

## **Exporting Mongolian Beef to China: The Opportunities and Challenges**

**Lkham Altan Erdene <sup>a</sup>, Yohana James Mgale <sup>b</sup> and Yan Yunxian <sup>a\*</sup>**

<sup>a</sup> *College of Economics and Management, Jilin Agricultural University, Changchun City, Jilin Province, China.*

<sup>b</sup> *Department of Rural Development and Regional Planning, Institute of Rural Development Planning, Dodoma, Tanzania.*

### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Mongolia is a nomadic country. Due to the small population, large land area, and geographical location, the country has mainly focused on animal husbandry as one of the sources of income for the local people and foreign currency of the country. Beef exports play an essential role in Mongolia's economy. However, due to several constraints that hinder export growth, Mongolia cannot export its agricultural products to its full capacity. One of the main challenges for Mongolian beef exporters is identifying key destination markets for their products and the know-how to access them. This article discusses the export of Mongolian beef to China, focusing on the potential of Mongolian beef cattle and its economic importance, the overall situation of Mongolian cattle products in the Chinese market, and the opportunities and market expansion challenges in China. This study is characterised as qualitative and quantitative research of an exploratory and descriptive nature, using bibliographic research. According to the findings, it became evident that Mongolia still has low participation in the Chinese market despite the opportunities in the Chinese market. However, with internal improvements and adjustments in policies, there is exponential growth potential in the sales of Mongolian beef to the Chinese market. Thus, Mongolian beef exports can be improved with more stress on value-added products and their marketing strategy based on consumer-oriented processing and packaging, expanding (or) changing export destinations, market promotion and brand image, adopting international hygienic standards norms and diversification of livestock products.

\*Corresponding author: Email: [yanyunxian@126.com](mailto:yanyunxian@126.com);

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## 1. INTRODUCTION

The livestock sector growth is of utmost concern in a country like Mongolia. The livestock sector plays a critical role in the Mongolian economy to withstand against turbulent conditions of the financial crisis along with the stringent expansionary monetary policy. Mongolia is predominantly an agrarian economy contributing about 15 per cent of Gross Domestic Product, and 27.6 per cent of the country's workforce still depends on the agriculture sector for their livelihood [1]. Livestock plays a vital role in the country's economy, contributing positively to the balance in the trade balance through its exports. Among the factors that make livestock, a competitive sector is the extensive grazing area, the climate, the favourable geography, and the expansion in the use of technologies, which enable increased productivity.

Although most developing countries, including Mongolia, have never been major players in the world meat trade, trade liberalisation opens up opportunities to export meat and meat products [2]. Since the beginning of trade liberalisation in the early 1990s, the share of developing countries in global meat exports has increased tremendously. The growth in meat exports from developing countries increased at double the rate of developed countries [1].

In order to harness the emerging opportunities in domestic and export markets, the Mongolian government has taken various initiatives to improve the efficiency of the meat industry and export competitiveness. Some of these are financial assistance for the modernisation of slaughterhouses in the meat industry, strengthening vertical linkages, improvements in sanitary and phytosanitary standards etc. However, still, there is lower participation of Mongolian beef in the international market.

The number of livestock in Mongolia has grown rapidly in recent years, reaching 80 million [1]. As this number increases, there is a risk of overgrazing, lack of fodder resources, and the spread of animal diseases. One way to prevent this is to have sound meat exports with sound policies. Nowadays, the demand for meat and meat products in foreign markets is high, and Mongolia has an opportunity to export organic meat that meets international standards and gets high benefits. Therefore, promoting beef export is crucial for the country as it is one of the important

sources of foreign exchange. Researchers have found that more than 30 of the 80 species of plants eaten by Mongolian livestock are medicinal plants beneficial to the human body. Feeding natural nutrients is more competitive in taste and quality than farm animals in other countries. Countries are interested in importing meat from Mongolia, but the same animal health issues and unsustainable export policies hamper this potential.

Mongolia has been exporting beef cattle to China and countries in the ASEAN region, including Malaysia, Cambodia, Laos, and Vietnam. This tendency has been influenced by the population growth of these countries between 2005 and 2015. Malaysia had the highest population increase of 18.28 per cent (31.7 million), followed by Laos, Cambodia, and Vietnam, with a population increase of 14.48 per cent (6.8 million), 13.62 per cent (15.6 million), and 10.07 per cent (92.7 million), respectively. China had the least population growth of 4.38 per cent (1,374.62 million), but it had the highest rate of increase, of 86.29 per cent (6,497.50 USD) in average annual income of the people. Myanmar and Laos followed, with 78.98 per cent (1,308.70 USD) and 60.52 per cent (1,531.20 USD), respectively. The rest of the countries had less than a 50 per cent increase in average annual income [3].

The rising population and per capita income and the change in consumption patterns in these regions resulted in a growing demand for beef. Beef production in China is inadequate and cannot meet its beef consumption; China has thus become a great importer in the global beef market [4]. Located at a key logistical hub in the ASEAN region, Mongolia has a strong potential to enhance its competitiveness in these markets. Thus, based on the current status of beef export and due to the economic importance of livestock not only for Mongolia but also for the world, this study intends to examine the main challenges and opportunities of exporting beef to the Chinese market and suggest actions that can contribute to increasing Mongolian beef share in the Chinese market.

## 2. AN OVERVIEW OF THE MONGOLIAN LIVESTOCK SECTOR

The cornerstone of the Mongolian economy is an agricultural sector based on livestock such as

goats, sheep, camels, horses, and cattle. In 2018, animal husbandry in Mongolia produced approximately 80 per cent of total agricultural output, accounting for almost 10.8 per cent of GDP [5]. Also, according to the National Statistics Office, 26.7 per cent of total employment in the country is in the animal husbandry sector, so this industry is the core source of those livelihoods. In 2019, 233,000 of the 897,400 total households in Mongolia had animals, and of these, 171,600 were herding households, according to the National Statistics Office [6].

