

**Food Trade Issues and Food Purchasing
Decisions by Consumers in China**

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of

Master of Science

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ABSTRACT

This research includes two areas, with the first area focusing on supermarket food purchasing decisions by consumers in China. A probit model, using consumer food survey data indicates that supermarket food purchases are related to shopping habits, supermarket and food attributes, and demographics. This information should be helpful for those businesses attempting to market food within the Chinese supermarket supply chain. The second part of the study attempts to identify and analyze non-tariff barriers for food and agriculture, with a focus on China. These can include for example, import regulations, such as food safety regulations, food standards, labeling requirements, inspections, import licenses, and SPS (sanitary and phytosanitary conditions), and they are sometimes used by food importing countries to restrict imports. These results show that there are a number of significant non-tariff barriers regarding China – Canada food trade.

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CHAPTER 1

INTRODUCTION

This study includes two main parts: factors affecting consumer food purchases in supermarkets in China, and non-tariff barriers regarding China-Canada food trade.

Chapter two examines the factors affecting consumer food purchases in supermarkets in China. China makes up about 20 percent of the world's population and is the world's largest market for food, with 1.3 billion people. Chinese food consumption is expected to increase substantially in the future, and much of this is due to increased income, as income has been growing at about 10 percent annually. As well consumers are moving away from traditional food, particularly in urban China. Also supermarkets are a relatively new development in China over the past 20 years or so.

Chapter three focuses on non-tariff barriers in China-Canada food trade. The Asia Pacific Economic Cooperation (APEC) trade position and the Doha Development Agenda (DDA) of the World Trade Organization (WTO) have both called for "freer trade, especially trade in agriculture... and to dismantle many barriers, particularly behind the borders, for freer flows of trade and investment" (APEC, 2006). This chapter seeks to provide important information for policy makers, government, and industry, in order to gain an understanding of non-tariff barriers for food exports to China, one of the world's largest and fastest growing food markets. Virtually all countries have non-tariff trade barriers (NTB), also known as non-tariff measures (NTM), or technical barriers to trade (TBT). In the case of food non-tariff barriers, these restrictions can include, for example,

import regulations, such as food safety regulations, food standards, labeling requirements, inspections, import licenses, and SPS (sanitary and phytosanitary conditions). These barriers are sometimes used by food importing countries to restrict imports and protect domestic producers, even when there are no scientific evidence or health reasons for the restrictions. Finally, following chapters two and three, a summary of the thesis is presented.

CHAPTER 2

FACTORS AFFECTING CONSUMER FOOD PURCHASES IN SUPERMARKETS IN CHINA

Introduction

China has approximately 1.3 billion people, which makes up about 20 percent of the world's population, and is the world's largest market for food. Chinese food consumption is expected to increase substantially in the future due to continued increases in GDP, which has been growing at about 10 percent annually (Figure 2.1). As well, some experts predict that China may add another 100 to 300 million to its population by 2030, due to a more relaxed one child policy in recent years. China's food market has been transformed from a ration system to a competitive market over the past three decades (Perkins, 1994). Previously grain, pork, and oil had been distributed based on an individual's perceived need by government. As economic reform has progressed, there has been an increased demand for food purchased in supermarkets. According to Cundiff (1965), economic development has been an important factor in the development of the supermarket industry. Given these economic and demographic changes in China affecting food consumption, it is therefore useful to analyze the factors affecting Chinese consumer food purchases in supermarkets.

Three new food trends have appeared in China that are related to food consumption. First, food expenditure in China has risen sharply in the past half century. In 1958, annual per capita food expenditure in urban China was 129 Yuan and food

expenditure increased approximately 22 times to 4295 Yuan in 2008, according to the China Agricultural and Economic Data report (USDA) and China Statistics Bureau (Figure 2.2). Second, consumers are moving away from traditional food, particularly in urban China. For example, according to Fisher (2005), urban consumers with growing incomes are moving more toward meat and dairy products, and are moving away from starchy staples. Third, supermarkets are a relatively new development in China over the past 20 years or so, and given the relatively new trend, consumer food purchases in supermarkets in China are the focus of this chapter. The introduction is followed by sections on past literature, data, methodology, descriptive results, probit results, and a summary.

Food Safety Concerns, Wet Markets, and Supermarkets

As recent as in the early 1990s, the majority of Chinese consumers purchased food from a local wet market (e.g. outdoor market). However, the growing need for a broader selection of food products and the recent desire for improved safety along with higher income has caused a major shift toward supermarkets for food shopping. In contrast to supermarket products, many of the products sold in the traditional wet markets originate directly from local farms, and many of these products are not subject to standardized inspections, and this has raised food safety concerns among some consumers. One concern is that farmers often receive little or no training on how to handle pesticides, chemicals, and residuals. As well, many Chinese farmers have limited education and they cannot fully understand the sometimes complicated procedures on the use of pesticides and chemicals. According to Calvin (2006), the possibility of food

contamination has made food safety a top concern among Chinese consumers because Chinese farms have among the highest rates of pesticides and chemical fertilizer use per hectare, compared to the rest of the world.

With higher disposable income, it is natural for consumers to demand greater food quality, food safety, and convenience that supermarkets are able to provide. Since the early 1990s, the supermarket industry in China has grown as much as 40 percent annually in some years (Popkin, 2008). Gale and Reardon (2004) indicated that retail formats grew from nearly nonexistent in China in the 1990's to an estimated of 30 percent of the urban food market, and are still growing rapidly.

