

The Economic Impact of Monopolistic Advantage: A Case Study of Microsoft

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Abstract. As one of the largest company in the world, Microsoft is regarded as a monopolist because of its dominant position in operating system and software industry form 1990s till now, and this kind of monopoly is going to be sustained in the future. Under a such background above, it is important for customers to know what impacts do monopolist have on them. Is it benefit or doing more harm to customers when compared to competitive corporations. In this paper, we use Microsoft case analysis to discuss questions like product quality and customers' economic burden of monopoly. Also, specific data such as customer satisfaction, income and expenditure are used to help solve the problems. We find that what really matters about the quality depends on the attitude and thoughts of customers who purchased and experienced the products since Microsoft's main products had been recognized by public according to their significant market share. However, monopolist does has negative impact on customers in some way. After analysis, we offer some suggestions on how Microsoft or other monopoly companies can improve their customer satisfaction and what measurement can be used to change the present situation.

Keywords: Microsoft Case, Product Quality, Customer Satisfaction, Economic Impact.

1. Introduction

Nowadays there are a significant number of companies producing and selling slight differentiated product in their industry. They are in a competitive market where each company is struggle for obtaining more market share from others by selling these differentiated products manufactured by itself to consumers, so it is hard to distinguish which product is better and which one is worse, and the quality of products cannot be guaranteed. Outstanding company with the highest market share may finally become a monopolistic corporate and drain vital resources away from other companies. Both advantages and disadvantages are existing for monopolistic company. It may be investigated and fined by government agency putting it under the risk of being decomposed while enjoying most of the product market. The rest companies in the market can only obtain a small part of market share and cannot operate well facing the monopolistic company. This has led to a situation where less competitiveness is in the industry and there is a shortage of the capability to innovate, which is against the development of the industry and the update of products. As for consumers, their actual income may change while they have the fixed nominal wage as the price of products is manipulated by monopolistic company at what level it wants.

Microsoft is one of the largest monopolists established in 1975. Microsoft is famous for its best-selling product Windows operating system and Office series. It has become the biggest supplier of computer software around the world and the leader of software development. Obtaining over 70 percent of market share in desktop operating system, Microsoft apparently cornered the market in this industry. But in recent years, it has received increasing public criticism for abusing its market position and using its computer operating system monopoly to expand its market share in other markets like browser market. It is acknowledged that Microsoft will continue to play a dominant role and occupy most of the market share in the industry although Microsoft itself denied its monopolistic position of unfair business practices from 1990s [1]. Considering from the three aspects of huge market share, high market entry barrier and lack of substitution of products, Microsoft can be recognized as a monopoly enterprise and enjoy monopoly power [2]. It is reasonable for Microsoft to use its market power to break the competition in other markets, this behavior is beneficial for Microsoft itself but

do harm to consumer's benefit and other organizations in the market. These are the problems we will discuss in this paper.

We use the case of Microsoft to illustrate the impact this monopolist has made on consumers and propose advice on the problems. We mainly focus on consumer aspect and simplify the demonstration of other aspects, this is a characteristic that most of articles neglect. Additionally, some data and diagram will be analysed combine with economic theories to find out the solution to these problems.

2. Background

Microsoft is a computer software producer developing operating system Windows and application software MS-Office Suite for personal computer. It is undoubtedly Microsoft was a technical giant in late nineteenth century, Windows operating system was used in approximately ninety percent of personal computer. Its "synch-and-stabilize" strategy has helped it adapted to the rapid developing market and evolved mass market [3]. The anti-competitive and monopoly action increased with the rapid development of Microsoft attracting the attention of the government of United States. In 1989, the Federal Trade Commission of the United States investigated whether Microsoft had monopolistic behavior. After three years of investigation, it was proved that Microsoft did have monopolistic behavior. It bundled application software with the operating system, and deliberately set hidden codes in the operating system to hinder the operation of competitors' applications. The Federal Trade Commission finally did not file a lawsuit against Microsoft, Instead, the case was transferred to the US Department of justice. In July 1994, the antitrust division of the U.S. Department of Justice filed an antitrust lawsuit against Microsoft for the first time, and finally reached a mediation agreement with Microsoft. Microsoft modified the software use contract to allow other software developers to compete with Microsoft.

