

Issues in the Home Delivery Model in India

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Abstract— India is a perfect place where a well developed online economy would be built. Today, home delivery is increasingly becoming a key element in e-commerce. This paper has as its basis a market survey conducted for 220 respondents based in metropolitan cities of India. It is observed that home delivery operations already face significant challenges. A lot of operational issues come up. These orders are delivered through smaller and more economical carriers. Difficulty of returning an item and cost of delivery are major factors for the respondents not opting for home delivery services. Unavailability of respondents at the time of delivery is another major factor. There is a high first time delivery failure which increases costs for carriers and also lowers consumer satisfaction. The return rate becomes abnormally high. Home deliveries that are damaged or faulty cause significant costs to supply chain partners. The paper concludes that home delivery is a fairly new phenomenon in India. Those e-commerce companies would probably succeed more which are localised operate on a small scale with a big margin. Highly aggressive promotional campaigns would unnecessarily swell costs and not yield enough returns so word of mouth publicity would be the safest bet. Thus new models and algorithms need to be proposed and studied.

Keywords— home delivery, e-commerce, freight

1. Introduction

In today's dynamic world, e-commerce has helped various businesses to sell their products and services directly to the customers without establishing a physical point of sale. While certain products can be delivered digitally to households (for example, newspapers, e-tickets and music CDs), most products purchased online ultimately must be transported to the end-users in the physical world. The delivery system must be efficient and reliable to gain customer loyalty online and thereby, increase profitability.

Today, home delivery is increasingly becoming a key element in e-commerce. India is emerging as one of the fastest growing countries in the world with a buoyant economy, a huge population and potential of witnessing robust growth in the future. In particular, it is a country with jam-packed public transport where people avoid going to stores to avoid the traffic and malls which are yet in their nascent stages. The shopping malls appear chaotic. All this makes India

a perfect place where a well developed online economy would be built.

Home delivery is also available in situations like delivery of traditional post, and delivery of large heavy items such as furniture. Accordingly all e-commerce products would have to be home delivered but obviously not all the home deliveries done are generated by e-commerce. Home delivery options are very helpful for elderly people or for those who can't go on their own to shop for various products and/or services.

India has an exponentially increasing number of internet users who definitely are developing a penchant for online shopping. Also despite the constant complaints about products reaching late and the never ending refund procedures, Indian consumers are getting swayed to e-commerce. However as retailers try to satisfy the rising craze for e-commerce in the metropolitan cities of India, a lot of operational issues come up.

Although home delivery plays a crucial role in the distribution chain, limited attention has been paid to the issues associated with the home delivery in the transportation literature [1]. According to many authors, an effective website design is critical to the success of electronic commerce, and the functionality, usability, ease-of-navigation and interfaces of the websites themselves are vital building blocks for sustainable success [2]. In India, the home delivery model has not really stabilised as yet and probably would not for a long time.

The degree of routing flexibility and thus transportation efficiency closely depends on the delivery service design, notably on the offered delivery time-windows [3]. An increase in time-sensitive goods results in an increase in the number of delivery vehicles. More frequent home-based local deliveries add to the traffic congestion and environmental problems in urban areas, making it more difficult for carriers to meet customer demands. Most customers would like deliveries to be made urgently at a precise time with hundred per cent reliability [4]. Many businesses especially grocery delivery services have discovered that home delivery actually becomes a huge deadweight due to the transport problems, changing demand patterns, few chosen delivery time options and occasional losses. Supply chains that go right up to

the home address of each customer become very complex and create unbearable cost issues.

Despite the presence of world logistic experts like DHL and Fed Ex in India these orders are delivered through smaller and more economical carriers. Also these small carriers may not operate in different regions and hence several carriers may have to be used. For orders to be delivered in the smaller cities, local couriers have to be used who deliver by bicycle

The Indian economy even now remains informal. To survive these companies must offer cash on delivery option. Credit card usage is relatively less in India and people do not trust credit cards.