Disappearance of Wet Markets

While the supermarket industry has been growing rapidly during the past twenty years or so, many wet markets were shut down by the local governments to speed up the transition to supermarkets, and to address perceived sanitation challenges posed by wet markets. As well, some wet markets were also eliminated because the land which they occupied could generate higher returns through converting the land to retail space, office space, or residential housing. It has also been hypothesized that younger consumers do not prefer wet markets (Trappey and Lai, 1997), and so with changing demographics, demand for wet markets may have declined. According to Gale and Reardon (2004), a five year plan to develop a rural retail network of chain supermarkets and express stores in China's rural areas was initiated by China's Ministry of Commerce in 2004.

Yet, despite consumer and government support for supermarkets, not all supermarkets have been successful, partly because of the highly competitive nature of the industry. Some supermarkets have struggled, often because they did not fully understand the factors that influence Chinese consumers' consumption patterns and consumption behavior. In order to better understand food consumption patterns and consumer behavior in China, it is important to study Chinese consumers' preferences regarding supermarket shopping. Therefore, the purpose of this study is to analyze factors affecting food purchases in supermarkets in China by considering a variety of variables that may affect consumers' decisions to shop in supermarkets. This information should be useful for those involved in food marketing in China, given the growing size and importance of supermarket industry in China.

Past Literature

Supermarket Shopping Habits

According to Kiefner and Wegmueller (2007), Chinese consumer expenditures increased by 11.1 percent in 2006 compared to 10.4 percent in 2005. The purchasing power of China's 1.3 billion consumers has been growing, and food is the largest item in Chinese household budgets, and consumers are eager to try new foods (Hsu, Chern, and Gale 2002). However, Chinese consumers are relatively price sensitive and income sensitive compared with some developed countries (Wang, Mao and Gale, 2008). Also, Chinese consumers enjoy shopping more than consumers in some other countries, and a

study done by Mckinsey and Company showed that Chinese consumers spend more time shopping than their global counterparts, spending 9.8 hours a week in stores, compared with the three other BRIC countries (Brazil, Russian, India), who average of 7.2 hours a week and just 3.6 hours a week for the US (Chan and Tse, 2007).

Mistrust arising from the number of counterfeit products sold, and misinformation may often force customers to rely on their trust of reliable retail outlets such as supermarkets (Knight, Gao, Garrett, and Deans, 2008). With the increased international media attention regarding a number of food safety related incidents in China, Chinese consumers are becoming more concerned about food safety issues. According to Gale (2007), as Chinese consumers' income has increased, both consumers and the media have focused more attention on food safety problems. Therefore, consumers have become more interested in food labels, expiration dates, other indicators of food safety. Since consumers appear to trust supermarkets regarding their food safety indicators, more consumers have been shopping at supermarkets.

Expenditure

i) Expenditure Spent on Food

A number of studies have focused on the impact of income and prices, regarding food consumption patterns in China. Realignment of prices could have important impacts on food demand in China since elasticity of demand studies indicate that China's consumers are somewhat sensitive to food prices (Hsu, Chern and Gale, 2004). Also, Jussaume (2001) found that consumers with higher income shopped at supermarkets, and

one reason was to purchase meat and fresh produce. Gale and Huang (2007) found that Chinese consumers with higher income tended to purchase more processed food, higher quality cuts of meat, branded or packaged products, and food that is safer, more convenient, and healthier. As well, higher income households were found to be more likely to shop in supermarkets rather than in small shops or street markets (Gale, 2006).

ii) Expenditure Spent on Imported Food

Consumers who spend a higher portion of their income on imported food, which is more costly, may be more likely to shop at supermarkets. Chinese consumers often associate imported food with higher quality, thus they are willing to pay the higher price. Moreover, higher social status appears to be associated with imported food in China. Zhou and Hui (2003) found that Chinese consumers generally associate foreign products with sophistication, novelty, modernity, and faddishness. As well, to avoid counterfeits of imported food products and associated quality or safety problems, consumers may be more likely to purchase imported food in supermarkets. Further, the reputation of the retailer, such as a supermarket, may help overcome uncertainty which consumers might otherwise have regarding the purchase of food products (Knight, Gao, Garrett, and Deans, 2008).

Supermarket and Food Attributes

i) Food Quality

Consumers who focus more on quality may be more likely to shop at supermarkets, and quality can be a form of overall evaluation of a product, similar in

some ways to attitude (Olshavsky, 1985). Holbrook and Corfman (1985) agree, suggesting that quality is a relative value judgment and it is common for consumers to view food quality in four dimensions consisting of taste and appearance, health, convenience, and process (Brunsø, Fjord, and Grunert, 2002). They also point out that food safety may be an important fifth, additional dimension, regarding food quality.

Increasing concerns over food quality are becoming an international issue, and of particular interest are the effects of the use of food production practices such as irradiation, antibiotics, hormones, and pesticides on food safety (Nayga, 1996). Consumers often link process characteristics, such as organic food, GMO food and animal welfare, to other quality dimensions, especially health (Brunsø, Fjord, and Grunert, 2002). As well, consumer concerns also have been heightened by extensive media attention and a growing general awareness of the relationship between diet and health (Lynch and Lin, 1994).

ii) Food Labeling

With the increased concerns over food quality, consumers may be more likely to pay more attention to the expiration date on the label, as it may be one of the more common and straight forward approximations of food quality. Since food labeling is a relatively new practice in the Chinese food market, many consumers are not used to reading the long label list containing scientific terms and ingredients, and so they may tend to rely more on the expiration date for quality assurance. Zhao, Wells, Xie, and Xu's (2000) survey results indicate that 86 percent of Chinese consumers desire

information on the expiration date, and this result was 10 percent higher than the second most important category found in their study, nutritional information for food labels.

iii) Variety of Products

The success of many supermarkets may be partially due to the wider variety of products they offer. Supermarkets in China are under considerable pressure to ensure quality and freshness and carry a wider variety of products to meet increasing numbers of market segments (Hu, Reardon, Rozelle, Timmer, and Wang, 2004). According to Gale (2003), China's increasing affluent consumers are demanding a wider variety of food products. A number of Chinese consumers lead relatively busy lives and may not have the time to visit several stores, and so one stop shopping at supermarkets allows them to purchase what they need to minimize shopping time, and lower their search time and search costs.