In 1994, Netscape released the navigator browser. As the first commercial browser in the world, it quickly occupied more than 90% of the market share. In order to seize the market share of Netscape, in 1995, Microsoft cooperated with spyglass to obtain the source code license of Spyglass mosaic and quickly released the first generation of IE browser. In order to suppress Netscape, Microsoft took advantage of its monopoly position in the operating system to force computer manufacturers to bundle Internet Explorer for free when pre-installing Windows 95 operating system [4]. The suppression also accomplished by price war, Microsoft provided IE browser for free for both individuals and commercial use while Netscape charged for commercial use. In 1996, Netscape filed a lawsuit with the U.S. Department of justice, and computer manufacturers such as Compaq also provided the Department of justice with the evidence of Microsoft's compulsory requirement to bind Internet Explorer. On May 18, 1998, the United States Federal Department of justice, on behalf of the federal government and the state procurators of 19 other states, jointly filed a monopoly charge against Microsoft in the federal court of the District of Columbia, accusing Microsoft of violating the antitrust law by abusing its market power in the operating system market and taking improper actions to maintain its monopoly position.

After a two-year trial, on April 4, 2000, the presiding judge Jackson announced that Microsoft had violated the Sherman Antitrust Act and ruled that Microsoft would stop bundling IE in Windows 95 sales and should not make bundling IE a prerequisite for the Windows 95 license agreement. It also required that Microsoft be split into two parts, one dedicated to operating systems and the other dedicated to other software, and that the two parts cannot be merged within 10 years. Microsoft rejected the judgment and appealed to the District of Columbia Court of Appeal. In June 2001, the Court of Appeal of the District of Columbia rejected the judgement of the Federal Court and replaced the presiding judge for a retrial. After weighing the pros and cons, Microsoft proposed a reconciliation with the Ministry of Justice and reached a reconciliation agreement in November 2002. The Ministry of Justice no longer asked to split Microsoft. Microsoft paid about \$1.8 billion in the reconciliation fee. It was not allowed to participate in exclusive transactions that could harm its competitors. It was

also possible for competitors to write applications on Windows and for computer manufacturers to use uniform contract terms.

It is interesting that to what extent we consumer or organizations will be affected as Microsoft is a strong monopolist. Are consumers buy the products with higher quality, the same quality as other manufacturers or lower quality, and whether they can protect their rights through after-sales service? Does monopolist generate good or bad economic impact on their customers or competitors? Discussion on these problems will be meaningful and valuable to enhance consumer welfare and regulation of monopoly.

3. Problem Analysis

3.1. Product Quality

With the development of production technology and production process, the types of products continue to increase, and the products gradually become multifunctional. On the other hand, the consumption level of consumers is also improving, which puts forward higher requirements for all aspects of products, especially in terms of product quality, which makes the production behavior of producers and the choice behavior of consumers more complex and challenging. This also applies to Microsoft products, and whether its products can meet the needs of consumers and bring consumers a good use experience is what we will discuss next.