2. Literature Review

A lot of earlier studies in this area deal with e-grocery shopping. The literature review threw up literature dealing with home delivery, customer satisfaction and standardization of practices. However there is scant literature on the home delivery model in Asian economies and hardly anything on the Indian scene. It is hoped that this study tries to fill the gap and highlights crucial issues with the home delivery model in India.

Ref [5] stress on the significance of delivery on time as a critical quality variable. Enlarged delivery times discourage regular online customers from using the online route concludes a study by ref [6].

93 per cent of all home deliveries are small packages and Large items comprise 5 per cent and groceries 2 per cent [7]. The need for collaboration between logistics and marketing professionals is analysed in detail by ref [8]. Ref [9] has studied very briefly home delivery aspects of four retailers in India.

3. Research Methodology

A structured questionnaire having close ended and open ended questions was sent to a population of around 220 respondents who indulge in online shopping based in five Indian metropolitan cities: Mumbai, Ahmedabad, New Delhi, Chennai and Bangalore. Though it was targeted to have a balanced mix of customers in terms of age, gender and professional qualifications, young to middle aged customers who are aged between 15 to 45 year old formed the bulk of respondents who actually returned the completed questionnaire. Some informal interviews were also conducted among regular users of home delivery options in Mumbai. Usable responses were received from 150 respondents.

The secondary data sources are newspaper articles, journal articles and other publications.

4. Data Analysis and Interpretation

Table 1: Opinion of the respondents on use of home delivery services in last 3 months

Yes	No	Total
129	21	150

The rise of e-Commerce and various delivery options has been a boon for the shipping companies in India. More than 85% of the respondents have used home delivery services in the last 3 months, and nearly one-third of them use such delivery services at least once in a month. While the remaining 15% have not ordered home a product and/or service, it is likely that they shall do one in next 3 months. Of the 85% respondents mentioned above, 90% of them say that shipping concerns impact their purchasing decisions. This points out that those companies who can find ways to solve these issues would significantly benefit in the long run.

Table 2: Opinion of the respondents on the frequency of utilisation of home delivery services

Frequency	Number of respondents (N=50)
Daily	8
Once a week	45
Once a month	66
Once in 3 months	12
Once a year	9
Never	6

When respondents were asked about the frequency of home delivery services utilised by them, a mere 8% used such services on a daily basis. Almost 45% of the respondents used the delivery option on a monthly basis. Around one-third of the respondent population made use of delivery option on weekly basis. This was followed by 8% and 6% of respondents using home delivery services once in 3 months and once a year respectively. To delve further into this, additional questions followed.

Table 3: Top Reasons driving Home Delivery purchases

Reason	Number of respondents	Percentage of respondents (%)
Ease and comfort of shopping from home	78	52
Cost of Products	75	50
Cost of Delivery	39	26
Selection of product	57	38
Save time to shop in local store	36	24
Avoid cost of travelling to store to purchase	30	20
Ease of return/exchange	18	12
Time to receive your order	21	14
Difficulty of getting item from store to house	36	24

The top reason given by respondents for opting for home delivery service was ease and comfort of shopping from home. Around 52% of the respondents chose delivery services, keeping in mind the ease and comfort of shopping from home. Home delivery is convenient and saves time. It is one of the reasons many people choose to shop online. One can have a product delivered to your home with limited effort on your part. Other reasons for home delivery purchases included cost of products and delivery, return or exchange policies and time taken for order delivery. Convenience stores in India are open only until 10 pm.

In case of large or bulky goods, the driving factor for opting for home delivery service was convenience of getting an item from the store to house. Free delivery service made the respondents opt for home delivery. Respondents have said that they purchase home delivery services for at least food, appliances and electronic items due to their concerns about shipping and ease of returns.

