

Research on the Reasons Cause the Changes in the World Price of Rubber

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Abstract: Since price is one of the most important parts of economics and the market, there are a lot of articles that have done more research on the topic of price. And the price of rubber varies all the time all over the world. There are many cases showed a significantly decreasing or increasing in the price of rubber, rubber is also a typical raw material in the world. The question is what are the reasons of the change in rubber prices? One method is available that is using different economics principles from microeconomics and macroeconomics to illustrate this question in three aspects. After that, the conclusion is that the changes in price of rubber in India is because of the changes in the quantity of demand and the quantity of supply of rubber in India, also it will be influenced by some national conflicts or some other accidents, and the causes of demand, supply changing are the reasons of rubber price changing as well. Mostly factors in the market changed will have impacts on the value of price.

Keywords: demand, supply, price, rubber, fluctuations

1. Introduction

Rubber had occupied the market of the manufacturing industry, high-tech industry, and aerospace industry for a long time, but the price had changed and fluctuated constantly. On February 25, the price of natural rubber continued to rise, reaching 17,090 yuan per ton, and reaching 18,335 yuan per ton at the highest, setting a new record in the past three years. According to the price trend chart of natural rubber since 2021, the price of natural rubber rose from 13,750 yuan per ton to 17,280 yuan per ton at the beginning of the year to 17,280 yuan per ton, an increase of 3710 yuan per ton, a rate about 27.34% [1]. At recent years the price had increased, but sometimes it not the same. Natural rubber is one the most typical tropical crops in the world, it means that rubber has a strict requirement of the environment for growing, it needs rainfall and high temperatures. For the majority of developed countries, they need to import a large amount of rubbers every year since the lack of domestic rubbers yield. The fluctuations of rubber price had a impact on different countries also on the national trade. In the following essay, including the analysis of the reasons of price changing, the relationship between rubber's price and the quantity of demand and supply, as well as some approach from governments for adjusting the market failure. This research can make a contribute with the problem-solving of rubber price changing, to prohibit the relevant factors occur, keep the balance between price and market.

2. Consumers' Demand

Natural rubber products have both commodity and financial attributes. Most of the commodity attributes are related to the micro-influence factors of the natural rubber industry, the most important of which is the relationship between supply and demand [2].

2.1. Substitutes and Complementary Goods

Firstly, rubber is one of the most vital raw materials in the world, it has been used in manufacture of cars' tyres and other kinds of rubber products. And the substitutes goods of rubber, for example, the latex which is also a kind of soft, elastic raw materials in production. Making gloves by natural rubber is replaced by the latex, because it has the lower cost. Also, because of the scarcity of rubber, rubber trees take 6 years to produce their first crop. So the amount of production cannot meet all the needs of rubber, which means it is undoubtedly for latex or other substitutes to replace rubber. Once the demand of latex is higher than the rubber, firms and factories will use more latex to produce the goods rather than the rubber, so the demand of rubber will decrease significantly. As the demand curve, it is clearly that rubber's price will decrease since the demand is decreasing.

Also, the price and demand of the complementary goods of rubber will influence the rubber's demand and price. For example, the tyres and cars are a couple of complementary goods, once a person bought a car, he must need two couples of tyres, and eventually more to alter. Also, tyres are mostly made by natural rubber, the changes of demand in cars may influence the demand of rubber to some extent. If the demand of cars decreases, it means the demand of rubber decreases, and the price will decrease as well. And there are some possible reasons of the cars demand changing. For example, governments always aim to maximize their countries' welfare, the limiting of cars usage will reduce the air pollution. So they may introduce some laws to prohibit the cars' usage. Consumers cannot use their cars so more and more people won't purchase cars anymore. Besides, if there is an unemployment occurring in the country, people's average income level will be lower, so they cannot afford the price of cars. If they do not have the significant wants or needs of cars, it is unlikely for them to buy them.

2.2. Elasticity

Essentially, the elasticity of rubber is a main factor when consumers are considering whether to choose rubber. The price elasticity of demand is measured by the responsiveness of changes in demand to price changes, which means that the higher the elasticity of a product, the more opportunities consumers have to change their purpose of purchasing it. If the rubber has higher elasticity, the price of latex decreases, and the majority of consumers of rubber will buy latex instead of rubber. Also, the consumer surplus is the difference between the market price and the price of consumers are willing and preparing to pay, also the highest price that consumers can accept is known as WTP. Since the values of WTP are variable for different persons, so we cannot determine that as single situation. If the consumer have higher WTP, that means the consumer can pay more to obtain the product than the consumer with lower WTP. According to Demand function theory and influence on China's natural rubber demand factors and information obtained, selected is this article, from 1985 to 2004, based on data from China's consumption of natural rubber instead of demand as dependent variable, natural rubber prices, synthetic rubber prices, GDP and the added value of the secondary industry as independent variables, and the double logarithmic module is used the model of demand function of natural rubber in China is established, and calculate the price elasticity of it. From the point of view of the parameter coefficient, Chinese rubber price elasticity is -0.1722, less elasticity. The replacement elasticity of natural rubber and synthetic rubber is 0.4134, relatively large. Demand for natural rubber income elasticity is 3.2452, which is more elastic [3]. Therefore, the substitutes of

natural rubber can easily replace it in the industry if the price of them had decreased. But when producers must choose rubber during production, they will have a higher WTP, which means they will be more acceptable with the increasing of the natural rubber's price.

3. Firms and Supply

With firms, we need to discuss two main kinds of companies, the firms that need rubbers for production, and the firms that need to make profits by outputting rubbers. For the first kind of firm, they aim to buy rubbers at the lowest price, to minimize their costs. And their behaviors are just as same as the consumers of rubbers, they may choose substitutes for rubbers. At the same time, if more and more firms use latex or other substitutes to replace rubbers, the demand for rubbers will decrease significantly, and the price will decrease as well.