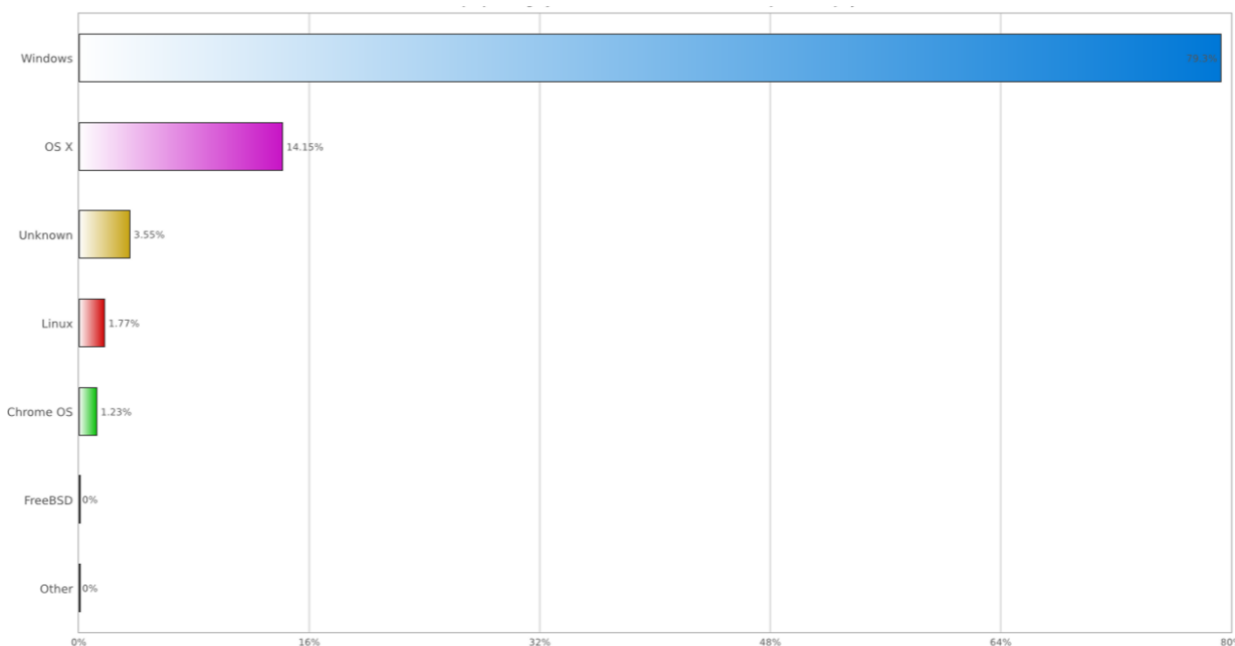


Figure 1. Desktop Operating System Market Share Worldwide from Jan 2017 - July 2022.

The chart above shows the desktop operating system market share worldwide from Jan 2017- July 2022. And we can find that Windows developed by Microsoft occupied 79.3 percent of market share. OS X, Unknown operating system, Linux, Chrome OS held the market share of 14.15 percent, 3.55 percent, 1.77 percent and 1.23 percent respectively. Free BSD and other operating system obtained zero. Though Windows makes a great success in OS industry, but we cannot judge whether Microsoft's products are good quality or bad quality just from one market share. We don't know whether other products enjoy a good or bad popularity among the consumers, it just confirms the fact that this is a hot sale item.

According to the research by Rajat Acharyya (1998), monopolist and social planners both provide maximized quality product when MRS (Marginal Rate of Substitution) between quality and price is constant, and there is no distortion of product quality [5]. Monopolist can reach the profit maximization under the assumption of keeping the quality marginal cost constantly. There was a per-

processor or zero marginal price mentioned in the Microsoft antitrust case from Economides (2001). We can apply the hypothesis to Microsoft that is it has constant marginal cost and MRS between quality and price. So we infer that products with good or maximized quality, at least not the bad quality products, are offered by Microsoft. We can prove that by groups of data.

Microsoft get the score of 76 out of 100 because of the development and sales of Windows 7 in Q1, 2010 according to an America Customer Satisfaction Index(ACSI) survey, which was the record high score before that date. A report written in 2013 showed the annual Customer Satisfaction Index of Microsoft which is consists of what extent do products meet needs, value received and overall satisfaction. Customer respondents for some factors are as follows:

Table 1. Percentage of Customer Respondents for 3 factors.