Table 4: Top Reasons for not opting home delivery services

Reason	Number of respondents	Percentage of respondents (%)
Cost of delivery too high	54	36
Concerns about quality or freshness of the product	39	26
Difficulty of returning item	57	38
Loss or damage in transit	36	24
Not at home during the day to receive shipments	52	28
Too long to deliver	51	34
Concerned with getting different item than ordered	36	24
Can't track item while in transit	12	8
Weekend delivery required	24	16

Home delivery is a fairly new phenomenon, and thus few models and algorithms have been proposed and studied that help create an understanding of the complexities and intricacies of these distribution problems. Difficulty of returning an item (38%) and cost of delivery (36%) are major factors for the respondents not opting for home delivery services. Unavailability of respondents at the time of delivery (28%) is another factor for saying a no to home delivery services. A major factor for the success of home delivery operations is whether there is someone at the customer's home to receive the delivery. Due to both spouses working in the urban areas, rigid work schedules and long commuting hours, homes are empty during the day. Also, customers may prefer a weekend delivery. This results in a high first time delivery failure which increases costs for carriers and also lowers consumer satisfaction.

With people not at home during the daytime and the standard delivery times the difficulties are clear. It would be worthwhile to understand the convenient slots at which customers would be at home to receive deliveries, and frame a model based on that. This would reduce costs of home delivery companies and lead to a sharp rise in customers' satisfaction.

Table 5: Category of products used for home delivery

Category of product	Number of respondents	Percentage of respondents (%)
Household items	96	64
Electronic appliances	72	48
Food	81	54
Educational item/Magazines/Newspapers	75	50
Others	48	32

Household items (64%) and food (54%) are the two product categories for which most of the respondents use home delivery services. When asked about the reasons, the respondents chose free delivery and frequent purchase of household items and food, for opting for home delivery service. This was followed by magazines and newspapers.

Table 6: Impact of free/discounted shipping and Delivery cost

Impact	Percentage of respondents (%)
Greatly impacts my ordering decision	64
Somewhat impacts ordering decision	31
Not a consideration	05

Nearly 90% of the respondents who order on a daily basis are of the opinion that free/discounted shipping greatly impacts their ordering decisions. It is free shipping that encourages them to order more frequently. 31% of the respondents say that free shipping slightly impacts their decision. Due to free shipping, at times, respondents spread one single large order into few smaller orders. For the remaining 5% of the respondents, free/discounted shipping doesn't affect their purchases decision and such respondents do not mind paying delivery charges and/or delivery premium. Overall, the respondents prefer free/discounted delivery and are ready to wait for few more days for such delivery.

Regarding delivery costs, 33% of the respondents are willing to pay any cost for shipping and handling, as long as total cost on the order is lowest. 48% of the respondents are willing to pay

some kind of predetermined price for shipping and handling, as long as one can feel that he is receiving good value for the product as well as shipping and handling. The remaining 19% of the respondents select free shipping even if the total cost is little more than one paid for shipping for same product from a different retailer.

Table 7: Return/Exchange Policy

Response	Percentage of respondents (%)	
	Yes	No
Received damaged/unsatisfactory product	58	42

The return rate becomes on the higher side in India. When faulty or damaged goods are delivered to customers' houses, several issues come up like which party is responsible, who will bear the cost of damage, additional transport along with the discomfort to the consumer in bearing the delay and all the problems if he wishes to get into any kind of dispute. This requires a major reverse logistics operation comprising the retrieval, checking, repackaging and redistribution of returned merchandise [4].

42% of the respondents have received a damaged/unsatisfactory product. When these 72 respondents were contacted to ask if they had got a replacement only 28 admitted to being completely satisfied. Many respondents have complaints that, at times, there is no response from the seller after product delivery. Home deliveries that are damaged or faulty cause significant costs to supply chain partners. The market for managing the return of goods is also increasing.

Table 8: Period of delivery

Maximum number of days respondent is willing to accept from order day	Number of respondents (N=50)	Percentage of respondents (%)
2 days	06	04
3 days	12	08
4 days	18	12
5 days	36	24
1 week	78	52

These orders are delivered through smaller and more economical carriers who at times deliver by bicycle.