Socio-Demographics

i) Size of City

During the last twenty years or so, supermarkets located in large cities in China have often been successful in providing quality products and gaining consumer trust and consumers in large cities often prefer shopping at supermarkets. Supermarkets have been well established in larger cities in China and have been expanding at a rapid rate. Popkin (2008) found that not only are large foreign supermarkets expanding rapidly, but they are being copied to a considerable extent by a number of domestic clone supermarkets.

Popkin also found that supermarket sales in China have been growing by as much as 40

percent annually, among the fastest in the world. The expansion of supermarkets has also spread outside of urban areas. According to Hu, Reardon, Rozelle, Timmer, and Wang (2004), supermarkets are expanding from large cities to secondary cities to towns, and from upper middle income consumer segments to the urban poor, and from the richer eastern regions to the middle and western regions of China.

ii) Education

Education may be an important factor that influences supermarket food purchases, and education may also be related to income. Zhang (2002) found that consumers seeking higher product variety, such as supermarket food, often have higher education, higher income, and are younger. Bhandari and Smith (2000) suggested that education may play a larger role in determining food preference than price and income factors. This is because education enhances a consumer's ability to process information about nutrition and health, and it can be associated with a significant change in food consumption behavior. In summary, socio-demographics may be an important factor in influencing supermarket food purchases.

Data

A Chinese survey questionnaire was developed and pretested in the summer of 2006. The survey was then distributed and included 824 primary food shoppers in Beijing, Tianjin, Dalian, and Huhehot (the capital city of Inner Mongolia). These four cities were chosen because they are representative of a variety of different types of cities.

Beijing is the heart of China's political and social life, and Tianjin is another one of the largest cities in China. Dalian is a coastal city that belongs to one of the special economic zones, and Huhehot is a middle sized city located in Inner Mongolia, and is one of the largest minority regions. Survey participants were chosen primarily from large supermarkets, wet markets, and other areas. Information was collected on supermarket shopping habits, supermarket and food attributes, and demographic characteristics. A Likert scale response was used for questionnaires, e.g. where 1 = strongly disagree...5 = strongly agree.

According to computations from the data (not shown), the amount of income consumers, including families spend on food varies widely. About 15.2 percent of respondents stated they spend less than U.S. \$32 on food every month, and 30.7 percent spend between U.S. \$32 and U.S. \$63 per month. In addition, 30.5 percent responded that their monthly food expenditures are between U.S. \$63 to U.S. \$125, 14.6 percent spend between US\$125 and US\$187, and the rest 9.1 percent spent more than approximately US\$187 every month.

When participants were asked if they purchase their food from a supermarket, 32 percent respondents said they buy less than half of their food from a supermarket, and 68 percent survey responded that they buy more than half of their food from the supermarket (result not shown). This indicates that there is a considerable amount of food that is purchased from supermarkets. When asked whether they enjoy shopping at supermarkets, 9 percent consumers indicated they very much enjoy shopping at supermarkets, 58 percent consumers indicated they enjoy shopping at supermarkets, 29.2% indicated they

are neutral about where they shop, 2.8 percent consumers indicated they do not enjoy shopping at supermarkets, and 0.6 percent consumers dislike shopping at supermarkets.

(Figure 2.3)

Methodology

The consumer's utility is indirectly derived from a well defined set of characteristics or attributes of goods, and the consumer preference analysis here stems from microeconomic theory and Lancaster's characteristics methodology (Lancaster, 1971). This methodology links consumers' utility of shopping in supermarkets with supermarket shopping and attributes of the supermarkets. Ordered probit models have been widely used for analyzing such categorical data (Chen, Ali, Veeman, Unterschultz and Le, 2002), and consumers' utility is given as:

$$U = \beta X + \varepsilon, \varepsilon \sim N(0,1) \quad (1.1)$$

The ordered probit estimation technique is used to analyze data responses expressed as ordinal categories of arbitrary width, such as the Likert scale used in this study (Madalla, 1983). The dependent variable may take on values of 1, 2, ..., j. These values are reflected in a latent variable (U) whose level is influenced by explanatory variables, expressed as a vector (X) of the consumers' ranking on selected attributes and socio-demographic factors (equation 1.1). The utility function (U) is not observable, but is assumed to lie beneath the observed vector of importance rankings, R (where R=1, 2, ..., j) (equation (1.2)). The relationship between U and R is assumed to a function of cut off points (μ'_{js}) which are estimated along with the regression coefficients such that:

$$\begin{aligned}
R &= & 0 & \text{if } U \leq 0; \\
& & 1 & \text{if } 0 < U \leq \mu_1 \\
& & 2 & \text{if } \mu_1 < U \leq \mu_2 \\
& & : & \\
& & j & \text{if } U > \mu_{j-1}
\end{aligned} \tag{1.2}$$

The probability of the consumer choosing a specified ranking (i.e., willingness to buy) is given as:

$$\begin{aligned}
\rho(R_i=0) &= \varphi(-\beta\chi) \\
\rho(R_i=1) &= \varphi(\mu_1 - \beta\chi) - \varphi(-\beta\chi) \\
\rho(R_i=2) &= \varphi(\mu_2 - \beta\chi) - \varphi(-\beta\chi) \\
& : \\
\rho(R_i=j) &= 1 - \varphi(\mu_{j-1} - \beta\chi),
\end{aligned} \tag{1.3}$$

and where $\varphi(\cdot)$ is the cumulative probability function of a normal distribution for the range of consumers' utility. The coefficient vector β and the coefficient $\mu_1 \dots \mu_j$ are estimated using maximum likelihood estimation. The ordered probit model used here to estimate the relationship between various explanatory variables and Chinese consumer's preference for supermarket food allows improved parameter estimates of the variables, given the Likert scale and ordinal ranking of the variables.