Factor	Overall satisfaction	Willingness to recommend	Technical ability of staffs
Percentage	100%	91%	90%

Later in J.D. Power 2017 Tablet Satisfaction Study in the United States [6], Microsoft ranked highest overall with a score of 855 out of 1000. It was said that Microsoft had the best performance in three functional areas and three design and styling attributes. Here is the ranking of overall tablets index of United States.

Table 2. Ranking of Overall Tablets Index of United States.

Brand	Score	Rating
Microsoft	855	5 (Among the best)
Apple	849	4 (Better than most)
Samsung	847	4
Study Average	841	3 (About average)
LG	836	3
Amazon	834	3
Acer	814	2 (The rest)
Asus	812	2

Also, the Microsoft Surface ranked highly in customer satisfaction and two of Surface series achieved 98% satisfaction according to a survey of consumers in the US, UK, Germany, France, China, Japan and Australia conducted by IPSOS and commissioned by Microsoft from January to June 2017. High customer satisfaction represents the products' capacity of meeting the demand. We can infer from these numbers that for most customers, the products offered by Microsoft have a good quality.

But every coin has two sides, there are voices and statistics showing dissatisfaction about the product quality. As Mussa and Rosen (1978), monopolist always decreases the product quality sold to their customer compared to competitive market [7]. Microsoft has indeed offered a series of failure items. The first was the release of Zune MP3 player, which is very unpopular among users. It was followed by the release of Windows Vista, whose GUI was so complex that even the most loyal customers of Microsoft did not like it. This is an example of Microsoft's product strategy that it values on market share rather than product quality. Microsoft does not care whether Zune is better than Apple's iPod, but only whether Zune sells well than iPod. This once again demonstrates Microsoft's early culture, that is, to dominate a market by gaining a large market share, rather than by creating truly excellent products.

Windows Phone, the last disastrous product launched by Microsoft in the 2000s, can be said to be one of the most failed products launched by Microsoft so far. In the first 10 years of the 21st century, Microsoft's performance has been very bad, and a series of high-profile product failures have made Microsoft even worse.

A survey made in 1998 showed that Microsoft was rated highest in only 3 of the 75 categories by customers while other two companies, Lotus and Netscape were rated highest in most of their

categories. It was said that Microsoft lagged except the loyal customers. According to a user survey conducted by changewave in 2008, there was a polarization between the user satisfaction of Vista (Microsoft's latest operating system) and Leopard (Apple's latest Mac operating system). Vista users were only 27% satisfied while Leopard users were 81%, and the dissatisfaction on Vista grew with each passing day. Through the different customer satisfaction between Windows 7 and Windows Vista, we can infer that Microsoft's quality product was unstable.

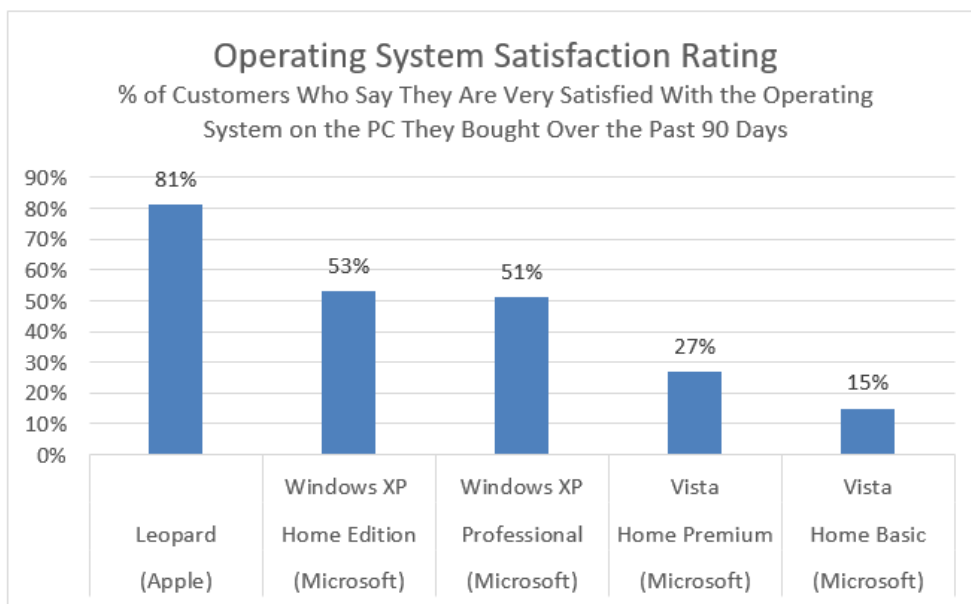


Figure 2. Operating System Satisfaction Rating.