The increasing need for more reliable delivery is raising the importance of local delivery operations. In both local and long distance delivery services of goods, local movements are a very important segment in the whole delivery process because local (typically urban) movements can be a large segment of the overall delivery time and delivery times are usually dependant on traffic conditions in urban areas. There is also the problem of parking to unload delivery vehicles in residential areas at times of day when people are at home to receive their goods [10].

More than half of the respondents are willing to wait for a period of 1 week in case of free shipping. However, in case of premium delivery, most of respondents do not want to wait for a period exceeding 3 days. This is because of the premium paid on premium delivery. As indicated in the above table, around 24% and 12% of the respondents are ready to wait for maximum period of 5 days and 4 days respectively.

While one would like to believe that freight should be delivered during off-peak hours, this is often not the case. This is because the consumers may not be at home to receive the goods during those hours. Successful solutions would be reducing redundant delivery attempts, and cleverly locating warehouse sites.

There has been an emergence of 'Same-day home delivery service providers'. Companies delivering goods through internet orders or telephonic orders currently offer several different delivery options, each of which has a different delivery charges. However, few of these retailers and delivery companies offer their customers the option of timed delivery (either by day or time slot). In its same-day service delivery, times are further subdivided within a single day. In general, there is a clash between the time of delivery and the price, and the unit cost per mile rises.

Table 9: Important factors considered for deciding upon home delivery solution for purchasing products

Factor	Percentage of respondents
Price	48
Weekend deliveries	34
Convenience	78
Delivery commitment time	66
Night deliveries	18
Others	22

As indicated in the table above, convenience provided is most sought after option for choosing home delivery options for various products and/or services. Almost 80% of the respondents consider convenience as most important factor that boosts them to opt for home delivery services. Customers prefer the seller to commit a delivery time and arrive for delivery accordingly. 66% of the respondents look out for a time frame for a delivery of products. In absence of such time frame, there may arise 'Not-at-home problem'. A major factor for the success of home delivery operations is whether there is someone at the customer's home to receive the delivery. Several social and economic factors are leading to homes being empty for longer periods in a day than they used to be. Some of these are inflexible working patterns, long commutes, increases in working women, and the growth in single-person households. This result in a relatively high proportion of first time delivery failure, causing higher operating costs for carriers and lower customer satisfaction. When respondents were asked about 'Not-at home problem', 16% of them expressed to have faced such issues in last 3 months. As indicated in the table above, besides price, weekend and night deliveries is also considered before placing a delivery order. While 34% of respondents look out for weekend delivery time frame, a mere 18% prefer night deliveries.

Convenience stores, open almost all day, offer this service both for extra revenue and because it generates more in-store traffic. With a growing number of houses empty during the daytime and the standard delivery times between 8am and 5pm, the difficulties are bound to happen. There must be a better understanding with regards to when customers want to receive deliveries, and then meet their needs. Reducing the likelihood of these delivery problems would help to reduce operating costs of home delivery companies and increase customers' satisfaction.

There are some cases such as home delivery of food, in which prior arrangements for a time window for delivery are made between online retailers and the consumers. Even this may not always guarantee that the customer will be present at home. However, this is not the norm for most home deliveries. The reason is that such pre-arrangements of delivery time make things very rigid and expensive for both retailers and carriers. If prearranging delivery times and days with customers do not work out well then there would be a need to develop other delivery systems and strategies.

Table 10: Payment options

Mode of Payment	Number of respondents	Percentage of respondents (%)
Cash on delivery	79	53
E-payment	42	28
Pre-payment at the store	20	13
Others	09	06

Payment options play an important role in placing a home delivery order. The cash on delivery model is very popular in India and the buyer can turn around anytime. The returns are high and this drastically adds to the cost.