And we have to pay more attention to illustrate the impacts of the second kind of firm. These firms are aiming to maximize their profits by selling their products. And they need to notice the variation in demand and price. If they rise the price blindly, they will lose consumers according to the elasticity. And if they want to enlarge the consumption of their products, they need to reduce the price approximately instead of at a huge discount. The firms must find the balance between price and demand. There is a method for them to set the suitable price of rubber. When the marginal cost of the production of rubber is equal to the marginal revenue from selling it, the total profit will be maximum. Marginal cost means the cost of the last product produced, it may keep decreasing or increasing. Marginal revenue means the revenue gained from the last product produced. The marginal cost depends on the different systems of production in a variety of firms. The marginal revenue depends on the selling mechanism of firms, which is also different.

Also, the firms may have some accidents to deal with during the period of production. Theoretically, when the profits are smaller than the upfront costs such as planting inputs, the planting loss, the willingness of the rubber farmer or rubber garden owner to plant will be reduced. However, rubber trees are perennial plants, their growth and production cycle is long, and the upfront input is higher, generally not because the short-term price of rubber is too low to easily abandon or cut down the rubber forest, especially for medium-sized rubber farms and agricultural reclamation groups. When the planting efficiency is not good, the rubber garden owner often takes some countermeasures. First, reduce the cost of planting. Second, reduce the frequency of tapping. Third, it is difficult to sell. They will turn the raw materials into stock and store them for a period of time. But factors such as storage conditions can affect product quality, the stored raw material glue can only be made into label two glue, and its price is slightly lower than that of full latex. Fourth, replanting, that's mostly for rubber trees with older rubber age or new species, the rubber age is generally more than 35 years and less than 3 years, while rubber trees are mostly planted on hillsides and wastelands, and fewer crops can be replaced. Even if the breed is replanted, in the short term the impact on the supply of glue is limited. However, if the loss continues for a long time, or the loss situation worsens further, especially when the income is not enough to cover the cost of rubber tapping, then the situation of active abandonment or cutting down of rubber forests will occur in a large area. After a rough estimate, this level of price may be below 9000 yuan per ton [4]. The firms cannot make profits so they will change the goods they produce or reduce the outputs, and the quantity of supply of natural rubbers in the market cannot meet everyone's needs, so the price of it will increase.

4. Governments and National Trade

4.1. Governments' Policies

Besides, with the intervention of governments, the consequences will not be the same. For example, if the government provided a subsidy to rubber suppliers, the cost of those businesses would be

reduced. They can use the subsidy to purchase the lands, the la ours or the machines. They get more factors of production, which are the essential part of production of all kinds of goods, and they can enlarge the amount of outputs. What's more, it comes to the relationship between supply and price. The increasing supply will also reduce the price because these products are easier to obtain. If in contrast, the government introduces a tax on rubber, maybe because of the environmental pollution caused by its production of it, the cost of suppliers will rise up. As a result, they won't produce a great deal of rubber. And the products become not enough in the market, the price of it will increase.

For example, the international Tripartite Rubber Council which consists of Thailand, Indonesia and Malaysia, announced that it would implement a program called AETS to restrict the exports of rubber to stabilize rubber prices. During the implementation of this measure, the major producers of these three countries will reduce rubber exports amount, to boost the global price of natural rubber [5].

4.2. International Trade

To be more comprehensive, in reality, complicated situations need to be concerned. Consumption of natural rubber will also be subject to various international political and economic factors and periods of goods market impact, such as governments' policies on rubbers' imports and exports. Rubber is also the raw material in the production of heat-resistant conveyor belts, high-tech weapons, and some aerospace materials. Mostly they are vital to a country, and especially for wars. With the suddenness of the international scope of events and wars that occur, countries must ensure that rubber should be available to the greatest extent possible [6]. These aspects are the symbol of the power of a country. But not all countries can produce a sufficient amount of rubbers to develop their techniques because rubber trees grow best in a climate where there is heavy rainfall and temperatures between 20 degrees Celsius and 35 degrees Celsius. Farmers in Thailand, Indonesia, China, and West Africa provide 85% of the world's natural rubber supply. There are some countries' need for rubbers cannot be satisfied, they need imports. According to the statistics of the United Nations, among the importing countries of natural rubber, the United States occupies the first place, followed by the European Union countries. It also shows that the largest exporter of natural rubber is Thailand, followed by Indonesia and Malaysia in third. The cost of imports depends on the exchange rate of different currencies. For example, if the exchange rate between dollars and Renminbi changes, the United States will need more money to exchange the same amount of Renminbi as in the past, increasing their import cost. So they will find others products to replace it, which have a lower cost and is easier to access. Also, with some extreme conditions, like wars or some national conflict, the widely used products will all be influenced, including rubbers. Not only because of the manufacturing of weapons, but also because of the decrease in people's income, the price level, different goods' demand and supply changing, and the damage to the environment will not provide enough lands for rubbers' cultivating.

5. Conclusion

With the present research, the reasons for rubber price change are the variation of demand and supply, which is also related to the intervention of governments. Firms and consumers have different aims in the market, but they all want to maximize their profits. For example, If the price had increased, the consumption will reduce but there will be more suppliers willing to sell. To be more accurate with this question, more data information on the following factors need to be found which can help with investigating this question in more effective ways. Some data about the specific amounts of demand and supply for different countries are not quite same, so it is better to just focus on one country. Since the variation in different countries, the policy in India regarding rubber production can also help me to solve this question more practically.

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