VendorRate also announced that Microsoft's customer satisfaction score dropped sharply in the second quarter of 2009, mainly due to low customer satisfaction scores in operating systems, applications, etc. In 2017, Consumer Report, a well-known non-profit publication in the United States, conducted a survey of 90000 tablet and notebook owners and found that about 25% of owners of surface devices would encounter problems at the end of the second year after they acquired ownership. Therefore, it said that the damage rate of Microsoft's surface equipment was much higher than that of laptops and tablets produced by other manufacturers, and added that it had canceled its "recommendation" position on surface products.

Interestingly, different consumers hold different views and attitudes towards the same product, such as Microsoft surface. This shows that consumers are not only concerned about the quality characteristics of the product entity, such as shape, color, weight, but more importantly, whether the product itself can bring them an excellent sense of experience, such as whether the product function can meet their daily needs, and whether the product is convenient to use. Therefore, it is the consumers rather than the producers who determine the good or bad of the products to a greater extent.

3.2. Economic impact

Monopolists have a certain power of product pricing and they can despoil consumer surplus by price discrimination. Microsoft's education discount on its products can be regarded as a kind of price discrimination between students and non-students. We use some numbers and calculation to illustrate the economic impact on consumers.

China's per capita GNI in 2021 is about 80240 yuan, so we can speculate that the per capita monthly income for one family is 6687. We can regard it as 6700 yuan. Suppose two families want to buy the same Microsoft computer product and decide whether they will purchase the Microsoft 365. The highest price and the lowest price in 25 months are 4532.49 and 4078.47, we take the average price 4305.48 as selling price. We make the assumption that one family's monthly income is 7700 yuan, 1000 higher than the per capita monthly income, while the other family's monthly income is 5700 yuan, 1000 lower than the per capita monthly income.

The first situation is both two families buy this computer without Microsoft 365, they cost 4305.48 for it. The proportion of expenditure to the income of the first family is $4305.48/7700=56\%$, and that of the second family is $4305.48/5700=76\%$. But they will have an education discount of 5% if any member in their families is a college student, and their expense will be 4090.206, and the proportion of expenditure to the income are 53% and 72% separately.

Then come to the next situation where two families purchase Microsoft 365 for the computer they buy. Microsoft 365 is available in home version and personal version. Price of each version is different and education discount is only for personal version. Buyers are charged 498 yuan per year for home version and 398 for personal version, up to 50% off is offered to student who is ready to buy personal version Microsoft 365. If they purchase home version without discount, the total cost is 4803.48 yuan, and the percentage of spending share of income are 62% and 84% respectively. The total price drop to 4588.206 with the discount, two families hold the proportion of 60% and 80%. On the other hand, the total price without discount for personal version is 4703.48, it dominates 61% of the income of the first family and 82% for the second family. And if they purchase the personal version with 50% off and buy computer with a 5% discount, the final number is 4289.206, and contributes the proportion of expenditure to the income at 55% for higher income family and 75% for lower income family.

