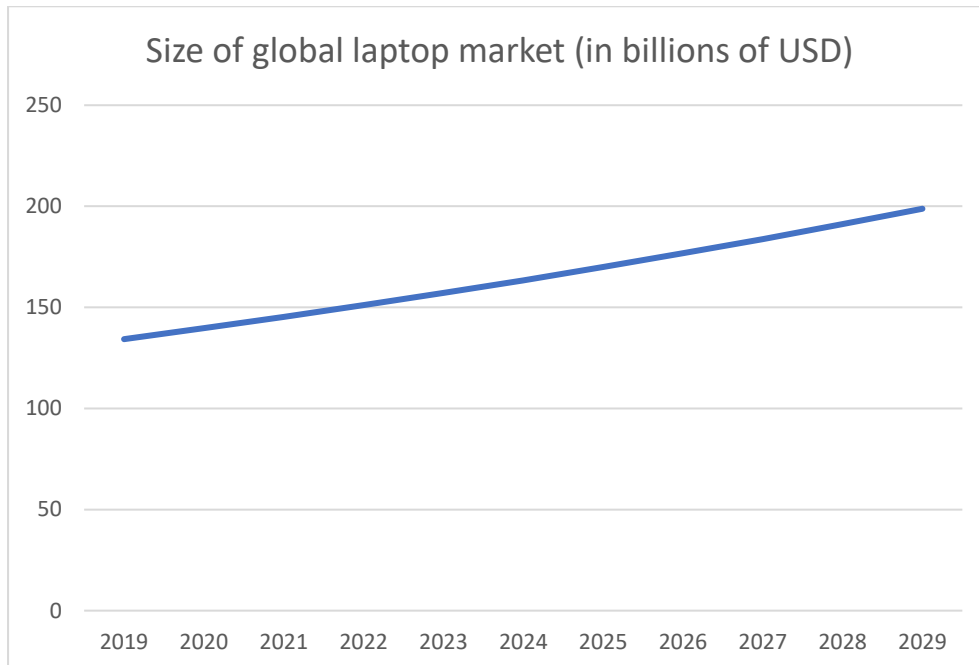
As per my research, the demand for laptops is universal. However, it is important to consider that the survey was conducted virtually with no physical interaction. Hence this survey has reached educated people from financially stable families.

The demand for laptops is by end-users as well as businesses. It is standard practice that a company which requires their employees to work on a laptop full-time usually provides the employees with a laptop.

Demand heavily depends on the features of a laptop like speed, storage, display, design, etc. as laptop is a technology-based product and a person would purchase a laptop that fulfils his/her needs.

The demand for laptops is not concerned with gender since we live in a society where a male and a female are given equal educational and working opportunities.

Laptops are demanded strongly by youngsters as they need laptops for educational, work and recreational purposes. Another reason why the demand for laptops is low amongst aged people in India is that a lot of the middle-aged adults and senior citizens in the country are uneducated and can't operate a laptop



The global demand for laptops is expected to grow by 4% annually and all the figures for dates in the future are just estimations.

INDUSTRY ANALYSIS

Market Condition

The leading companies in the Indian laptop market at this time are:

- HP
- Lenovo
- Apple
- Microsoft
- Dell
- Acer
- Asus
- MSI

Half of these are American companies and the other half are Chinese companies. A higher income group prefers American brands like Microsoft and Apple whereas a lower income group would be more comfortable purchasing a MSI or Lenovo laptop which is of Chinese origin. Currently, there are no good and renowned companies in India that are manufacturing laptops and this industry is heavily dependent on imports.

Overall, laptops have been around for more than 20 years, leading to the entry of various players into this segment. The business has become highly competitive as companies are constantly struggling to grab market share. This has led to lower margins, better quality products for customers and high marketing expenses. This clearly shows us how beneficial competition is for consumers generally.

Macroeconomic factors

The GDP of the country is currently is USD 2191 whereas the most basic laptops start at the price of USD 200-250. Hence, it is reasonable to say that there is a good chunk of Indians, mainly in the rural areas, who cannot afford a laptop as spending more than 10% of one's annual income on a laptop is just ridiculous.