Livestock farming is dominated by extensively managed livestock production and is dependent almost entirely on natural forage. The sector is comprised mostly of small-scale herders who raise cattle, goats, sheep, horses, and camels. According to the 2016 official statistics, the number of livestock in Mongolia was 61.5 millions, about 20 times of population in Mongolia [7]. By type of livestock in 2016, the number of sheep, goats, cattle, horses and camels was 27.9 million, 25.6 million, 4.1 million, 3.6 million and 400 thousand, respectively.

Mongolia's commercialisation of livestock production has boomed since the government

successfully promoted its growth by means of expanding exports of meat products [8]. Although Mongolia exports only a small amount of meat to its neighbouring countries, Mongolian meat exporters strive to become a major meat supplier to China, Russia, and other neighbouring countries. Evidence shows that some meat processing companies export meat to those two neighbouring countries and faraway countries such as Viet Nam and some Muslim countries, including the Islamic Republic of Iran and the United Arab Emirates [6].

In Mongolia, the beef value chain involves herders at the initial stage as producers, followed by middlemen, slaughterhouses and meat processing plants. Lastly, beef is retailed in domestic markets through food markets and supermarkets and exported to international markets (National Statistics Office of Mongolia, 2019). The Mongolian beef value chain is formed by thin-margin products, generating a small difference between the producer and retail prices. Nonetheless, the size of operations in the beef value chain will vary, and each value chain carries distinct relationships under different conditions of the business climate, infrastructure and logistics.

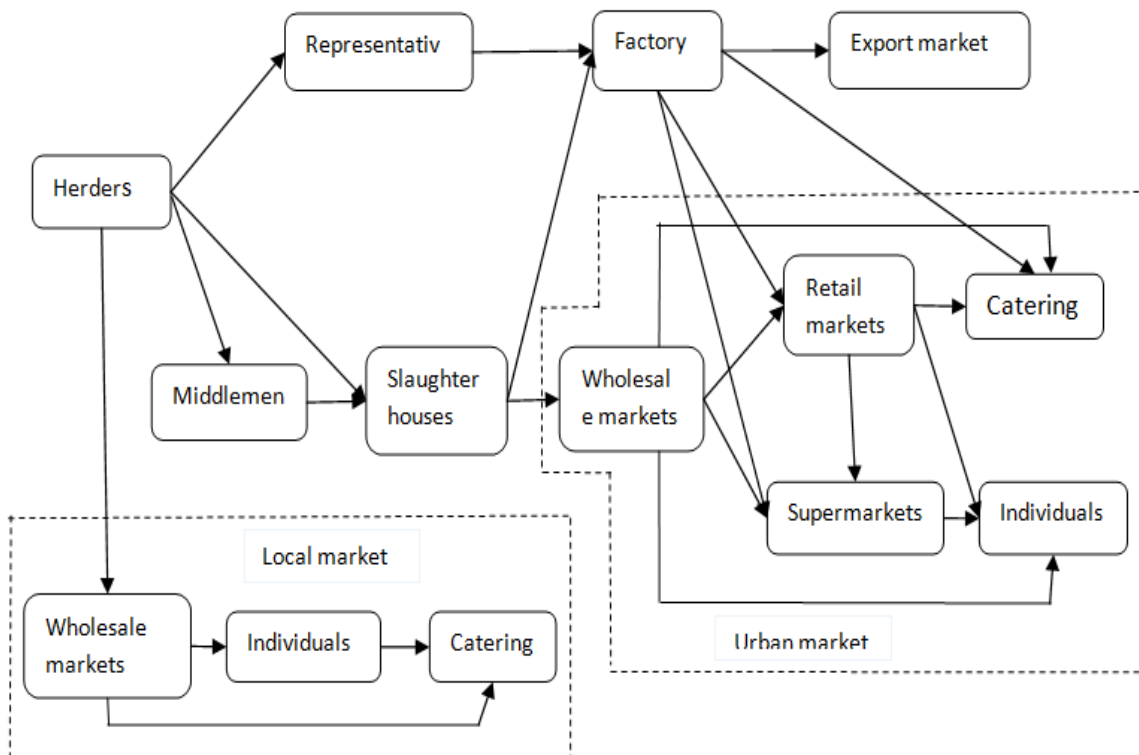


Fig. 1. Beef value chain in Mongolia

### 3. DATA AND METHODS

#### 3.1 Data

This study utilised secondary data on livestock products exports from Mongolia and China, collected from various publications and statistical databases. The data encompasses quantity exported, value and destinations of beef exports, FOB prices, production details and global imports of beef. The other data includes the production and consumption of beef by the Chinese, the average productivity of the Mongolian beef sector and its export capacity, and the volume exported by competitors, among other factors, between the years 2000 and 2019.

#### 3.2 Methods

##### 3.2.1 Tabular analysis

The study used averages, percentages and coefficient of variance analysis to examine the variations of studied variables during the study periods.