53% of the respondents make use of Cash on Delivery ('CoD') as the payment option. Thereby, these respondents pay only when the product physically reaches them and after they verify the same. The credibility of retailers may be thus increased as the consumer has to pay only at the time of delivery. Around 28% of the respondents choose E-payment as their preferred payment option. The reason for this option is because of attractive discounts as a reward for pre-delivery payment. 13% prefer pre-payment at the store. They choose this option due to discounts available for such option and also because they had verified the product at the store. This happened in case of bulky goods and electronic products and appliances.

The respondents also suggested few methods to overcome the problems arising in the current system of home delivery services. Among the various potential strategies, a new service options called '*Station-to-Station service*' can be introduced to existing door-to-door delivery systems. As an alternative, offices and apartment buildings can be designed with secure delivery boxes allow delivery firms to leave personal shipments there. Shipments can be delivered at the place of work whether the customer is available or not. Providing alternative service option to the system will enhance customer satisfaction and also enable carriers to more flexible operate their vehicles.

5. Conclusion

With the ever-increasing rise of Smartphone owners, e-commerce appears to have a promising future in India. Probably despite a population of 1.2 billion people, there may not be too many customers at the moment but the potential is immense.

The Indian economy even now remains informal. To survive, these companies must offer a cash on delivery option as credit card usage is relatively less in India and people do not trust credit cards. More than one third of the population in India does not have bank accounts.

Home delivery service is considered as the 'last mile logistic'. The last mile is the link between an online ordering process and physical product delivery [5]. If the home delivery issues are handled satisfactorily it has the potential to accelerate the growth of e-commerce as well as to create good and well developed urban freight systems. Home delivery services lead to a lot of complexity in supply chain management. The delivery issue when the customer is not available at home is the most crucial factor.

Because of all the problems that carriers create, Flipkart in India relies on its own logistics to ensure home delivery of their orders. However this requires tremendous capital investments in a sector that is still struggling to assert itself.

While we often like to assume that it is often presumed that freight should be delivered during off-peak hours this is often not a practical solution. Many customers are extremely time-sensitive and it becomes difficult for the company to combine it with other home deliveries at the same time. Thus operating costs become very high.

The return rate becomes abnormally high due to the cash on delivery option and consumers might shift to a different product effortlessly and without cost. These goods ultimately come back to the company and sometimes become deadweight. Also the e-commerce company needs the finance to stock inventory but the delivery companies hold the money for a while.

If the home delivery issues are handled satisfactorily it has the potential to accelerate the growth of e-commerce as well as to create good and well developed urban freight systems. Home delivery services lead to a lot of complexity in supply chain management. The delivery issue when the customer is not available at home is the most crucial factor.

In India those e-commerce companies would probably succeed more which are localised, operate on a small scale and with a big margin. Highly aggressive promotional campaigns would swell costs and not yield enough returns, so word of mouth publicity is the safest bet. It is this kind of specialised and focussed small scale but big margin companies which would survive and flourish.

If there could be a service where the customer receives a SMS on his mobile phone two

or three hours before the delivery is due to arrive, it would certainly help. Snapshots from a camera with a time/date stamp could be used to use as delivery proof as the customer sometimes says he never received the goods.

Though home delivery suits many people there is also a sizeable number who would like to collect the parcel from a collection centre or a nearby store. This study recommends the setting up of more local pickup points to reduce redundant delivery attempts.

In home delivery operations, therefore, the physical reaching of the goods from the point of purchase to the home of the customer needs to be carried out well by specialized delivery companies. Companies can differentiate themselves and win the market by offering attractive shipping options. Low cost, deferred delivery services, reverse logistics and premium delivery are key areas that the respondents look for in the various delivery options available. Successful solutions will depend on how to derive the most benefit out of available capacity.

5.1 Scope for Further Research

- This study has taken into account the views of 220 consumers but if the views of retailers could be covered, the project could be more comprehensive and may lead to valuable results.
- More research is also required on the alternatives for reducing cost of home delivery operation like local points of delivery. Though this paper has touched on this vital issue, in-depth work needs to be done.

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