A very good metric to determine the size of the laptop market is the number of internet users in the country because it is safe to say that someone who does not even have access to internet would definitely not require a laptop. As of 2020, 749 million people in the country have internet access which is just 54% of the total population. This means that almost half of the population surely does not require a laptop. And from the 54% also, some would be able to afford a laptop and from those who can afford it, only a certain percentage would feel the need to purchase a laptop. However, it is an important fact that the number of internet users in the country have been rising exponentially and with time the demand for laptops can see a sudden surge as well.

Government policies

The government hasn't taken any major reforms as such in the laptops segment in the past few years. When computers were launched initially, the Indian government made it easy for them to import pieces from foreign countries to stimulate digitalization in the country. Moreover, the industry has been led and boosted by private players only with minimal government intervention.

In the pandemic, the government has granted multiple subsidies and distributed free laptops to families who couldn't afford a laptop but still needed one. This was mainly because a laptop became a necessity when lectures were online.

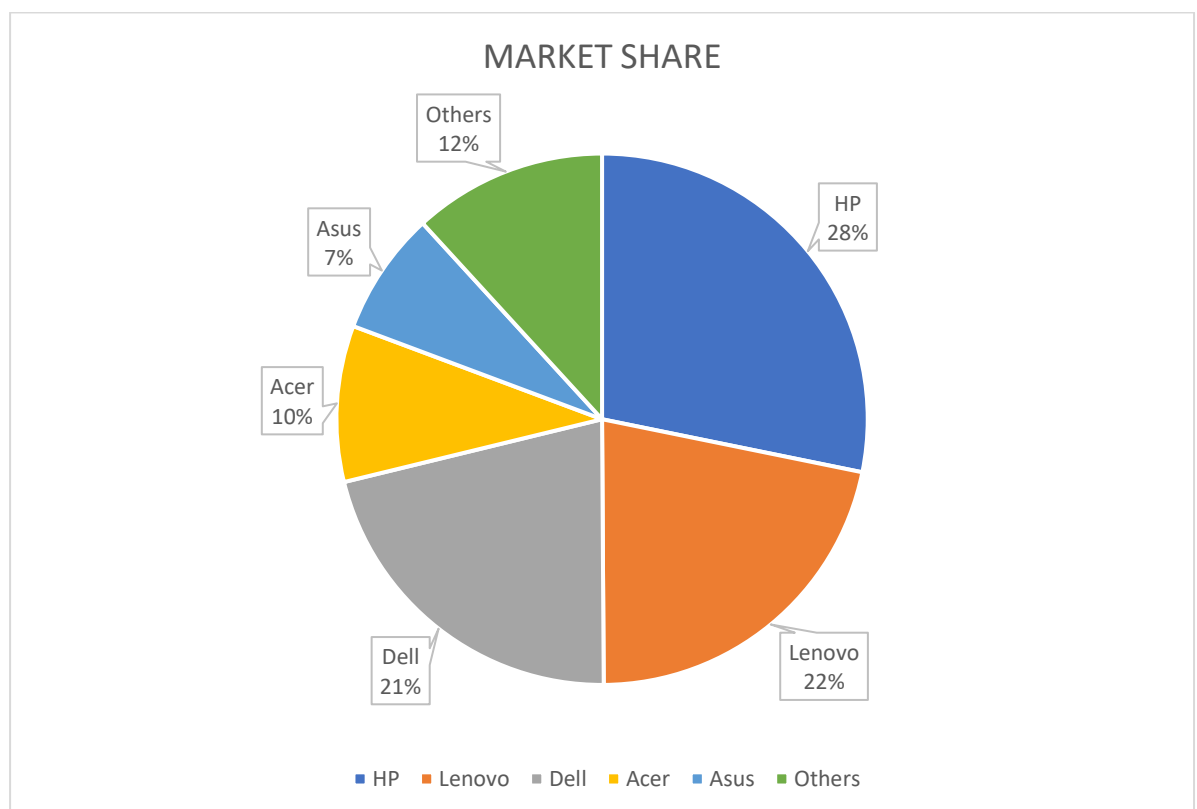
There are no major taxation policies for laptops. A GST rate of 18% is charged on laptops and other complementary goods. A businessman can avail tax benefit from the purchase of a laptop by showing a depreciation of up to 60%.