##### 3.2.2 Compound growth rate

To arrive at a normal base year for calculating growth, a compound growth rate was used. The normal year was considered as a base year for estimating growth rates. By taking time as the independent variable and the export quantity, value, unit value, price of the concerned livestock product as the dependent variable, the compound growth rates were estimated by using the formula:

$$Y = A(1 + r)^t \quad (1)$$

Where,

Y = Dependent variables like area, production, yield, export quantity, value, unit value, price in the year „t“ for which growth rate is estimated

A = Constant r = Rate of annual increment

t = Time element which takes the value of 1,2,3,.....n

##### 3.2.3 Export trend

The export quantity, value, unit value and prices were subjected to change over time due to the increase in population and the consequent change in demand. Estimating the time trend in the growth of these variables helps study the direction of change and guide the policy

formulations. The growth rates of beef over the years were estimated by fitting a linear regression equation to the data of price and export. The trend equation used for the purpose was of the form;

$$Y_t = a + b_t + \varepsilon_t \quad (2)$$

Where,

$Y_t$  = Export quantity, unit value, total value and price

t = Time in years

a = Intercept

b = Regression co-efficient

$\varepsilon_t$  = Random error term

##### 3.2.4 Trade complementarity index (TCI)

Drysdale [9] proposes the trade complementarity index (TCI). The main idea of the index is to measure the extent to which one country's export pattern matches another country's import pattern more closely than it matches the pattern of world imports. The greater this similarity, the more likely trade between them is. The TCI can be presented as follows:

$$TCI_{ab} = \sum_j^n \left( \frac{X_a^j}{X_a} \times \frac{M_w - M_a}{M_w^j - M_a^j} \times \frac{M_b^j}{M_b} \right) \quad (3)$$

where  $X_a^j$  is the country a's export of commodity j;  $X_a$  is country a's total export;  $M_w$  is the world import;  $M_a$  is country a's total import;  $M_w^j$  is the world import of commodity j;  $M_a^j$  is the country a's import of commodity j;  $M_b^j$  is the country b's import of commodity j.  $M_b$  is country b's total import. The value of TCI greater (less) than the unity indicates the existence of strong (weak) complementarity between the export specialisation of country a and the import specialisation of country b. The TCI value of unity means that the export and import specialisations are similar to the world economy specialisations and, therefore, the existence of comparative advantage cannot explain the bilateral trade.

##### 3.2.5 Revealed comparative advantage (RCA)

The RCA was proposed by Balassa [10]. The idea of the RCA index is to compare the performance of a country in a commodity with the performance of a reference group of countries using export flows by using the observed export

patterns. The RCA index can be defined as follows:

$$RCA_a^j = \left\{ \frac{X_a^j}{X_a} \right\} \div \left\{ \frac{X_w^j}{X_w} \right\} \quad (4)$$

where  $X_a^j$  represents the country a's export of product  $j$ ;  $X_a$  is country a's total export;  $X_w^j$  is the world export of commodity  $j$ ;  $X_w$  is the world export. The RCA values range between zero and  $+\infty$ , and the comparative-advantage-neutral point is one.

## 4. RESULTS AND DISCUSSION

### 4.1 Status of Overall Trade between China and Mongolia

China-Mongolia trade has strong potential for development. Since 1998, China has become Mongolia's largest trading partner. China-Mongolia trade has shown a trend of rapid development, especially the apparent increase in Mongolia imports. From 1992 to 2018, the total trade volume between China and Mongolia increased from \$180 million to \$7.99 billion. The export value increased from \$140 million to \$1.65 billion; the import value increased from \$40 million to \$6.34 billion. In addition, since 1994, China's trade with Mongolia has been in a continuous deficit, and the trade deficit has been expanding. The specific changes are shown in Fig. 2.

### 4.2 Livestock Products Trade between Mongolia and China

China-Mongolia, livestock products trade seems to be entirely complimentary. In terms of trade structure, China mainly exports poultry products to Mongolia. According to statistics presented in Fig. 3, poultry products are China's second-largest export to Mongolia, and they account for about 20% of all agricultural products exported. China's imports of livestock products from Mongolia are mainly animal hair and beef. As shown in Fig. 4, they account for about 60% of the total imports of agricultural products from Mongolia. Horse, donkey and mule products account for about 21% of the total imports of agricultural products from Mongolia.

In summary, China-Mongolia agricultural product trade is rather complementary and reflects the endowment of agricultural production resources on both sides. However, the China-Mongolia

livestock trade depends on several product categories. The value of livestock products has a dominant position in China's import of Mongolian livestock products.

#### 4.2.1 Trade environment

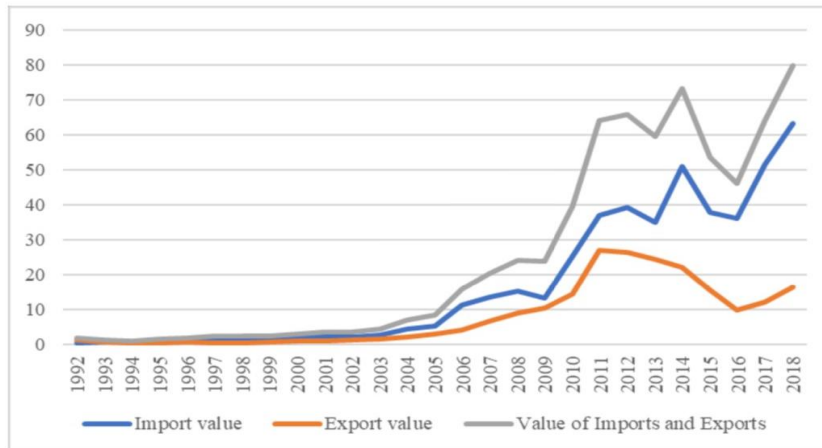
To promote the employment rate and increase the added value of livestock products, the Mongolian government encourages local enterprises to export processed livestock products to China. Mongolia has no additional procedures except for quarantine requirements in export trade procedures to China. However, since October 2019, Mongolian enterprises must obtain the export qualification approved by the Mongolian government and apply for the export quota.