Descriptive Results

Socio-Demographic Profile of the Respondents (N=824)

Socio-demographic factors are often important variables influencing consumer preference (Senauer, Asp, and Kinsey, 1992), and socio-demographic descriptive results are shown below, from Table 2.1.

Age: Respondents are divided into five age groups and results show the following categories and percentages: 1) Youth (below age 25, 24.4 percent); 2) Young adult (age between 25-34, 38.7 percent); 3) Mature adult (age between 35-44, 18.4 percent); 4) Older adult (age between 45-54, 12.1 percent); 5) Senior (age 55 or over, 6.3 percent)

Family size: A typical Chinese family in the survey has 3 or 4 people, and results showed that families with 3 to 4 people constituted 69.2 percent of the total households.

Education: Based on education achievement, respondents are divided into five levels and results showed that: 1) Low education level (Technical school or less, 26.6 percent); 2) High school level (Completed grade 12 education, 26.6 percent); 3) College level (2 years of post secondary education, 26.1 percent); 4) University level (4 years of post secondary education, 28.9 percent); 5) High education level (More than 4 years of post secondary education, 10.6 percent)

Income: Income (monthly) per household was divided into five levels and results showed that: 1) Low income family (below 1000 Yuan, 11 percent); 2) Middle low

income family (between 1001 to 3000 Yuan, 42 percent); 3) Middle income family (between 3001 to 5000 Yuan, 29.2 percent); 4) Middle high income family (between 5001 to 7000 Yuan, 11.9 percent); 5) High income family (7001 Yuan or more, 5.8 percent).

Another way to categorize respondents may be by where they prefer to shop, whether it is in wet markets or supermarkets. A first group is consumers who do most of their grocery shopping in a supermarket (68 percent). The majority of these consumers are from middle income or higher income families who may be willing to pay a premium for quality food. A second group is made up of consumers who mainly shop at wet markets and occasionally make a stop at the supermarket (32 percent). This group of consumers belongs mainly to a lower income bracket. Many are also older workers or retirees who represent a sizeable segment of the food market.

Results of Ordered Probit Model

An ordered probit model was estimated to explain the factors related to consumer's purchases from a supermarket. Codes for the variables are shown in Table 2.2. The dependent variable is percentage of food purchased at supermarkets, on a Likert scale of 1 to 5. 1 equals 20 percent or less on the lower end of the scale, and 5 equals 85 percent or more on the high end of the scale. Log likelihood tests (Pseudo R-squared) show the goodness of fit for the estimated equation, and the McFadden R^2 of 0.056 for

the cross sectional data, and seven out of the nine variables are statistically significant at the ten percent level or better.

The results for the ordered probit model estimates are presented in Table 2.3. These variables in the model can be categorized into three groups consisting of supermarket shopping habits, supermarket and food attributes, and socio-demographics.

Shopping Habits

i) Expenditure on Food

A statistically significant positive relationship is found between expenditures on food (0.130) and percentage of food purchased from a supermarket (Table 2.3). This result suggests that Chinese consumers who spend more on food are likely to buy a larger percentage of their food from a supermarket. This may be because higher spending power allows consumers to afford certain higher cost supermarket food attributes they prefer (e.g. imported foods, high end food brands).

Expenditure on Imported Food

The amount of income spent on imported food appears to have an impact on how much food consumers purchase from a supermarket (0.055). This may be the case because much of the imported food is often only available in supermarkets. Some imported food can be purchased in smaller stores, but there may be a higher possibility of counterfeit or mislabeled food, which could raise food safety concerns. Some Chinese consumers may have lower confidence in the safety of domestic food, as the food safety incidents such as melamine contaminated baby formula, and contaminated tooth paste,

have illustrated (World Health Organization, 2008). Therefore, consumers may be willing to pay more for higher quality food, such as imported food.

The level of trust towards supermarkets (0.096) variable is positively related to the percentage of food purchased from a supermarket, and is significant at the 5 percent level of significance or better (Table 2.3). These results suggest that Chinese consumers are likely to buy more food from supermarkets when the consumers trust the services and products that supermarkets provide. This may be because of the increasing concerns of food safety issues among consumers and they prefer to shop at reliable retailers, such as supermarkets, that they can trust. This is consistent with McLaughlin and Wittink (1998) who found that trust is a relational construct and is a critical social exchange favorably influencing loyalty intentions.

Level of satisfaction with supermarket service (0.089) is positively related to the percentage of food purchased from a supermarket, but not statistically significant. This result may be interpreted as consumers are more likely to shop at supermarkets if they are more satisfied with the service supermarkets provide.

Supermarket and Food Attributes

i) Labeling of Expiration Dates

An important food attribute is labeling of a product's expiration date. As food safety increasingly gains consumer attention, product labeling has become a common practice for food sold in supermarkets in China. Results show that labeling of a product's expiration date has a positive relationship (0.135) with the percentage of food purchased

from supermarket, and this result is statistically significant at the five percent level or better. This could be interpreted that food consumers who are concerned about food safety prefer supermarkets. Therefore, labeling of a product's expiration date and other food safety related information may be one of the food attributes attracting food consumers to shop at supermarkets.

ii) Variety of Products

Supermarkets offer a large variety of products compared to wet markets and this appears to be one of the key attractions for Chinese consumers to shop in supermarkets. A positive relationship (0.068) was found between the variety of products and the percentage of food purchased from supermarkets, and the result is statistically significant at the five percent level or better. The result suggests that consumers are likely to shop more at a supermarket when the supermarket offers more variety of products.