Supply analysis for HP Laptops

Competition

As of 2021, following is the market share of various companies:

- HP (28.2%)
- Lenovo (21.7%)
- Dell (21.3%)
- Acer (9.5%)
- Asus (7.5%)
- Others (11.8%)



Substitute goods

If you look at a HP Laptop, a close substitute would be a laptop of any other laptop company mentioned above with similar features, mainly Lenovo, Dell and Acer. An Apple laptop cannot be considered a close substitute because of its proprietary Operating System.

If you look at laptop as a general product, its substitutes are:

- Tablet. However, a tablet does not have the same processing speed and same features as a laptop. A laptop has an additional keyboard, a touchpad, and many more such features hence a tablet cannot be used for professional use instead of a laptop.
- Desktop. It can be used to do all the same tasks as a laptop. It's just that it lacks portability and it needs constant charging.

Therefore, for a specialized use, these 2 can act as substitutes to a laptop but there is significant difference between the products.

Complementary goods

The complementary goods for a laptop are:

- Charger
- Wi-fi or any kind of internet connection
- Webcam (if not in-built)
- Mouse (if required)
- Laptop bag
- Earphones/Headphones

There are many products that a person can buy with a laptop like additional memory, additional RAM, a decorative skin, a fancy case, etc. However, none of these are absolutely necessary. A charger is provided by the company free of cost with the laptop. Companies and/or retailers often keep various promotional offers to give additional accessories with the laptop for free or for a reduced price.

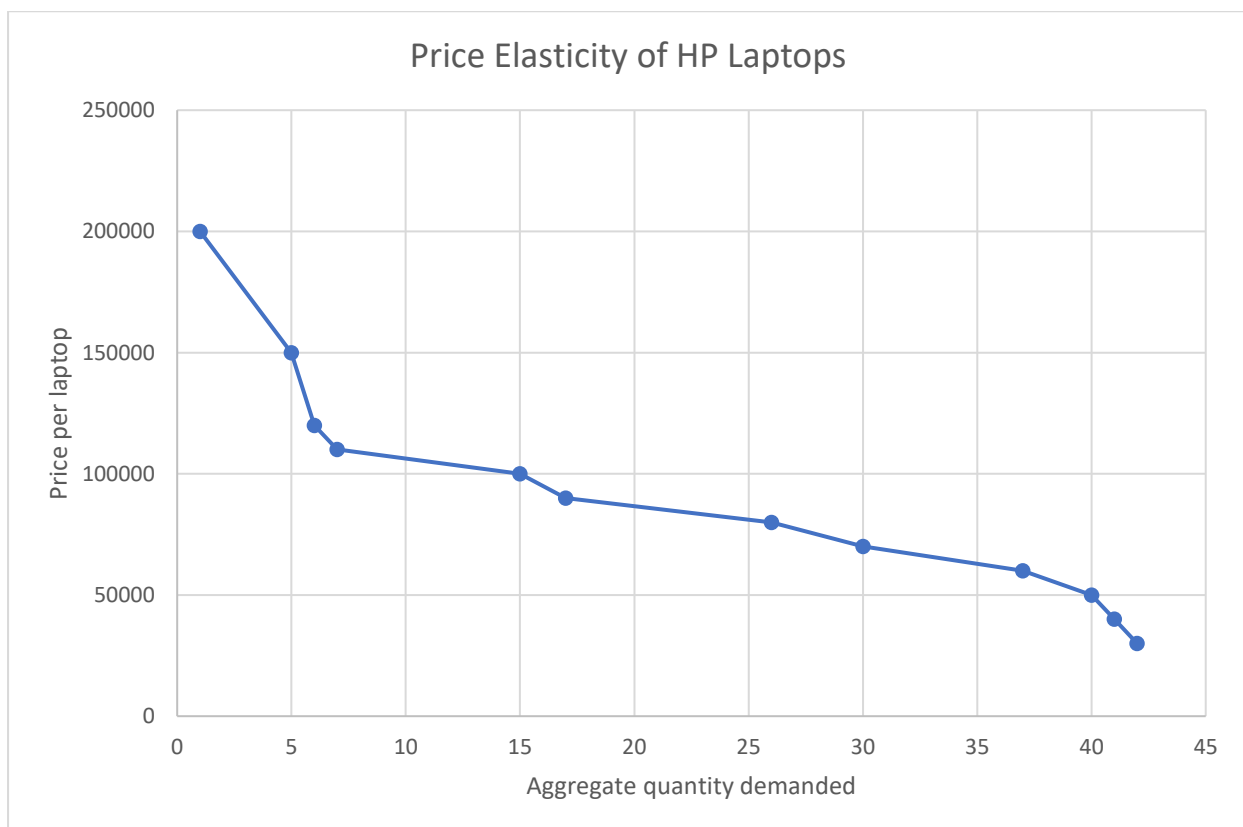
Electricity is also a vital complementary good but including that in the analysis does not add any value because it isn't that important a factor for the consumer of the product, considering how little electricity a laptop uses and how low the marginal cost for that is. A Wi-Fi would be required by most laptop users too but considering that a Wi-Fi is used by smartphones and