As there is no bilateral free trade treaty between China and Mongolia, there is no preferential policy for the trade of livestock products between China and Mongolia, but only general policies. Mongolian livestock products are mainly imported into China from Erlianhot port, Baotou customs, Ceke port, Zhungadabqi port, Arihasat port, and Takshiken port. China's import of Mongolian livestock products follows a routine procedure and some special requirements for beef products. The main six specific requirements are as follows:

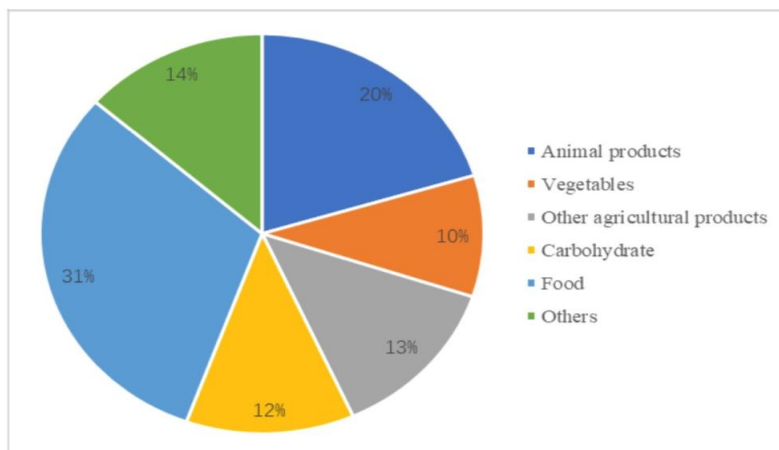
- ✓ Allow only qualified ports to import
- ✓ Prohibit cloven-hoofed animals and their products to be imported.
- ✓ Allow thermally processed cooked products to be imported.
- ✓ Allow horses and horse meat to be imported. Live horses need to be isolated in the quarantine area of Erlianhot port and can be imported as long as their inspection and quarantine meet the standards.
- ✓ Lamb imports are subject to designated ports: Erenhot port, Ceke port, and Mandurah port.
- ✓ Imported livestock products must meet Chinese standards.

However, the trade relations between China and Mongolia in livestock products are becoming closer. On December 23, 2014, China Yinchuan Comprehensive Bonded Zone Management Committee and Mongolia New Asia Group Co., Ltd. signed a strategic framework agreement. Mongolia intends to construct a light industrial park to process livestock products in Yinchuan city. Yinchuan's comprehensive bonded zone

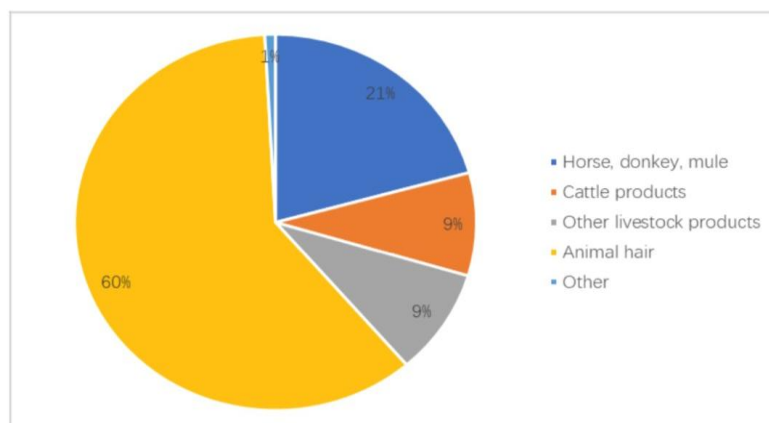
aims to be a platform for selling primary-processed products through a deep-processing capacity and respective sales channels in China and globally.



**Fig. 2. China-Mongolia trade (Unit: 100 million US dollars)**  
 Source: China Custom Database, 2019



**Fig. 3. China's export structure of agricultural products to Mongolia**



**Fig. 4. China's agricultural products import structure from Mongolia**  
 Source: China Custom Database, 2019

#### 4.2.2 Mongolian livestock products market share in China

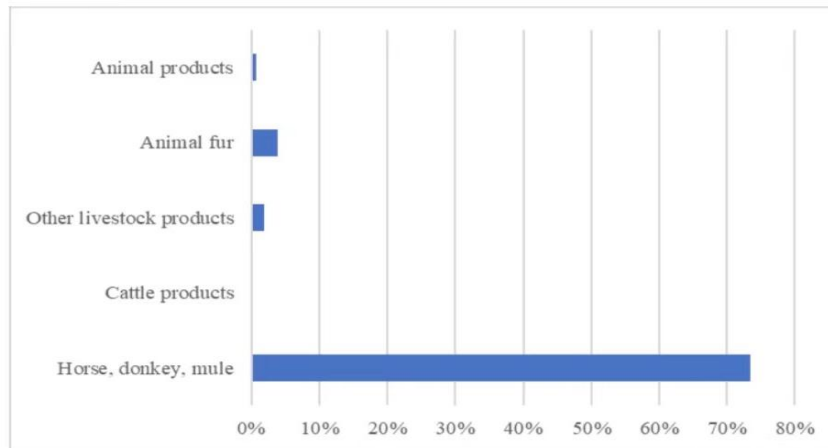
A considerable amount of Mongolia's domestic animal products has been imported into China. However, Mongolia is not a major livestock product import source to China. China's imported livestock products can be divided into swine products, dairy products, bovine products, poultry products, ovine products, animal skins and other animal products. China exports swine products and poultry products to Mongolia and imports animal fur, bovine products and other livestock products from Mongolia. Mongolia's market share in various livestock product trades is shown in Fig. 5.

