

Demand Analysis of Terminal Consumers of Online Shopping Based on Maslow Demand Theory

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Abstract

With the development of Internet and information technology and increasing number of net citizens in China, e-commerce is now in the ascendant, so does express industry. However, the domestic express enterprises have unsatisfactory services and low utilization ratio in logistics facilities. What's more, last-mile delivery has brought great pressure on urban traffic situation. In order to help the companies to master the demand and enhance their service level, the paper divides the demand into five levels from terminal consumers' perspective. The paper also points out that joint distribution is an effective way to alleviate and solve these problems, including low utilization ratio, unsatisfactory service level and urban traffic jam.

Key words: *online shopping, express industry, service level, demand analysis, joint distribution*

1 Introduction

Internet technologies provide many competitive advantages such as agility, selectivity, individuality and interactivity¹. The rapid development of information technology and Internet in recent years has expedited the expansion of e-commerce in many countries^{2,3,4,5}. Moreover, online shopping has become one of the most vital online behaviors⁶. While, on 11 November 2015, on Alibaba's annual day of discounts called the "Double 11 Shopping Carnival", Taobao and Tmall (two e-commerce enterprises in China) produced over \$14.14 billion in sales and 678 million orders in just 24 h⁷. As the volume of online shopping increases, so does the demand for package express service, which adds more pressure on the distribution network⁸. China's express industry has maintained a rapid growth tendency as total express volume exceeded 20 billion, reaching 20.65 billion in 2015 and keeping the world's first, referring to Fig.1. More and more people use express and the frequency increases significantly. It is predicated that the express volume will reach 50 billion.

2 Existing problems in express enterprises

Although the express volume has increased so rapidly along with the expansion of online shopping, the services of express enterprises are not satisfactory. According to *the annual supervision report of express market in 2015* published by *State Post Bureau*, the demands of end-customers are not fully satisfied. The key issues about services that consumers complain about are terminal delivery, loss, damage, delay, pick-up and delivery, unreasonable charge, pay on delivery and so on (Fig.2). In May 2016, the total number of complaints were 12673, plunged by 28.5 percent month to month and 1.5 percent year on year, but the complaints about terminal delivery, loss, pick-up and delivery, unreasonable charge and pay on delivery still increased. As to the main online shopping express enterprises, consumers had a valid complaint of 40 enterprises. The average effective complaint rate of national delivery service was 5.01 per one billion and 11 express enterprises are higher than the value, including EMS and STO.

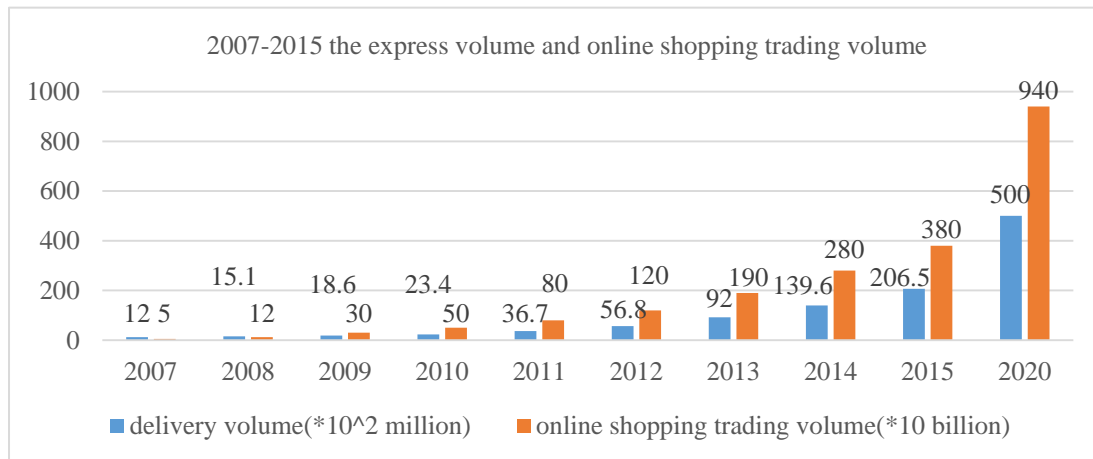


Fig.1 The express volume and online shopping trading volume from 2007 to 2015

Referring to Fig.3, the complaint situation is different and services provided by the research objects are distinct because of unbalanced strength and development. Also, these enterprises have different kind and number of logistics facilities and have a low utilization ratio. Moreover, the busy express industry increases more pressure on urban traffic.

Active improvements are needed to change the situation. They need to make it clear that what kinds of service end-customers want and how they can provide it. Also, the express industry should come up with a way to work in harmony with society and environment.