many other items, the cost for internet wouldn't have a high impact on the demand for laptops. In modern households, a Wi-Fi connection is widely recognized as a necessity.

Price Elasticity for HP Laptops

A laptop is a very complex product. There are hundreds of models available with different processors, different designs and multiple combinations of various such features. Hence it is very complicated to determine the price elasticity because if a certain piece does not fit into your budget, you can always opt for a lower model. In fact, the survey supports this statement as majority of the people have said they would opt for a lower model or purchase the laptop at the new price, if the prices rise significantly. Only 9% of the respondents would choose not to buy a laptop at all.

So, considering aggregate demand at various prices, I have determined the price elasticity curve below (as per the survey conducted).

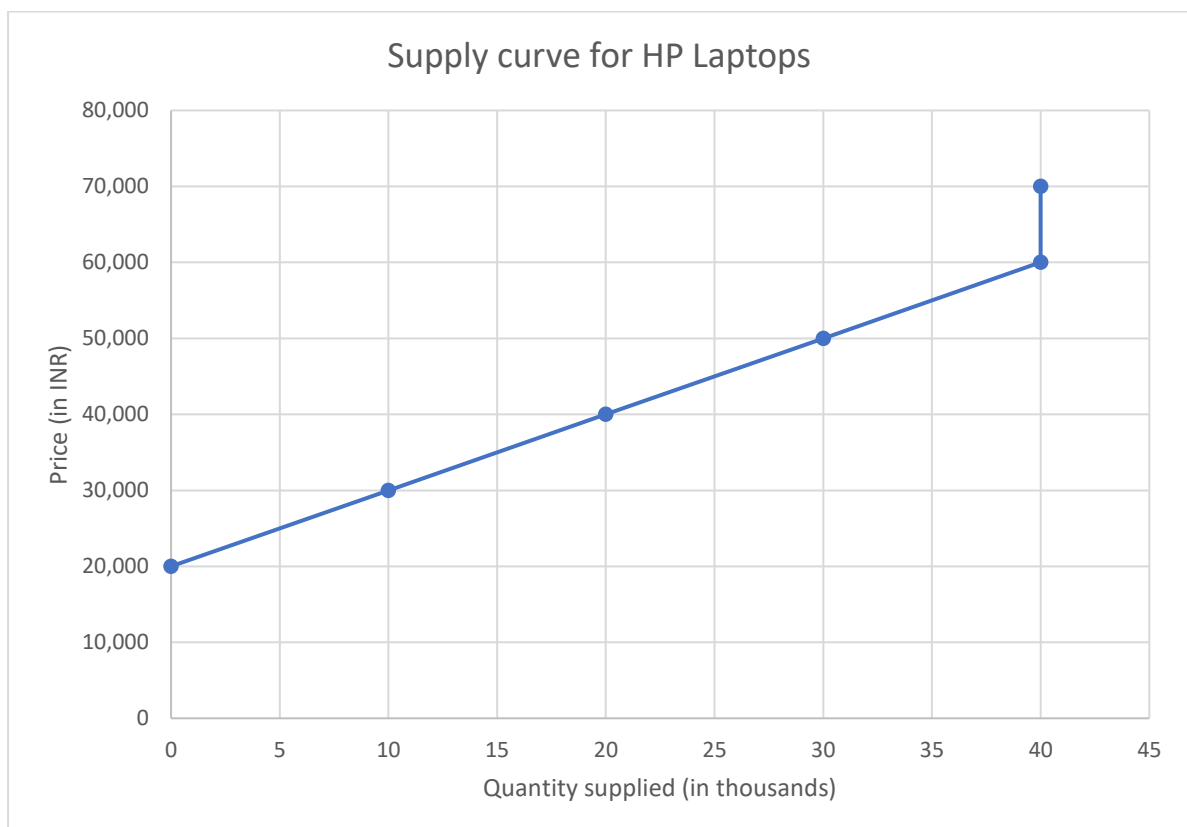


The graph clearly shows that the demand for HP Laptops is relatively price elastic. Since there are so many options available, within and outside the brand, people tend to fix their budgets and end up exploring other options if their desired laptop does not fit into their budget.