Mongolian beef cattle account for about 1% of China's livestock product import market. Except

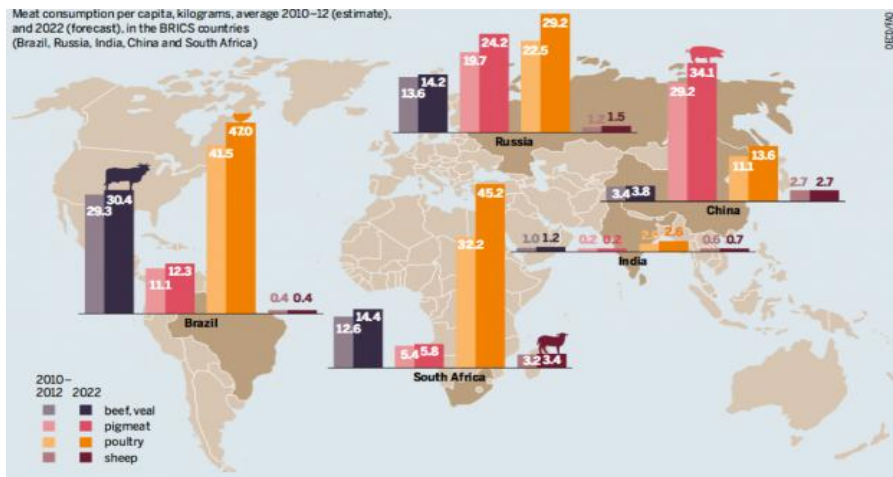
for horse, donkey and mule products, the market position of Mongolian beef in China is not high. This is mainly because of the limitation of Mongolia's own cattle industry.

#### 4.2.3 Beef consumption and trends

The amount of meat per capita depends on the country's standard of living, consumer prices, macroeconomic conditions and diet. As of 2019, China's per capita meat production has increased to 3.4 kg, which is less than the world's per capita meat production of 6.42 kg. Improving living standards and the economic situation in China have led to an increase in meat consumption, which is likely to continue (Fig. 6). In particular, China's beef consumption is expected to increase sharply with the number of wealthy people.



**Fig. 5. Mongolian livestock products market share in China**  
Source. National Statistics Office of Mongolia, 2019



**Fig. 6. Global meat consumption**  
Source. Global Trade Atlas, 2019

### **4.3 Reasons for Mongolian Beef Products' Low Market Share in China**

#### **4.3.1 The quality and price of Mongolian beef products**

Mongolian livestock products are mainly exported at low prices, relying on low prices to enter and prevail against others in the market. Although the price decline can increase the export competitiveness in a short period, it will be detrimental to the long-term development of the livestock industry and the companies that produce livestock products. With Mongolia's domestic raw material prices and labour costs rising, the low-price advantage of livestock products is gradually disappearing.

Almost all Mongolian meat production machinery and equipment are imported from other countries. The imported machinery and equipment are costly, but the Mongolian government has not strictly regulated and monitored the use of modern machinery and equipment. As a result, most factories have no advanced equipment and use old production methods. It leads to the low efficiency of Mongolian livestock production and processing. Compared with livestock products processing plants in developed countries, there is a large gap, and it isn't easy to guarantee good quality [11]. At the same time, Mongolia's export safety standards are relatively low, making it difficult for many livestock processing plants to ensure the health and safety of the products. This limits the export of Mongolian beef to China and other Asian countries.

#### **4.3.2 Fluctuations of relevant government policies**

Mongolia's political and economic policies are unstable, frequently changing the trade environment. The inconsistent trade policy has also fundamentally damaged the export of Mongolian livestock products. According to the study results, Chinese importers found that one obstacle to importing Mongolian livestock products was the negative impacts of temporary restrictions.

#### **4.3.3 Low industrialisation of Mongolia's livestock products**

The main livestock producers in Mongolia are free-range herders. The decentralised breeding method makes it difficult for herders to

withstand natural disasters. This results in large losses. Due to most herders' low literacy and business knowledge, it is difficult for them to understand the market situation of the animal husbandry industry quality regulations. Some herders sell products through cooperatives, but most are usually looking for acquaintances to help sell the products in the market. This decentralised form of circulation makes the Mongolian livestock products industry more dispersed. Decentralisation increases the cost of integrating the industrial chain and restricts Mongolia's exports of livestock products to China. The low industrial development also leads to the low amount of Mongolian livestock products which can be supplied to the market. The lack of professional market circulation leads to the frequent occurrence of credibility issues. According to the study results, the low variety and quantity of Mongolian livestock products and low credibility are the main problems for Chinese importers.

#### **4.3.4 Low progress of the China-Mongolia trade agreement**

At present, there is no bilateral free trade agreement between China and Mongolia. The bilateral trade between China and Mongolia is carried out under the WTO framework. From the statistical data, the overall trade level, including livestock products, between China and Mongolia is not high [12]. However, our survey results show the existence of informal trade between China and Mongolia, which is inconsistent with a low level of statistical data. Due to the lack of more convenient trade arrangements, many official trades were forced into informal trade. However, the quality and safety of products are difficult to be guaranteed through informal trade. On the one hand, it is difficult to monitor the sales of Mongolian animal products in China, and consumer feedback on Mongolian livestock products is difficult to be recognised. On the other hand, some low-quality Mongolian livestock products are exported to China, which leads to benefit losses for China and Mongolia and a loss of credibility for Mongolian products.

### **4.4 Export Potential of Mongolia beef to China**

Mongolia is poised to increase meat exports to its neighbouring markets, especially China, which already imports over three billion dollars of beef and mutton each year. Despite a slowing economy, the Chinese demand for



imported meat has grown steadily. Provided health and safety measures are met, Mongolian sheep, goat, and horse meat are already of sufficient quality to meet Chinese demand. In addition, several large farms are employing modern techniques, including feeding imported beef cattle breeds from thousands of hectares of irrigated cultivated grasses. Meat processing facilities are also upgrading equipment and operating procedures, and a few have obtained certification to export to China and other countries. As the Mongolian livestock sector moves closer to developing a viable export sector, opportunities exist to expand its export volume to China, as described below.

#### 4.4.1 China's population growth

With a population of more than 1.39 billion, China has grown 70 times over the past 30 years and is the world's largest exporter and second-largest importer (Fig. 7).

