The transmission method based on Lambert-Beer Law can monitor high turbidity with high precision, and the whole range of turbidity can be monitored by combining with scattering method.

Reference

[1] Q. Song, F. Luan, Z. Shi, T. Li and M. Wang, "Design of Turbidity Remote Monitoring System Based on FX-11A Optical Fiber Sensor," 2020 Prognostics and Health Management Conference (PHM-Besancon), Besancon, France, 2020, pp. 291-294.

[2] T. Li, F. Luan, M. Wang, Q. Song and Z. Shi, "Design of Remote Monitoring System Based on STM32F407 Microcontroller," 2019 IEEE International Conference on Power, Intelligent Computing and Systems (ICPICS), Shenyang, China, 2019, pp. 304-307.

MATTHEW EFFECT IN B2C AND ITS COUNTERMEASURES - EXPLORATION OF NEW C2B MODE

Jian Zhang
Northeast University, China
e-mail: 1135874100@qq.com

Summary. *This paper studies the Matthew effect in the field of B2C, through the search theory of consumers and the scale effect of businesses, the disadvantages of the current B2C model are obtained. Combined with the exploration of C2B under the background of industry 4.0 and some new transaction modes in the game, we propose a reverse transaction mode in the field of B2C to improve the disadvantages of the current B2C mode, and as a transition to the future C2B mode, and demonstrate its feasibility through the search cost theory and Pareto improvement.*

Keywords. *B2C;C2B; Matthew effect; Search theory; Customization effort; Pareto improvement*

Any individual, group or region that has achieved success and progress in a certain area will have an accumulated advantage and will have more opportunities to achieve greater success and progress. This is the Matthew effect. The phenomenon that the stronger the stronger and the weaker the weaker, is more obvious in the e-commerce industry. The higher the transaction volume, the more resources accumulated, the easier it is to develop; the lower the transaction volume or the new business is difficult to obtain the advantage resources quickly, the competitiveness is becoming weaker and weaker, and finally faces the doom of being eliminated.

From the perspective of consumers, according to the search theory, people's search for information has costs. With the increase of search times, the marginal revenue from search always decreases. When the expected marginal revenue equals the marginal cost, the search activity will stop. Consumers want to buy high-quality and low-cost products. When consumers search for goods on the B2C platform, the order of the product interface is just listed from top to bottom and from front to back based on the factors such as price, quality and sales volume. Naturally, consumers search and filter from top to bottom and from front to back. Because of time cost and other factors, consumers tend to browse the first few stores We will place an order to buy the goods, instead of spending more time browsing the next products at the sequence back. We can also find that the top sellers or manufacturers of commodities are generally the official flagship stores or authorized stores of famous enterprises. They have the advantages of good quality and low price by virtue of the scale effect. However, the unknown merchants who later joined the B2C platform are not only difficult to beat other well-known businesses who have entered the B2C platform first in terms of product quality and price, but also It is very difficult to attract consumers to pay attention to and

browse their products. As a result, the "Matthew effect" in the field of B2C is becoming more and more serious. The more powerful and well-known businesses are, the faster they develop, and the later they join, the weaker and smaller businesses,the less chance they have to survive.

If this goes on for a long time, more and more small and medium-sized enterprises may be on the decline. Is there any way? Ma Yun, the former CEO of Alibaba, believes that for smaller e-commerce companies, it is necessary to achieve differentiated competition, small and beautiful as far as possible, so as to survive. However, there are new problems. Is there enough space for small and medium-sized e-commerce to achieve differentiated competition? Differentiated competition is nothing more than market segmentation, product and business model. In the market segment, the "combination" of product, service, price, promotion and distribution system has become more and more clear, and it is difficult to make a breakthrough. In terms of products,the product quality and price advantage is difficult to surpass the brand merchants, and under the search theory, it is difficult to attract consumers to pay attention to their own products, even if it is better than brand merchants in terms of quality and price. What about business model innovation? Can we innovate the business model of B2C, so as to give small and medium-sized businesses in a weak position some new survival and development opportunities? Therefore, our research focuses on the innovative design of B2C business model to improve or solve its existing shortcomings.

Not long ago, we noticed that there was a new reverse trading model in some online games. Consumers release the information of the goods they need through a trading platform and give the interval range, including time, price, size, color, psychological needs, etc. After seeing the information, according to the compliance degree of their existing products, the merchants send them selectively to the consumers. Finally, the consumers choose one of the commodities they are satisfied with to complete the transaction. We call this transaction mode reverse B2C.In this transaction mode, both consumers and businesses change from passive to active. Consumers can save more time and reduce search costs. Unknown and disadvantaged businesses also have the opportunity to show their elaborate products to consumers.