Considering the price elasticity of supply, here are a few insights.

- HP has its brand resellers all over the world and its distribution partners resell its products to its customers all over the globe. HP does not hold its inventory for long.
- HP is a global brand with operations around the world. Apart from United States, it is liable for income tax in 58 more nations
- The computing industry has grown highly competitive and this has led to brands investing more in the marketing of their products. HP too invests a lot in marketing and promotion of its products. It uses both digital and traditional channels for the marketing of its brand

Considering all these factors and using simple economics logic, I have come up with a graph for HP laptops. Due to obvious reasons, neither could a HP supply chain manager be approached for the sake of the report nor would a survey of any kind add value to our results.



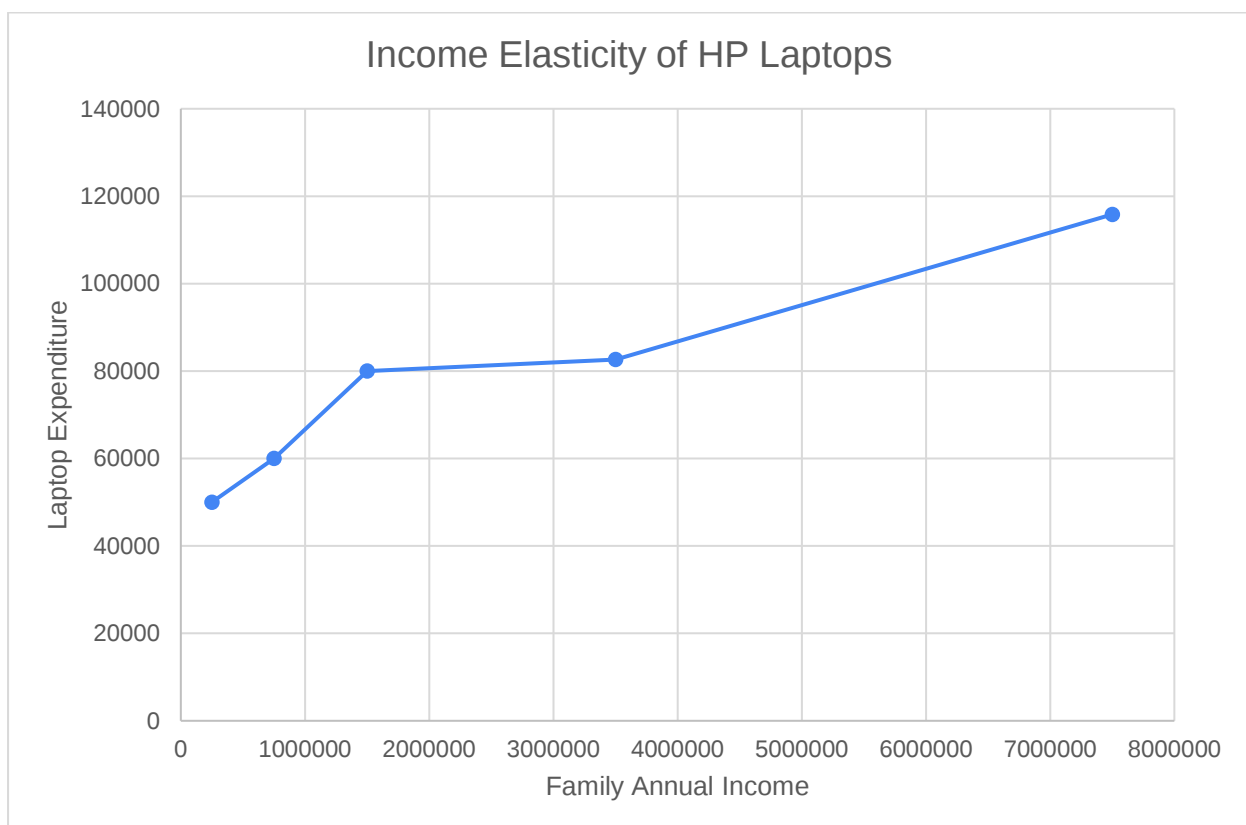
Above is the predicted supply curve for a particular model of HP laptops. The firm has a fixed cost attached to each price like manufacturing, transportation and marketing costs and the firm would not want to sell their pieces below that. Also, HP does not want to hold a lot of inventory for a long time as it likes to keep its supply chain as efficient as