Socio-Demographics

i) City Size

City size may be an important variable for explaining supermarket food purchases. The city size variable is measured by the city's population size from small to large. The city variable shows a positive and significant coefficient (.0126). This result shows that consumers from larger cities purchase a higher percentage of their food from a supermarket. Consumers in larger cities maybe more educated, informed, and aware of the benefits of supermarkets for food shopping. Supermarkets most began to appear in China in the early 1990s and a majority of these supermarkets were developed in larger

cities. This may imply that consumers in smaller cities are less aware of supermarkets and may partially explain why consumers from large cities purchase more food from supermarkets.

ii) Education

The education variable (0.100) is also positive and significant, and so consumers with higher education appear to buy more food from supermarkets. More years of education may enhance consumer awareness, and knowledge of diet and health issues (Blisard, Lin, Cromartie, and Ballenger, 2002). Zhang (2002) finds that consumers seeking higher product variety often have higher education and higher income, and are younger. Consequently, more educated consumers may prefer the supermarket, where they can obtain more information regarding the food they purchase.

Summary and Marketing Implications

China has been facing increased pressure from a large population, and increasing demand for higher quality food. With 1.3 billion people to feed, growing incomes, and a demand for more value added food, China's food market will continue to grow. To meet the Chinese consumer's food demand and to improve food safety, such as food industry regulations, the Chinese government has been promoting the expansion of supermarkets throughout the country. In 1990 there were very few supermarket outlets, and by 2003 there were well over 60,000 supermarkets nationwide (Gale and Reardon, 2004).

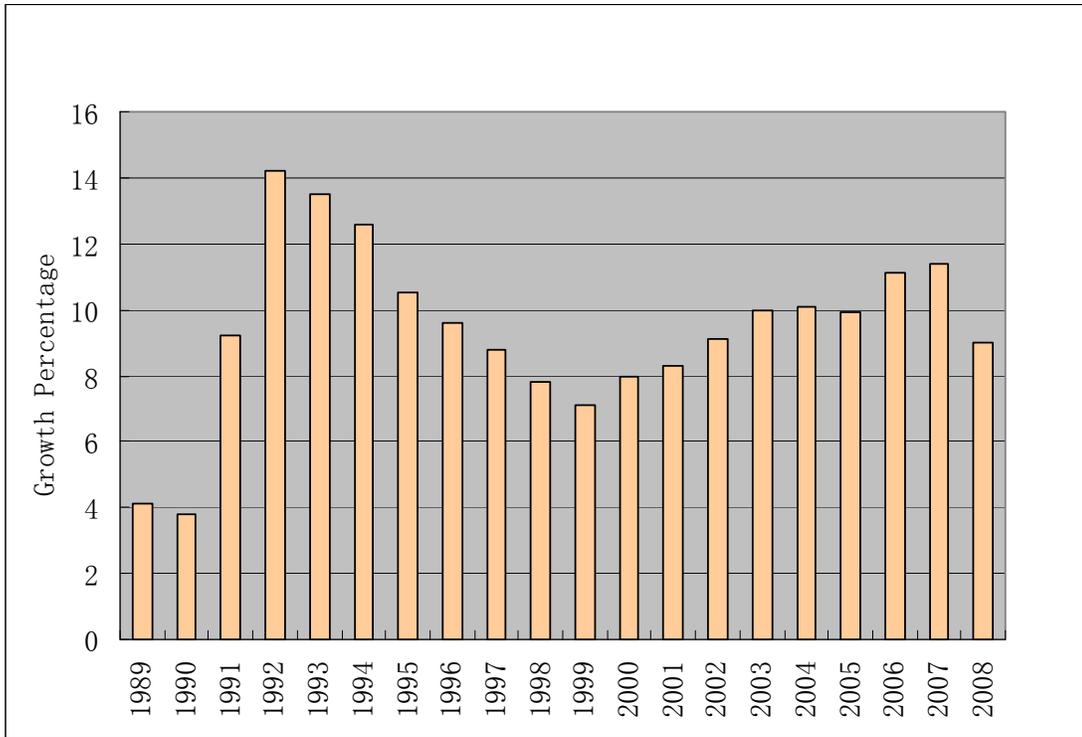
This chapter focused on the factors affecting the Chinese food consumer's decision to shop at a supermarket. A total of 824 surveys were collected in China in the summer of 2006. Surveys were primarily undertaken involving food consumers in wet markets and supermarkets in the cities of Beijing, Tianjin, Dalian, and Huhehot. Information such as the Chinese food consumers' perceptions regarding supermarket shopping habits, supermarkets food attributes, and socio-demographics were collected in a survey. An ordered probit model was estimated to explain the factors influencing Chinese consumers' food purchases from supermarkets.

Result showed that consumers' expenditure on food and foreign food was related to supermarket food purchases. Trust and satisfaction level, were also positively related to supermarket food purchases. Labeling of expiration dates was related to food purchased from supermarkets, and with the rising concerns over food safety issues in China, there is a greater tendency for consumers to look for basic information regarding the food they are purchasing such as an expiration date. Many consumers may think that small stores and wet markets provide products with fewer expiration dates.

Education level was found to be positively related to percentage of food purchased from supermarkets, and consumers with higher education levels appeared more willing to shop at a supermarket. Consumers from larger cities were found to be more likely to purchase food from supermarkets. Although supermarkets can be found in almost every concentrated residential area in the larger Chinese cities, supermarkets are still relatively new to other regions.