As of 2018, the average annual population growth was 5.3 million, accounting for 45% of the total population [13]. By 2030, the urban population is expected to account for more than 60 per cent of the total population. As a result of urbanisation, many positive changes have taken place, such as rising incomes and improving the education system, widening the gap in consumer segments, and creating new consumption trends.

#### 4.4.2 China's population purchasing power and wage growth

The average monthly salary of urban residents is 2-3 times higher than that of rural residents due

to the higher level of consumption of goods by urban and rural consumers and higher expenditures on tourism and recreation than rural consumers. The average monthly salary of employees is expected to increase in the future. This increase increases the share of the above-average and affluent segments. By 2020, middle-income households will have shrunk to 36%, and above-average households will have reached 51%, for 167 million families, or about 400 million people and 6% of wealthy households. A total of 21 million homes, or about 60 million people, are expected to grow. This suggests that China is emerging as a major market for luxury goods.

#### 4.4.3 Changes in consumption

In recent years, Chinese consumer spending has undergone significant changes. For example, the demand for personal consumer goods grows more than household goods. Consumers are paying more attention to quality, country of origin, and brand when choosing products, resulting in lower consumption of low-quality products. This trend is expected to increase in the next five years.

In the case of food, there is a growing focus on product quality, reliability and non-adverse health effects. This is reflected in the increase in the consumption of high-calorie, low-nutrient pork, the consumption of high-priced meat such as beef and lamb, and the market for organic products and healthy food. Due to the sharp increase in above-average and affluent households, China predicts that the annual expenditure per household will change.

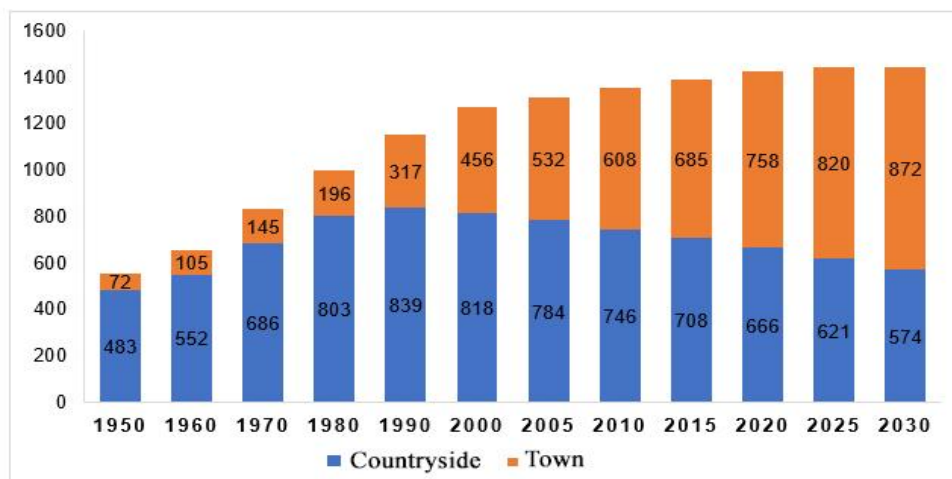
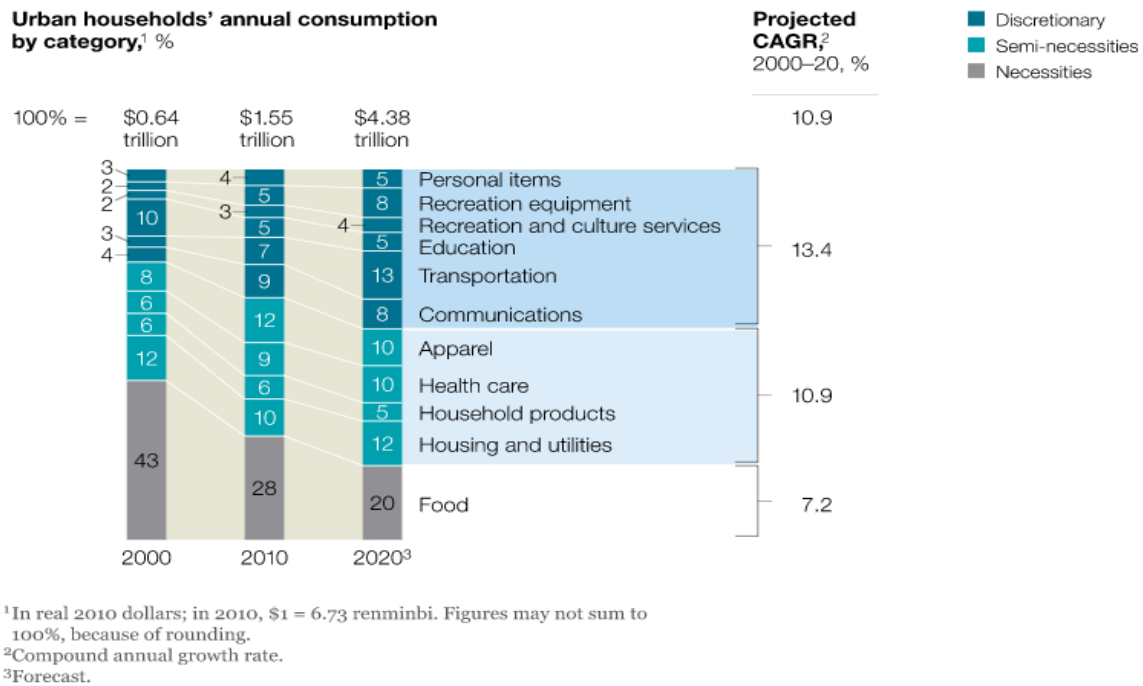