3 The demand analysis of online shoppers

In order to help express industry to master the demand of terminal customers, the

paper divides the demand into 5 levels (Fig.4). Each level corresponds to different delivery service (Table 2).

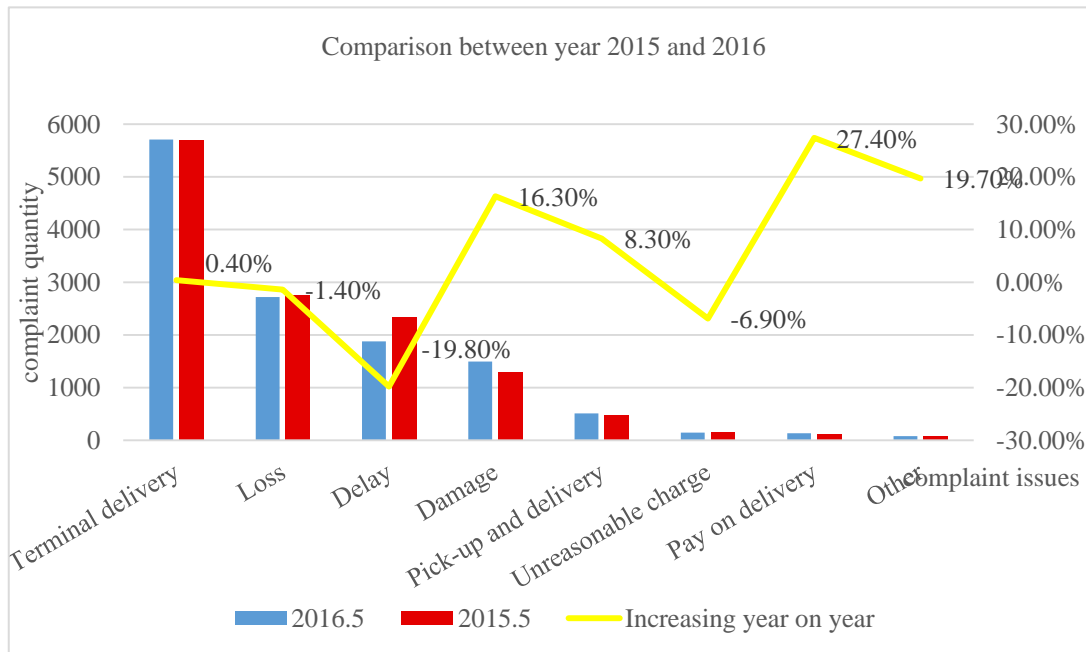


Fig.2 Comparison between 2015 and 2016

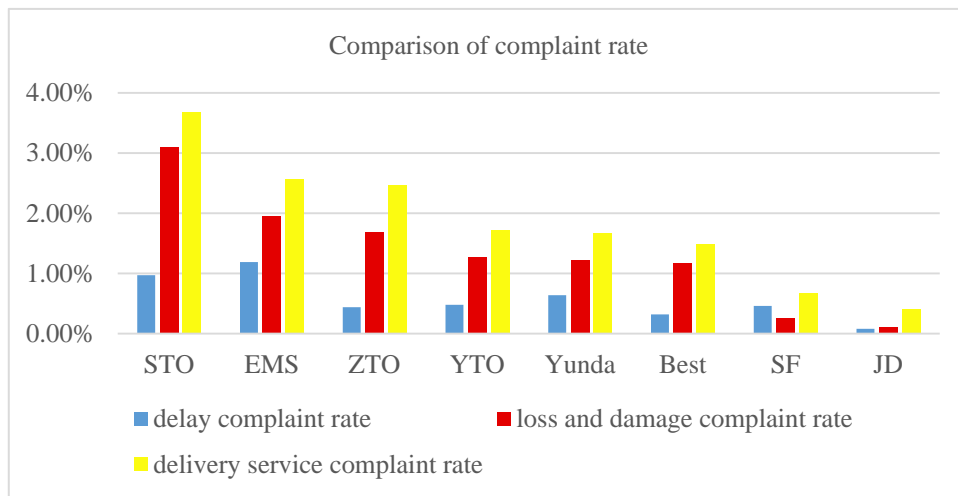


Fig.3 Comparison of complaint rate in different express enterprises

- I - Basic needs. In this level, the users only need the right goods to be delivered to the right place and they have loose requirement about the time it takes.
- II - Reliability needs. People short the time they will wait and start to focus on whether the right goods are damaged and the price is reasonable.
- III - Diversified service needs. In this level, the users further short the delivery time.
- IV - Good experience needs. Consumers require personalized service and it's better if the express companies can provide varied kinds of services that consumers need.
- V - Eco-friendly needs. People are aware that express industry has brought many

severe problems to our society and environment.