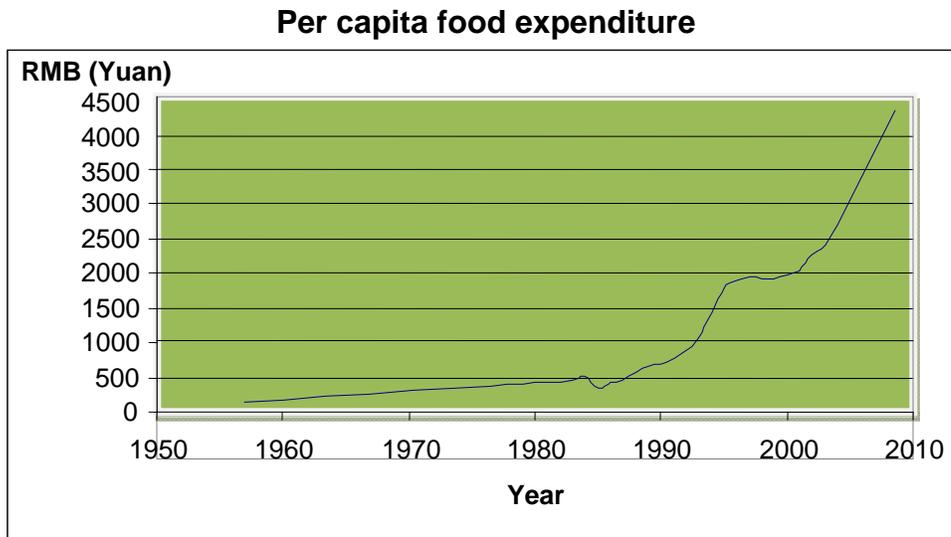
In summary, many factors affect supermarket food purchases in China. Nine variables were used to examine food purchased from supermarkets, and seven of nine variables were statistically significant. The international food industry may find the information from this study useful in order to better understand the factors that affect the Chinese food consumers' shopping behavior. As well, this information may be useful to food retailers, and policy analysts, especially those focusing on the Chinese food market.

Figure 2.1 China's GDP Growth: 1989 - 2008



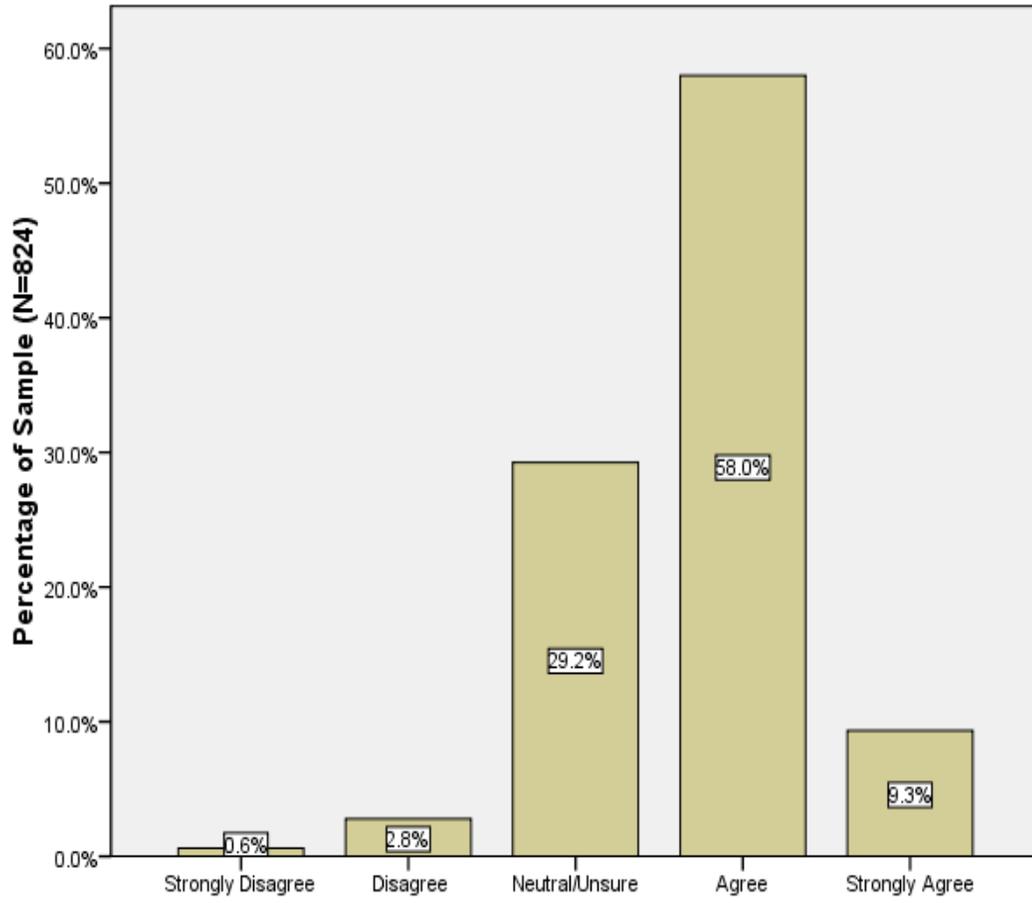
Source: National Bureau of Statistics of China

Figure 2.2 China's per Capita Food Expenditure: 1958-2008



Source: USDA, 2006 and later updated by author (Data Source: China Statistic Bureau)

Figure 2.3 Histogram of Survey Data – Enjoy Shopping at Supermarkets: Based on Chinese Consumer Food Survey



**Table 2.1 Socio-Demographic Profile of the Survey Respondents in China (N=824):
Based on Chinese Consumer Food Survey**