What we find after the computation is that under normal condition, two families have the same expenditure on the same product. Once there is price discrimination, their expenditure will change. One group can benefit from price discrimination while the other cannot. It is shown as the different prices charged for student groups and non student groups in the case. Whether it is a high-income family or a low-income family, their expenditure on this product exceeds more than half of the income of the current month under various conditions. We can say that the purchase of products has caused a great economic burden to these two families. As Simon Cowan (2012), price discrimination may be good for consumers in some circumstances [8]. Meanwhile, surplus will reduce under the discrimination when monopolists grasp the value of consumers [9]. On the premise of not raising the product price, Microsoft's price discrimination has reduced the purchase cost of some consumers, but at the same time, the consumer surplus of those who have not benefited from the price discrimination has decreased relative to the beneficiaries because beneficiaries can gain the same product at a lower price. We use the following chart to present the illustration above. Since the demand function is unknown, we cannot calculate the accurate number of the consumer surplus.

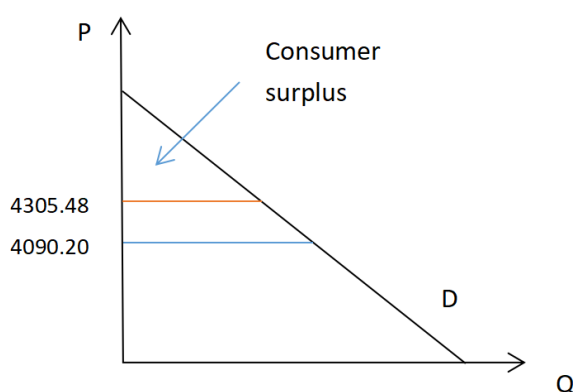


Figure 3. Consumer Surplus.

4. Suggestion

4.1. How corporations improve product quality

Working with customers [10]. A large company like Microsoft can try to test the product through the internal test team of the company and obviously it has already done so. However, it is more

effective to test the product through the experiences of customers than the internal test of the company because customer feedback is an important method to verify new product features and other changes. Google, a competitor of Microsoft, can embrace different philosophies on products compared with Microsoft. It tested the stability and reliability of products by updating software products more frequently but less content, but it was available for only a small number of users (a favorite term in China is called gray scale) at the beginning, and found problems through remote debugging and monitoring tools. Also, a mechanism was established to quickly roll back once major problems were found in the update. It has been proved that Google's model is a better model after years of practice. This model ensures the quality, speed and innovation of products, and is recognized as superior to Microsoft in the industry. This is what Microsoft is learning now.

In the background of globalization and digitization, user interface (UI) and user experience (UX) design are important factors that make an enterprise stand out from many competitors [11]. Apart from product quality, improving customer experience can also have some other positive impacts on the enterprise. The importance of user experience design has been emphasized all the time, it can enhance consumers' loyalty to products or brands in a degree. By taking advantage of feedback of needs, preferences and valuable opinions from customers, enterprises can adjust and optimize their marketing strategies in time to attract more consumers. What's more, another way to work with customers is to interact with them and build up the network community. As JiaolongXue (2020), the characteristic of live interaction like personalized network can improve the perception of product of customer [12]. It can reduce the cost of information filtering and effectively improve the quality of decision making. Additionally, PaulDwyer (2007) found that more and more companies have focused on customer communities and take them as an important source of customer feedback [13]. Companies could have a clear understanding of what information attracted customer the most and what kinds of information played a significant role in the construction of communities. Community is also a place where customers can have a good command of products information like prices, comments from experienced customers, aftersale services and so on. This kind of platform makes them available to ask for help when they have problems or difficulties handling with the products they bought. Enterprises could finally accomplish their purpose of improving the product quality by promoting customer feedback and rethinking their customers' thoughts in these online network communities.

Adjust product strategy and corporate culture. Microsoft's corporate culture emphasizes rapid product release rather than good engineering and software quality. The disadvantages of this kind of strategy and culture outweigh its advantages in the long run. It is very necessary to train the company's top management and employees of all departments because the decisions of the management will affect the company's strategy and culture. Having a good product strategy and corporate culture is an important factor to prevent many problems. In addition, the enterprise can also plan, inspect and monitor all aspects of the product by forming a product quality team, and strive to optimize the product and improve the product quality by learning from the feedback of customers. Six sigma is a kind of management strategy which mainly focuses on setting extremely high goals, collecting data and analyzing results to reduce the defects of products and services. This kind of tool can be used to improve customer service, innovation and development of product. Microsoft launched the Six Sigma Office Solution Accelerator in 2004 which help Microsoft improve processes, reduce costs and reduce the time required to complete projects. It also provides customers with standardized tools and structured methods to enable them to obtain more information [14].