Fig. 7. Urban and rural population/million people

Source. China Population Database, 2020



**Fig. 8. Chinese household consumption structure**  
 Source. China Customs Database, 2019 <http://www.customs.gov.cn>

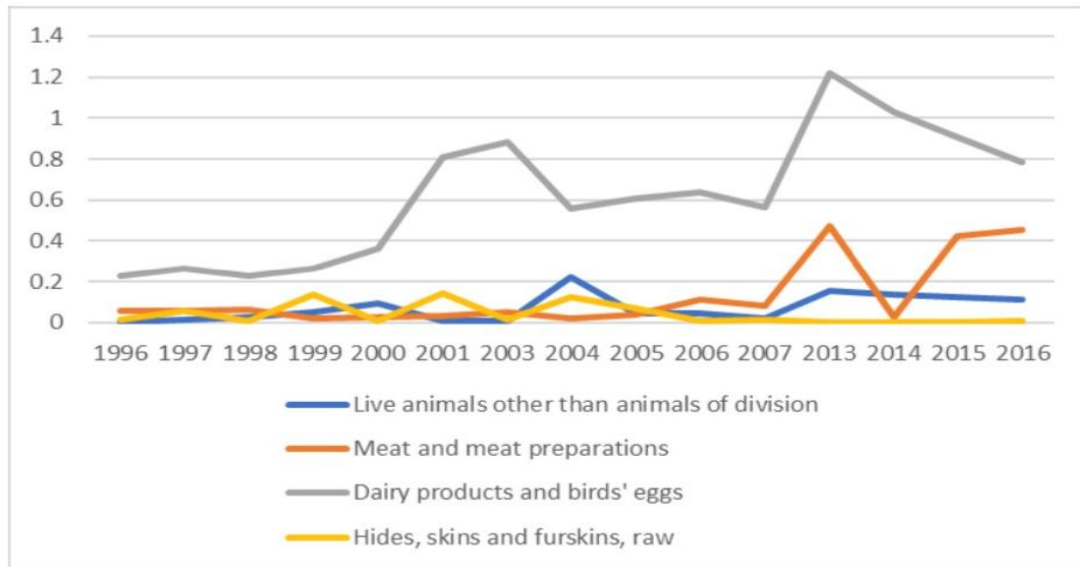
In China, food expenditures per household per year are expected to decrease from 28% in 2010 to 20% in 2030 [14]. However, food expenditures are expected to increase in monetary terms. This is because food prices are lower than household income growth. So it's not going to be a significant impact on other countries.

#### 4.4.4 Analysis of RCA Index and TCI

In this section, the Revealed Comparative Advantage (RCA) index and the Trade Complementarity Index (TCI) index were used to analyse the export potential of Mongolian livestock products to China. In general, when the RCA value is greater than 1, it indicates that the proportion of this type of product in the country's export is more extensive than that in the overall global export. The country's product has a clear comparative advantage in the worldwide market. When the RCA value is less than 1, the product's competitiveness in the global market is relatively weak. When the RCA value is close to 1, it indicates a neutral comparative advantage. The country's products have no comparative advantage or disadvantage in the international market. In this report, the RCA index of China is calculated by using the export data.

For analysing the imports: when the RCA value is greater than 1, it indicates that the proportion of this type of product in the country's import is greater than that in the overall global import. The country's product has a comparative disadvantage in the worldwide market, with weak international competitiveness. When the RCA value is less than 1, the product is relatively more competitive in the global market. When the RCA is close to 1, it indicates a neutral comparison, which means the country's products have no comparative advantage or disadvantage in the global market. In this study, the RCA index of Mongolia is calculated based on the import data. The calculation result of the Mongolian livestock product RCA index is shown in Fig. 9.

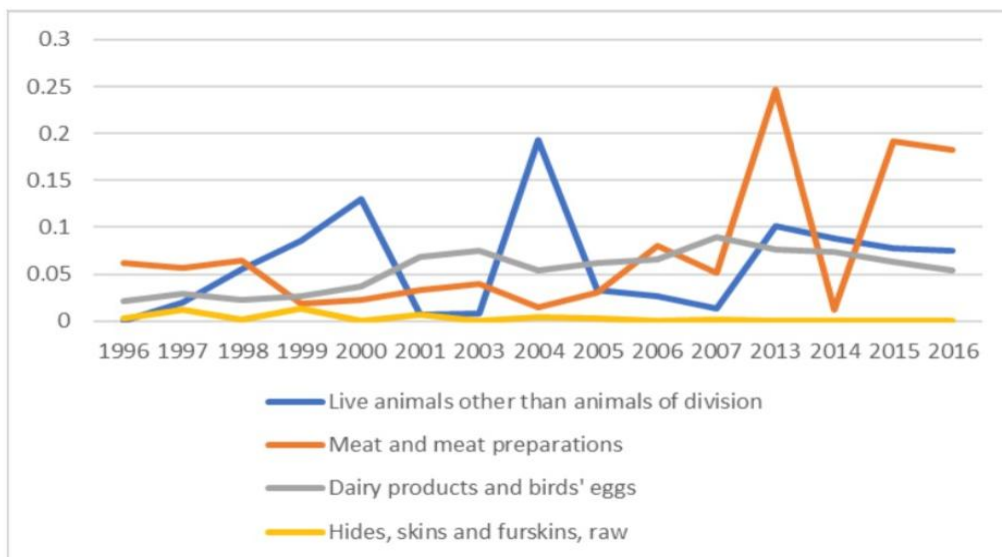
The change in the RCA index of Mongolian livestock products shows that Mongolia is continuously losing its competitive advantage in dairy products, especially in recent years. The dominant disadvantage index has risen to around 1, which means Mongolia lacks a competitive advantage in dairy products. However, live animals, meat products, animal hair, skins, and leather products have substantial competitive advantages, especially in animal hair, leather, and leather products. Mongolia can further expand exports of live animals, meat products, animal hair, hides, and leather products.