Age Group	<25	25-34	35-44	45-54	>55
	24.4%	38.7%	18.4%	12.1%	6.3%
Family Size	1 Person	2 People	3-4 People	5-6 People	7 People
	4.1%	16%	69.2%	9.2%	1.5%
Education	Technical School	High School	2-Year College	4-Year University	> 4 Years University
	7.9%	26.6%	26.1%	28.9%	10%
Monthly Family Income (Yuan)	<1000	1001-3000	3001-5000	5001-7000	>7001
	10.9%	42.0%	29.2%	11.9%	5.8%

*In China, technical schools are generally consider to be a lower educational standard then most high schools

Table 2.2 Variable Codes for Selected Survey Data: Based on Chinese Consumer Food Survey

Independent Variables	Definition and codes
Supermarket Shopping Habits	
Expenditure on Food (weekly)	1 = less than 50 RMB... 5 = over 300 RMB
Expenditure on Imported Food	1 = less than 50 RMB... 5 = over 400 RMB
Level of Trust with Supermarkets	1 = strongly disagree ... 5 = strongly agree
Level of Satisfaction with Supermarket Service	1 = strongly dissatisfied... 5 = strongly satisfied
Supermarket and Food Attributes	
Labeling of Expiration Dates	1 = least important... 5 = most important
Variety of Products	1 = least important... 5 = most important
Demographic Factors	
City Size	1= smallest city ...4 = largest city
Work Status	1= unemployed ... 4 = full time
Education	1 = Technical School, 2 = High School, 3 = 2 Year College, 4 = 4 Years University, 5 = more than 4Year University

Table 2.3 Estimates of the Ordered Probit Model – The Percentage of Food Purchased from a Supermarket in China: Based on Chinese Consumer Food Survey

	Estimate	S.E	Sig.
Supermarket Shopping Habits			
Expenditure on Food (weekly)	0.130**	0.035	0
Expenditure on Imported Food	0.055**	0.027	0.039
Level of Trust with Supermarkets	0.096*	0.058	0.098
Level of Satisfaction with Supermarket Service	0.089	0.057	0.117
Supermarket and Food Attributes			
Labeling of Expiration Dates	0.135**	0.053	0.011
Variety of Products	0.068*	0.041	0.098
Demographic Factors			
City Size	0.126**	0.038	0.001
Work Status	0.013	0.043	0.761
Education	0.100**	0.029	0.001

1. * Indicates 0.10 level statistical significance. ** Indicates 0.05 level statistical significance
2. McFadden R-Square = 0.056
3. The dependent variable is percentage of food purchased from a supermarket, on a Likert scale of 1 to 5, where 1 = less than 20% and 5 = 85% or more.
4. A Likert scale is used for independent variables, e.g. 1=strongly disagree and 5 = strongly agree, or 1= unimportant ... 5 = very important

Chapter 3

NON-TARIFF BARRIERS AND CHINA-CANADA FOOD TRADE

Introduction

The Asia Pacific Economic Cooperation (APEC) trade position and the Doha Development Agenda (DDA) of the World Trade Organization (WTO) have both called for “freer trade, especially trade in agriculture... and to dismantle many barriers, particularly non-tariff barriers, for freer flows of trade and investment” (APEC, 2006). This study seeks to provide important information for policy makers, government, and industry in order to gain an understanding of behind border trade barriers for food exports to China, one of the world’s largest and fastest growing food markets. These barriers, which virtually all countries have, are also known as non-tariff trade barriers (NTB), non-tariff measures (NTM), or technical barriers to trade (TBT).

In the case of food non-tariff barriers, these restrictions can sometimes include import regulations, such as food safety regulations, including food standards, labeling requirements, inspections, import licenses, and SPS (sanitary and phytosanitary conditions). They are sometimes used by food importing countries to restrict imports and protect domestic producers, even when there is no scientific evidence or health reasons for the restrictions. Non-tariff barriers in food and agriculture for China have become increasingly important, especially for those trying to export food to the Chinese market. This is because China could become a larger food importer, as consumers’ income in China is growing quickly, and this may increase the demand for meat and dairy products,

along with grain, which is fed to livestock to produce meat and dairy products. As well, China entered the WTO in 2001, and this is likely to bring about more food and agricultural trade, though non-tariff barriers could limit this trade. This study attempts to identify, document, and evaluate some of the major non-tariff barriers in food and agriculture. Following the paper introduction, background on China's food trade is discussed, followed by identification of non-tariff food trade barriers in China, evaluation of non-tariff barriers, costs of non-tariff trade barriers, and a summary.

Since traditional protection mechanisms such as quotas and tariffs have been substantially reduced in the 1990's, non-tariff trade barriers are becoming increasingly more common. As traditional protection mechanisms become less important, non-tariff measures are becoming a major impediment to freer market access and trade. Non-tariff barriers are often defined as any measures other than border tariffs that may distort the trade of goods, services, and production. These may include for example Sanitary and Phytosanitary (SPS) policies, import licensing, labeling, and food safety regulations. Since some countries may wish to use non-tariff barriers to restrict trade, the WTO 1994 Sanitary and Phytosanitary (SPS) agreement and the 1979 Technical Barriers to Trade (TBT) agreement, were put in place in order to assist in preventing non-tariff barriers from unduly restricting food trade (Bureau, Marette and Schiavina, 1998).

Issues such as the use of technical trade barriers, and recognition of the precautionary principle as justification for technical trade barriers were raised during the public debates over GATT/WTO jurisprudence on technical barriers (Farber and Hudec; GATT 1996). According to the Uruguay Round TBT Agreement, the use of non-tariff

barriers was permitted in if they were deemed to be welfare-enhancing. However, debate over whether these measures are used to protect domestic producers is increasing. Dick (1994) pointed out that non-tariff trade barriers were used to compensate industries that are affected by reduced tariffs. Non-tariff barriers may have significant impact on trade flows, as (Lee, and Swagel, 1997) found that if the global coverage of non-tariff trade barriers across industries decreased by 10%, then the import share would rise by between 7.4% and 8.9%.