possible. Also, given the basic concept that a factory has a certain manufacturing capacity. Hence, it is reasonable to assume that beyond a certain limit, HP would not be willing and/or able to supply further laptops, irrespective of prices.

Income Elasticity for HP Laptops

As discussed earlier, a laptop has become a necessity for most households. It is also an important factor that a laptop is a durable electronic product and not a consumable. Due to this, even an extremely wealthy person would gain no benefit from having 6 laptops. A rational assumption is taken that the maximum number of laptops a person would purchase is 2, that too for convenience or a work-personal device separation.

Hence, it only felt right to see how the total expenditure a person makes on a laptop changes with a change in income levels. Below is a plot of the average of the maximum expenditure one income group would make against their income. All the data used for this chart is strictly from the survey conducted



This plot clearly states that laptops follow positive income elasticity. This means that as income increases, people are willing to buy more expensive laptops. People might be willing

to buy more laptops too but that side of the story is not included in this analysis as it is a very vague and relative choice.

Cross Elasticity for HP Laptops

Brand Loyalty

Brand loyalty in the laptop industry exists only to a certain bit. Even if a customer has a good experience, he is likely to shift to another brand for a better price. This is mainly because most of the top companies have been around for decades and offer a lot of promise. However, laptop companies offer various exchange benefits and such schemes to increase brand loyalty. This is common for almost all laptop brands, including HP.

Extra-analysis – As per my survey, people are willing to switch from all other brands for a better price except Apple! Apple has the maximum brand loyalty as people strongly refuse to switch to another brand, irrespective of price change. This trend is seen worldwide and it is not just in this survey.

Results from the survey

As per my survey, 79% people say that they would buy a laptop of the same brand that they are using at the moment. However, 70% of the respondents admit that they would switch to another brand in case they get a better deal elsewhere.

Speaking of HP particularly, 69% people say that they would buy a laptop of the same brand that they are using at the moment and 71% of the respondents admit that they would switch to another brand in case they get a better deal elsewhere. This shows that the cross elasticity of demand for HP Laptops is **positive**, indicating that customers are likely to switch to substitutes if the prices of HP Laptops.

Please note that the analysis is on HP Laptops hence a substitute here is assumed to be a laptop of another brand and not a desktop or a tablet which is a weak substitute.

Regression Analysis

As per the survey conducted, the following variables were considered significant by most users:

- Speed
- Memory
- Brand
- Display
- Price
- Add-ons

After some research, I have also found out that consumers worldwide also give importance to design and after-sale service when purchasing a laptop. Here, I am going to do a regression analysis between price and the speed of a HP Laptop.

I have taken 'HP Pavilion x360 Convertible' as the laptop for observation. I took 2 variations of this laptop, one with 8 GB RAM and one with 16 GB RAM and I ensured that all other specifications were constant except the RAM, which is an indicator of speed.

The 8 GB RAM model was priced at INR 69,000.

The 16 GB RAM model was priced at INR 84,000.