**Fig. 9. Changes in RCA index of Mongolian livestock products**

On the other hand, China and Mongolia's TCI on live animals, meat, and dairy products gradually increase. Especially, China and Mongolia's trade complementarity index has expanded rapidly on meat products. It indicates considerable potential for China and Mongolia to strengthen their cooperation in the live animal trade, meat product trade and dairy product trade. However, the trade complementarity index between China and Mongolia in animal skins, wool, and leather products is not high. It shows that there are still many possibilities for improving the animal skin, wool, and leather products trade (See Fig. 10).

The RCA and TCI values state that the livestock product trade is an essential part of the China-Mongolia agricultural product trade, especially the import from Mongolia. According to index calculations, the livestock trade is the most potential for further developing the China-Mongolia agricultural product trade. With the rapid growth of China's economy and society, demand for high-quality livestock products will increase. As the import of livestock products increases, it can be expected that the livestock products trade will play an essential role in China-Mongolia agricultural products trade.



**Fig. 10. Changes in China-Mongolia livestock product trade TCI**

#### **4.5 Strategies for Increasing Competitiveness of Mongolian Beef in the China Market**

First, the Mongolian beef enterprises should focus on the production of Mongolian speciality livestock products. This can be done by developing Mongolian livestock public and corporate product brands. According to the analysis, Mongolia's swine products, cattle products and dairy products can hardly compete with China's major trading partners in livestock products in terms of price and volume. The reason is that Mongolian current animal husbandry development is relatively lagging and more susceptible to natural disasters. On the other hand, the trade arrangements between Mongolia and China remain within the WTO framework. At the same time, China has signed free trade agreements with other major sources of livestock product imports, such as New Zealand, and signed a more liberalised trading agreement with the United States. Therefore, it will be difficult for Mongolia to compete with its main competitors in livestock products.

Second, Mongolian beef producers/enterprises should develop marketing strategies that will help to accurately place Mongolian livestock products in the Chinese market, including e-commerce channels. Mongolian livestock products are mainly exported in small batches with outdated vehicles and relatively high trade costs. Cross-border e-commerce could effectively help reduce trade costs (Luo et al., 2018; Chang et al., 2019)[13]. Mongolian SMEs could use Chinese e-commerce platforms such as Alibaba, JD.com and other international e-commerce providers in various distribution and marketing forms such as short videos, live broadcasts, etc. New marketing strategies may broaden the channels for Mongolian livestock products to enter China, enhance the impression of Mongolian livestock products among Chinese consumers, and effectively help Mongolian livestock products to tap the Chinese market potential.

Third, establish a strong network of Mongolian SMEs. This will help enhance information communication, maintain a stable supply chain, and business collaboration through industry associations and chambers of commerce. According to the research results, SMEs are the central pillar of livestock product trade between China and Mongolia [15-17]. Furthermore, the public and private sectors should jointly build a supply chain network to strengthen Mongolian

livestock products' standards, quality, and supply stability. It would also help Mongolia's SMEs scale up their livestock product exports to the Chinese market and fully tap its potential.

Lastly, the Mongolian government should improve the enforcement of domestic livestock product hygiene standards and ensure the safety of Mongolian livestock products. Mongolia should step up inspection work on factories that produce livestock products and pass strong food and product safety legislation. The Mongolian government's safety supervision department should also improve its implementation ability and strictly inspect the hygiene and safety of livestock products, following relevant laws and regulations [18,19]. Mongolia should implement applicable preferential policies or support policies for factories that produce livestock products so that factories that produce livestock products can increase investment in safety and health aspects.

#### **5. CONCLUSIONS**

This study analysed the export potential of Mongolian Beef to China. The results have shown that livestock products trade between China and Mongolia has begun to develop rapidly based on the continuous trade development between China and Mongolia. Further, the findings revealed that the China-Mongolia livestock product trade is highly complementary. China's main products to Mongolia are poultry products and other agricultural products. While beef, donkey, horse, and mule products have comparative advantages for exporting to China.

Even though the China-Mongolia livestock trade has a great development prospect, the study results show that Mongolian livestock products have not played a particularly important role in the Chinese market. It is mainly limited by the low level of development of the Mongolian livestock industry. However, with the Chinese consumers' more demand for customised consumption of livestock products and the development of the livestock industry in Mongolia, it is expected that China and Mongolia will have greater cooperation in livestock products trade, especially beef trade.

Under the current transportation circumstances, the study recommends that Mongolian livestock products focus on developing border trade with Inner Mongolia Autonomous Region and Xinjiang Uygur Autonomous Region. At the same time,

Mongolia may consider accelerating the use of cross-border e-commerce and other trade methods in the Chinese market. Secondly, efforts should be made to explore new markets, especially in the West European Countries, Canada, South Africa and Gulf countries, by encouraging the multinational companies to explore the vast potential and export the same. Third, a well-conceived export-marketing plan is a need for beef exports, which have been subjected to allegations of poor quality standards, as pointed out by some exporters. Fourth, with the improved raw material availability, the industry can still be one of the largest foreign exchange earners for the country. What is required is adequate market promotion, establishing a brand name and its image in the overseas market. Thus, a vigorous market promotion programme that should encompass overseas market surveys, invitation of foreign experts on export promotion visits, holding of buyer-seller meet in overseas markets and large scale participation in foreign food trade fairs by competent people is a must. Fifth, the method of exports needs to change according to the buying nations' requirements. This can be achieved by value addition to beef products. Value addition has become very costly for the buying nations due to high expenditure on wages, and hence value addition by exporters will help boost Mongolian beef exports. Lastly, establishing a proper market information system may help monitor and disseminate international beef prices among different stakeholders of the Mongolian livestock sector.

## DISCLAIMER

The products used for this research are commonly and predominantly used products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but the advancement of knowledge. Also, the research was not funded by the producing company; rather, it was funded by the personal efforts of the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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