Table 1 Services provided by different express enterprises

| Enterprises | | EMS | JD | SF | YTO | STO | Yunda | Best | ZTO |
|------------------------|------------------|-------|------|-------|-------|--------------------|-------|-------|-------|
| Domestic express | | √ | √ | √ | √ | √ | √ | √ | √ |
| Nationwide express | | √ | × | √ | √ | Macao and Hongkong | √ | × | √ |
| Time limits | 12-hour delivery | √ | √ | √ | √ | × | √ | × | √ |
| | 24-hour delivery | × | √ | √ | √ | √ | × | × | √ |
| | 48-hour delivery | × | × | √ | √ | √ | × | × | × |
| | 72-hour delivery | × | × | × | √ | √ | × | × | × |
| Personalized packaging | | √ | × | √ | × | × | × | × | × |
| Online order | | √ | × | √ | √ | √ | √ | √ | √ |
| Sites | | 45000 | 5987 | 12000 | 24000 | 20000 | 43000 | 16000 | 10000 |
| Door-to-door delivery | | √ | √ | √ | √ | √ | √ | √ | √ |
| Night delivery | | × | √ | × | √ | × | × | × | × |

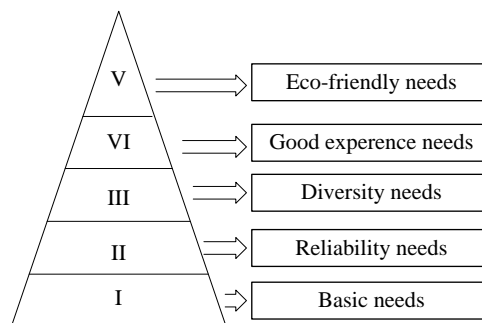


Fig.4 Demand level of terminal customers

4 Joint distribution

Joint distribution mode can be chosen to solve existing problems among online shopping express enterprises. Joint distribution is also called as common delivery, generating in Japan to tackle the delivery issues among the separated grocery stores. It

is a coalition that gathers some companies together to unit and deliver goods aiming to make improvements in logistics efficiency. The members of coalition can share their warehouse and transport vehicles to improve utilization ratio. In the last-mile delivery, a premium company can delivery all the goods in coalition, improving the service level eventually. Through their supplement each other, the transportation distance and delivery time can be shorten, leading to obvious cost saving, high resource utilization and high delivery service level⁹. The quantity of transport vehicles in urban last-mile delivery can be significantly decreased, thus relieving the traffic jam to some extent.

Table 2 Service demand in different level

| Level | I | II | III | IV | V |
|----------------------|--------------------|----------------------|----------------------|--|--|
| Time limit | 5-10 days | 3-5 days | 48-72 h | Same-day delivery; Next-morning delivery; | Same-day delivery; Next-morning delivery; |
| Reachability | Urban reachability | Address reachability | Address reachability | Address reachability | Address reachability |
| Accuracy | √ | √ | √ | √ | √ |
| Quality | | √ | √ | √ | √ |
| Price | | √ | √ | √ | √ |
| Time Flexibility | | | Time window | Time window | Time window |
| Delivery ways | | | Diversity | Diversity | Diversity |
| After-sale service | | | √ | √ | √ |
| Experience | | | | √ | √ |
| Package | | | | √ | √ |
| Personalization | | | | √ | √ |
| Environment-friendly | | | | | √ |
| Sustainability | | | | | √ |

5 Conclusion

There are several serious problems among online shopping express enterprises, such

as unbalanced development, high logistics cost, unsatisfied service in last-mile delivery and so on. It is also hard for a company to build a complete logistics system itself. What's more, from the perspective of society, on the one hand, logistics has brought great pressure on urban traffic situation. On the other hand, the low utilization ratio of warehouses, transportation vehicles and other facilities will cause the waste of resources. In order to master the demand of terminal consumers, we divide the demand into five levels. Consumers have different service demand in different level. Joint distribution is a delivery mode that some express enterprises getting together to collect and deliver goods to improve logistics efficiency. It may well lead to considerable cost saving, reliable service assurance and high service level. While, to form a stable and successful coalition, there needs to enhance the leadership of decision-making organization and maintain the benefit of every member. For participant companies, they should protect commercial secrets in the coalition. Further research will be conducted on how to choose the best partners of coalition.

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