We can form a regression equation where 'x' represents RAM and 'y' represents price (in INR) as follows:

$$y = 1875x + 54000$$

This equation would not hold true for all laptop models. However, I observed a trend that an upgrade in speed on the same laptop usually gives a price difference of around INR 10,000-15,000

IMPACT OF THE PANDEMIC

Just like all other business, the COVID-19 pandemic had significant on the laptop industry too. At the start of the pandemic, the supply-chain had been disrupted and there was a shortage of laptops in the country. As months passed, the restrictions eased out and the supply-chain was finally restored. It is understood that in the first 1-2 quarters, laptop manufacturing company made losses. But as the markets opened up, there was a strong demand for laptops and sales have sky-rocketed

- ✓ Online education – The pandemic led to students switching from physical lectures to online lectures. Students with non-computer subjects have also started requiring laptops. From lectures, to textbooks, from assignments to exams, everything nowadays happens on a laptop. Hence a laptop has become a necessity for every student.
- ✓ Work from home – As offices shut, companies required their employees to work remotely from home. It is every company's duty to provide their employee with a laptop if required. In a traditional office setup, a lot of companies have desktops. However, this is bound to change as employees might need to work from home at times, a laptop would serve both purposes.
- ✓ HP Laptops – HP is the major player from the United States which serves the masses. It's major competitor, Lenovo, is based out of China. As hostility increased with China, there were trade bans and a lot of import-export restrictions. The Anti-China sentiment was also prominent in India. All of this turned out to be beneficial for HP as they saw a major spike in Indian sales during the pandemic
- ✓ Mass digitalization – Social distancing led to the automation of a lot of processes that were previously manual and physical. Indians have become more technology-friendly and they have become open to adapting to the new, digital world. This will be a long-term boost for the entire laptop industry.

Overall, the pandemic has been a boon for laptop companies and this has triggered rapid growth in the laptop industry

CONCLUSION

Insights

Overall, I can conclude from the survey that the demand for laptops is high and it is just going to increase in the future. On the supply end, there are multiple suppliers and there are no major barriers for entry. However, massive investment into R&D and production would be required to set up a laptop manufacturing business and a new business would have to compete with household names such as HP and Lenovo. Hence, it is less likely for any new player to enter this segment.

HP Laptops have high price elasticity of demand, positive income elasticity and positive cross-elasticity. The high price elasticity indicates that a person would probably choose not to buy a HP laptop in case of a rise in prices. The positive income elasticity is positive for the business, stating that a person would be willing to spend more on the laptop. However, it is also seen that high-income individuals prefer using brands like Apple and Microsoft. Despite that, HP caters to the masses and offers high-end laptops to the ones who would want it. This strategy has enabled HP to become the market leader in India. The positive cross-elasticity is a negative sign, implying that people are likely to switch to another brand if they get a better price for a similar product. HP needs to work on building brand loyalty. Brand loyalty is a problem faced by all laptop manufacturers, with Apple being the only player in the market to have high brand loyalty.

Suggestions

Laptops have become a necessity nowadays and looking at the current prices, a good chunk of Indians cannot afford one. Laptops need to be made more affordable. Companies should come up with laptops with basic features and no fancy add-ons that should be sold with minimal profit margins. The high-end laptops should cross-subsidize the selling costs for the basic laptops to make them even more affordable. This would enable a lot of Indians to go digital and it would allow children and youngsters to make a promising career for themselves because laptops have become the hub of education.

On the end of the company HP, my main suggestion would be to invest into R&D heavily. The company needs to have some solid, proprietary feature about their company which would give them an edge over competitors. This would reduce the cross-elasticity of the product and help HP to gain more brand loyalty. An alternative strategy could be that HP could focus

majorly on cost-cutting and try to reduce their prices even further. This would result in higher market share as our analysis above clearly shows that market for laptops is relatively price elastic.

On the government's end, they need to have subsidies for the economically backward people to boost digitalization in the country. Taxation reliefs on this sector would also be beneficial. One of my primary recommendations would be to incentivize companies to begin laptop manufacturing in India. Not only will this boost production and exports for the country, but it will also ensure that cheaper laptops can be circulated in the market. As a product, laptops have a lot of scope and I don't see them going away anytime soon.

Limitations and further scope

Due to social distancing restrictions, I was obligated to conduct this research online hence only a particular demographic group could be tapped for this survey. I openly agree that this has led to some kind of bias in the results of the survey and the results from my survey can't be deemed to be very accurate.

With the limited respondents I could approach, it was very difficult to get a good number of people who use HP Laptops. Hence, I had no other choice but to generalize the survey and draw conclusions on HP on the basis of the information available.

To make the research more robust, I would:

- ✓ Approach a higher number of people, especially from different income groups and different geographic locations.
- ✓ Ask more HP-related questions to the respondents and try to gain more insight on HP laptops rather than the laptop market as a whole.

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