You might say, isn't this C2B? No, not exactly. C2B mode is that consumers show mature product design to merchants according to the current popular trend, so as to realize production according to orders, reduce inventory backlog, improve production efficiency, and meet the needs of consumers to the maximum. The key of C2B is that the consumers put forward the demand first, and then the production enterprises organize the production according to the demand. In the reverse B2C transaction mode mentioned above, we focus on selecting the products that have been produced according to the demand, rather than designing and re producing new products.In B2C, more businesses are distributors than manufacturers, more goods are already produced than waiting for orders to be made. According to the existing conditions to improve the disadvantages of B2C mode, this is the starting point of reverse B2C trading mode. It can be used as the transition of C2B mode under the background of industry 4.0 in the future, instead of directly developing into a new C2B mode. Of course, we believe that there is still no realistic condition for the emergence of a universal, reliable and stable C2B platform, but this is not the focus of this article.

According to Pareto improvement, reverse C2B trading mode makes full use of limited human, material and financial resources, optimizes the allocation of resources, realizes the three conditions of optimal exchange, production and product mix, and makes at least one person better without making anyone or his situation worse. In the reverse B2C mode,businesses in a weak position have new opportunities, and consumers also have a choice of new ways to buy goods and reduce search costs.

In 2019, China issued the e-commerce law, which mentioned encouraging innovation in e-commerce mode, promoting business technology research and development, and promoting consumption upgrading, this provides institutional guarantee for the reverse B2C transaction mode. If the current B2C platforms such as Taobao and Jingdong can develop this reverse B2C trading mode, and try to design a brand-new commodity ranking mode under this trading mode according to customization efforts of merchants, and on this basis, it can be used together with the current

B2C mode,we believe that this will not only bring consumers a new consumption experience, give more small and medium-sized businesses survival and development opportunities, but also become a useful exploration of C2B mode under the background of industry 4.0 in the future.

Reference

[1] Di Xiao,Supply chain coordination strategy considering cost sharing contract in C2B E-commerce[J],Management Review 2019.9

[2] Computer world,May 21, 2018,edition 006

[3] Li zuosheng, Analysis of e-service level, consumer fit and consumer satisfaction under C2B mode[J]. Research on business economy,2020.9

LCA ANALYSIS OF PRIVATE CAR FUEL IN SHENYANG BASED ON GREET MODEL

Shi Haoyang, Jia Ziyuan, Liu Jiarui,
Northeast University
e-mail: 1176439707@qq.com

Summary. *The purpose of this project to life cycle assessment as the guiding ideology, the GREET model is used to analyze the traditional fuel vehicle (E10), natural gas (CNG) car, pure electric vehicle (EV) and hybrid electric vehicle (HEV) fuel the whole life cycle energy consumption and pollutant emissions, the following conclusion: the optimal, pure electric vehicle energy conservation and emissions reduction benefits based on traditional gasoline per hundred kilometers energy saving and emission reduction efficiency are 36.07% and 29.64% respectively; Shenyang can reduce energy consumption by 3.07×109MJ and greenhouse gas emissions by 2.45× 105T per year by using the four selected fuels. Finally, on this basis, put forward several relevant Suggestions for the government and relevant departments to adopt.*

This project GREET2019 version is used in the research process, parameter setting process, first of all, choose the vehicle type selected for basic passenger vehicles (passenger car), the next life cycle stages of parameter setting, according to the thinking of life cycle assessment, this part includes each source of raw materials and fuel, fuel production mode, the mode of transportation, etc.After running the GREET software, a series of data about energy consumption and pollutant emission were obtained. Through the analysis of relevant data, the following conclusions can be drawn:

(1) Energy consumption

①The highest energy consumption of fuel vehicles, pure electric vehicles the least energy consumption, compared to fuel vehicles reduced by 32.6%; Petrol-electric hybrid cars consume 14.1% less energy than petrol-powered ones. The energy consumption of gas-fired vehicles is basically the same as that of oil-fired vehicles. The fossil energy of the four fuel types accounts for 93.4%, 99.3%, 92.4% and 92.6% respectively in total energy consumption. Oil consumption of petrol-fuel vehicles and hybrid electric vehicles accounts for the majority; The proportion of natural gas consumption of gas-fired vehicles is the largest. Pure electric cars consume the most coal.

(2) Pollutant discharge

①The highest CO_2 emissions of fuel vehicles, the lowest CO_2 emissions of pure electric vehicles, gas vehicles and hybrid electric vehicles in the middle; The greenhouse gas emission reduction effects of hybrid electric vehicles, gas-fired vehicles and pure electric vehicles are 3%, 20.5% and 25.5% respectively. ②The CO_2 emissions in PTW stage of fuel vehicles and hybrid electric vehicles account for a high proportion, which is about 4 times that in WTP stage. The CO_2