4.2. How economic impacts can be reduced

Cost control of enterprise. The use of information technology is a good way to help enterprises control costs. Information technology refers to the sum of various methods and means that can improve and expand human information. It includes technologies related to the generation, collection, processing, analysis and utilization of information. The wide application of information technology is the inevitable trend of enterprise development under the Internet era. Only by strengthening the

application of information construction and improving the management efficiency of enterprises under the information technology can enterprises develop better. According to Adam S. Maiga, there is an enhancing on financial performance by the use of Information Technology integration to control cost, and Activity-based Costing (ABC), a kind of information technology system, can reduce the waste of resources during the production compared to another system Volume-based Costing [15]. Enterprises can effectively control the production management of products in the environment of information technology. During the management process, the use of various resources, including human and material resources can be reduced, and the procurement time of product materials will be shortened. Plus, decrease certain costs for the operation and management of the enterprise.

Regulation of government agency. What mentioned in the microeconomics textbook is that the government usually adopts price control and output control for the public regulation of monopoly enterprises. When the monopoly enterprises have an increased cost, the government will require the monopoly enterprises to set the price of products at the marginal cost level according to the Pareto optimal principle. However, the monopoly enterprises still have profits at this time. When the government adopts zero economic profit control on monopoly enterprises, that is, the price is equal to the average cost, the economic profit of the enterprises is zero, but it violates Pareto optimal principle because the marginal cost is greater than the price. Whereas, it is difficult for government to regulate such a big monopolistic company like Microsoft through applying the methods in the books to the real world. Therefore, we should turn to another regulation method and it is a good choice to restrict monopoly enterprises through new legislation or existing laws. The Sherman Antitrust Act and America intellectual property law must be mentioned here. Government can make good use of Antitrust Act to greatly reduced overt collusion among firms in the industry. And by far the government's strict enforcement of the Sherman Antitrust Act has forced potential conspirators to consider other ways to achieve their goals of price regulation and high profits. Regardless of what alternative actions some businesses take, the Act's prohibition of overt collusion has raised the cost of engaging in complicity, thereby reducing the scope and impact of collusion among businesses. On the other hand, it is a better decision to rewrite America intellectual property law to make more information available because this law provides a protection for monopolists like Microsoft to hinder market competition in their industry by monopolizing certain intellectual property rights [16], and these are what cannot be achieved by amending the antitrust law.

5. Conclusions

In this paper we have shown that customers are suffering from economic burden under the monopoly. Customers are divided into different groups due to the implementation of price discrimination by monopolists. Some of them are offered discounts while other can only purchase products in full price. Besides, customers may judge the quality mainly depend on their own feelings on products despite products are manufactured by uniform standard and have the same quality. So interestingly, even one product will face two kinds of opposite attitude from consumers. Corporations should attach importance to their customer and increase interaction between themselves and their customers by giving opportunities for customers to experience their products so as to gather feedback from them. Moreover, changes in corporate strategy are valuable ways to improve their services. On the other hand, with the application of Information Technology and the modification of related legislation, financial position of enterprises will get better and economic impact on customer will be cut down.

This paper analyses the problem of monopolistic company Microsoft and contributes solution for both companies themselves and customer, as well as government to alleviate or tackle with problems. Although it expands the related research from the aspect of customers' welfare and provides support for other studies, we believe that more cases, theoretical analysis and data processing will be performed more specifically in further research to make the conclusion more general since all things studied in the paper are revolved around the single case. What's more, assumptions presented above are inadequate

and they may change when being placed in distinct situations, which means our analysis and conclusions can be different from the actual circumstances.

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