

# Effect of New Material and Production Technology Development on Food

## E-tailing

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**Key words:** e-tailing; material and technology; food distribution; consumer behavior

### Abstract

With the development of e-business technology and the policy support by the nation, industries has taken part in e-business and food industry is not an exception. E-tailing formats of food products is not only driving by general development of e-business in distribution channel, but also drive by adoption of new producing and packaging materials, and production technology development of food products. The technology development have effected on the food distribution in supply chain and influence final consumers' behavior in obtaining and consuming of food products in quantity, category and frequency etc.

### Introduction

#### New material and production technology impact on e-tailing in China

Along with the new food producing materials (such as new food additives and new raw ingredient), packaging materials (such as fresh-keeping bag and chill bag) and production technology developing in China, people's expectations on food manufacturing and distribution are rising. Consumers pay more attention to products quality, convenience of shopping and time saving, especially when bad weather, traffic inconvenience, shopping rush hour are encountered, going to the supermarket become a headache. E-tailing can easily settle these problems. It provides consumers with convenience efficiency and economy [1]. By clicking the mouse, consumers can quickly browse the product information on the internet, choose from a wider scope, and save searching costs. In addition, the website runs 24 hours a day, consumer can choose and buy products at any time and place, which makes consumers have an unprecedented shopping elasticity [2,3]. Consumers who care for shopping convenience are more likely to choose online shopping [4,5], those who value their time more prefer shopping through the internet [6,7]. New materials applied in production and distribution has made standard, hygiene and safe of food products distributed via e-tailing become possible. At present, the consumer demand for online shopping become more and more strong.

#### The development of food e-business in China

##### Increasing trade volume

China online retail market traded 2.8211 trillion yuan in 2014, compared with that of 2013, 1.8851 trillion yuan, it has increased by 49.7%. Although food e-business account for 3% for the whole e-business trade volume, it has a dramatic increase from 4.3 billion in 2009 to 32.4 billion in 2013 in figure 1[8]. The dramatic consumer need are resulted from three reasons. The first is the logistics

system further improved. The second is the online payment methods and platforms, such as alipay, unionpay, applepay has a dramatic increase. The most important is network consumption habits preliminary formed for food industry in China [9].

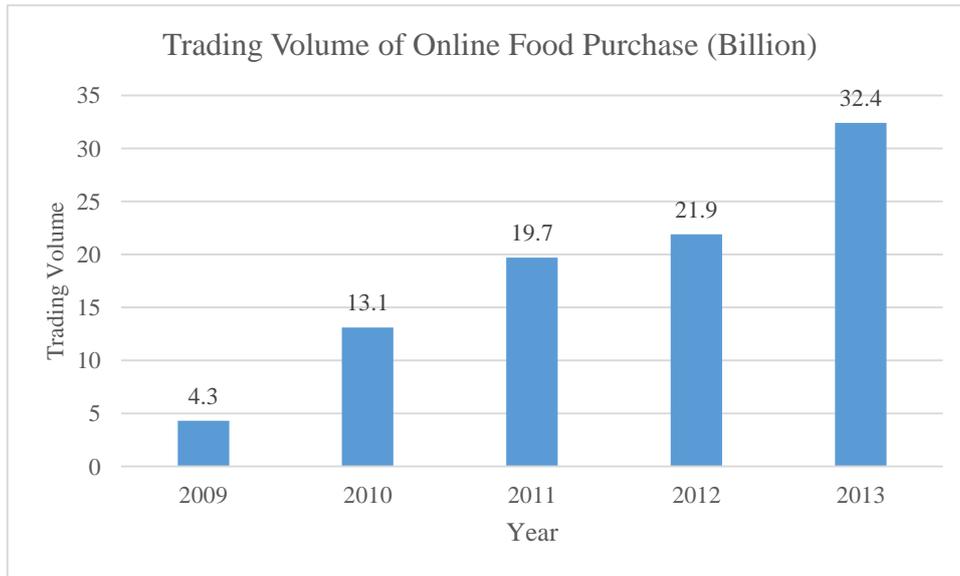


Figure1 Trading volume for online food purchase [8]

**New segment of market**

According to the report of 37th China internet network development statistic, up to December 2015, there are 688 million internet users in China, the young adults aged from 28 to 38 account for the highest proportion (46.94%) [10]. As an important part of young adults, white collar has increasingly become the main groups of online shopping. The white collar fully command the networks technology and they have discretionary spending and pursuit personality and fashion. Advanced shopping concept and limited life spending make them become the mainstay of online shopping

**Methodology**

560 valid questionnaire have been used in analysis. Data are collected from two ways. 170 questionnaires handed out in different districts in Beijing, and 410 online survey collecting data from different provinces. Statistic, cross tabulation and chi-square test are applied in the SPSS software for data analysis.

**Result analysis**

**Respondents Statistic**

The results show in the table 1: in 560 samples, the proportion of female almost equals that of male. The age of the respondents mainly concentrated in the group of 28-38(40.4%). The people under 18 years old account for the least proportion. Among these samples, 93% people experienced online food shopping. But most of them use online food shopping twice a month (42.3%) or when discounting use it (46.5%), that means the marketing pattern of online shopping just get started. But the payment method shows 53% people use mobile pay to shop, which means the payment platform is very mature. In addition, for searching product details, 59.2% people use online text description, which is 4 times of seeing comments. And only 2% people use online enquiry.

**Table 1: Respondents statistics**

Respondents information	groups	percentage	Respondents information	groups	percentage
gender	female	51.4	online food shopping	yes	93.0
	male	48.6		no	7.0
age	below18	7.1	salary	Below 5000	39.4
	18-28	25.4		5001-8000	35.2
	28-38	40.4		8000-10000	15.5
	above38	27.1		Above10001	9.9
Purchase frequency	2 per week	2.8	ways for product details	Online text description	59.2
	1 per week	5.6		Online picture	11.3
	2 per months	42.3		Online inquiry	2.8
	discounting	46.5		view comments	16.9
Payment methods	Ebank pay	17	Brand reputation	9.9	
	pay on delivery	3			
	Mobile pay	51			

### **Purchasing situation towards food e-tailing**

From table 2, the survey indicates that when people shopping on-line, cookies & pastry, nuts, chips, dried meat slice, chocolate ranked as the top five favorite food among 15 foods and fruit and vegetable only accounts for 16.5% which is only one third of cookies & pastry. The reason could be fruits & vegetables are more likely to damage and deterioration on delivery and it is convinced by the frequently problems which indicates damaging on the delivery is most focused issue (70.4%). When the consumer had bad experience, 47.9% people do nothing to protect their own interest and only 22.5% people resort to law helping to get their refunding. This phenomenon could be explained by that online food supervision is not strictly so that the legitimate rights and interests of consumers are not guaranteed. Therefore, 39% consumers expect to strengthen the online food supervision to improving food e-business.

**Table 2: Consumption attitude statistic**

Attitude to bad experience (multiple question)		Measures improving food e-business (multiple question)	
Do nothing	47.9	Strengthen supervision	39.4
Contact the seller until problem settled	22.5	Strengthen the protection of consumer interests	35.2
Law helping until refunding	22.5	Raise the threshold of entering the market	21.1
Won't use the shopping website and comment bad experience	7.0	Optimization of logistics	4.2
Preference of consumption(multiple question)		Frequently problems (multiple question)	
Cookies & pastry	49.3%	Damaging on delivery	70.4%
Nuts	45.1%	Received expired food	56.3%
chips	38.0%	Complex refund process	40.8%
dried meat slice	33.8%	Unfavorable taste	35.2%
chocolate	26.8%	Delivering wrong goods	25.8%

### Key influence factors on satisfaction

From table 3, the satisfaction with the brand has significantly influence on purchase frequency. When consumers online shop twice per month, 28.6% people are very satisfied with the purchase process. But when consumer increase the purchase frequency that they online purchase once per week, the proportion of consumers with very satisfaction dramatically increases (57.1%). That means the satisfaction with the brand can significantly promote consumers' online food shopping. In order to further examine the relationship between buying frequency and brand satisfaction, chi-square test carried out in the SPSS software. The significant level of the chi-square test is 0.00.

Table 3: Cross tabulation and Chi-square test for buying frequency and brand satisfaction

The satisfaction with the brand	Very dissatisfaction	dissatisfaction	Neither	satisfaction	Very satisfaction	total
2 per week	50.0%	0.0%	0.0%	50.0%	0.0%	100.0%
1 per week	0.0%	0.0%	0.0%	42.9%	57.1%	100.0%
2 per months	0.0%	14.3%	0.0%	57.1%	28.6%	100.0%
discounting	2.6%	2.6%	26.3%	47.4%	21.1%	100.0%
Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)		
Pearson Chi-Square		279.627 <sup>a</sup>	12	.000		
Linear-by-Linear Association		4.155	1	.042		
N of Valid Cases		560				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1.75.

Apart from the brand satisfaction, expiration satisfaction also has significantly impact on the buying frequency. It is evidenced from the data of table 4 that when people online purchase twice a month, 28.6% people are very satisfied with expiration. But when purchase frequency increases to once per week, the proportion of very satisfaction with expiration also grow to 42.9%. And the relationship is further proved by chi-square test of these two variables, that the value of the test is 301.716.

Table 4: Cross tabulation and Chi-square test for buying frequency and expiration satisfaction

The satisfaction with expiration	Very dissatisfaction	dissatisfaction	Neither	satisfaction	Very satisfaction	total
2 per week	50.0%	0.0%	0.0%	50.0%		100.0%
1 per week	0.0%	0.0%	0.0%	57.1%	42.9%	100.0%
2 per months	0.0%	14.3%	28.6%	28.6%	28.6%	100.0%
discounting	2.6%	2.6%	23.7%	57.9%	15.8%	100.0%
Chi-Square Tests		Value	df	Asymp. Sig. (2-sided)		
Pearson Chi-Square		301.716 <sup>a</sup>	12	.000		
Linear-by-Linear Association		12.054	1	.001		
N of Valid Cases		560				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 1.35.

## Summary

Development of e-tailing on food products is still in growing stage, although the payment platform is very mature. New materials used in food production and distribution have big impacts on on-line food selling, however, unstandardized, damaged, and poor quality food products are worrying on-line food shoppers. Now, the legitimate rights and interests of consumers are not guaranteed, so people do nothing to protect their own interest when experiencing bad purchase. In addition, online food purchase has its own feature compared with other online shopping. The satisfaction with brand and expiration can significantly influence the purchase frequency.

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