Although most export industries are facing some type of non-tariff trade barrier, these barriers are especially rigid in a number of sectors and countries. The EU is currently one of the large areas in world trade and has a relatively open market, except in the textile and agriculture sectors. The United States allows many imported products to enter with minimal to no tariffs, however, imports of agricultural products, textiles, and clothing are still facing both tariff and non-tariff restrictions. The US continues to actively use anti-dumping, countervailing and safeguard measures, and has quantitative import restrictions imposed under the provisions of the Agreement on Textiles and Clothing (Sandrey, 2003).

Even though the agreement on Textiles and Clothing (ATC) expired on January 1, 2005 and the use of quotas for textile and clothing came to an end, the major importing countries such as Canada, US, and the EU are sometimes using non-tariff barriers as an alternative to prevent free market access. Many countries provide subsidies to domestic steel production, and as a result, the import of steel products also faces heavy non-tariff

barriers. From 1985, around 23 percent of the iron and steel products imported into the United States were subject to countervailing duty action (Nam, 1987).

Above all, the agricultural sector is most vulnerable to non-tariff trade barriers. For agriculture, Sanitary and PhytoSanitary (SPS) measures are the most controversial issues. SPS regulations are measures intended to protect human, plant, and animal health. Agricultural exporters may be required to comply with the standards that stipulate everything from ingredients to packaging materials, as well as demonstrate that native plant species or human health is not endangered by their products (Roberts, Josling, and Orden, 1999). Food safety standards also often vary from country to country and these differences may generate a significant cost on exporting countries. A USDA survey (Roberts and DeRemer, 1996) identifies 57 questionable European regulations affecting US agricultural exports with an estimated trade impact of \$899.55 million. Additional studies have also been undertaken as well, finding a number of non-tariff barriers (Roberts and DeRemer, 1997).

Measuring the impact of SPS on trade can be a complex procedure since the loss generated from rejection includes transportation, storage, and other costs. Compliance often involves considerable capital expenditure such as product redesign, maintaining new quality control, testing, certification procedures (Maskus and Wilson, 2001).

Non-Tariff Barriers for Food: The Case of China

Food trade barriers have been increasing in recent years, and according to the Canadian Department of Foreign Affairs and International Trade (DFAIT), “Furthermore, as the use of tariffs as a trade policy tool has diminished, and there can at times, be an increased incentive for governments to use regulations and standards as an alternative, and less transparent means of restricting the entry of foreign products” (DFAIT, 2006). This is not unique to China or any particular country. Whenever there are advances in freer trade, such as China’s entry into the WTO, higher cost producers in a country will often try to have imports restricted. This is especially true when new markets are opened for trade, and domestic producers attempt to adjust to lower world cost structures.

The issue of non-tariff barriers in China food trade is an interesting case and takes on increased importance for a number of reasons: 1) China is one of the world’s largest agricultural and food import markets 2) many countries have trade deficits with China and believe that reducing non-tariff barriers could assist in reducing these deficits 3) China is relatively new to the WTO and its food import regulations are not fully developed or understood, which may act as a non-tariff barrier, and 4) after China’s entry into the WTO, the many small Chinese farmers with higher costs (60-70 percent of the population is rural), have been forced to adjust to more competitive cost structures and world price levels, and this has put pressure on the agricultural and food sector, sometimes resulting in domestic protection and non-tariff barriers.

According to Ellen Terpstra, Deputy Under Secretary for Farm and Foreign Agricultural Services of the U.S. Department of Agriculture, China’s trade partners still

encounter many trade barriers even China's food trade environment is much more open than earlier years, since many market access barriers are SPS (sanitary and phytosanitary conditions) (Terpstra, 2005). The Food and Agriculture Organization of the United Nations (FAO, 2005) states that increasing non-tariff measures (NTM's) may act as a critical barrier to the participation of developing countries in growing international trade. The FAO also states that non-tariff measures (NTM's) affect many food and agricultural products, and can have a considerable impact on export revenues.

One 2009 example of a non-tariff barrier includes the April 2009 swine flu virus (H1N1) outbreak. China banned pork exports from the province of Alberta (Edmonton Journal, 2009) and about 20 other countries banned pork imports (Toronto Star, 2009). This was despite the fact that it was impossible for the swine flu virus to pass from pork to humans, according to scientific evidence by three of the world's most recognized scientific bodies for food and health. According to a joint statement by the Food and Agriculture Organization of the United Nations, the World Health Organization, and the World Organization for Animal Health, "Influenza viruses are not known to be transmissible to people through eating processed pork or other food products derived from pigs" (OIE, 2009).

In 1996, the USDA estimated that non-tariff barriers decreased the value of USA exports by nearly US\$5 billion (FAO, 2005). The number of notifications (complaints) regarding non-tariff barriers has expanded steadily with the growth in freer trade (Figure 3.1). Removing these non-tariff barriers could improve the efficiency of trade and provide lower prices for consumers. This is especially important for China, because of

China's growing food demand, rising food prices, and China's lower income consumers who would like to buy food at a lower cost.

Importance of China's Food Market: Large Population and Growing Income in China

Since China's entry into the WTO in 2001, it has been one of world's fastest growing economies, and potentially a large food export market for Canada. Also, China has at least temporarily replaced Canada as the largest trading partner of the United States. Income in China has more than doubled from the year 2000 to 2008, to about \$3000 per capita in 2008, and population is about 1.3 billion making it the world's largest country, with about 20 percent of the World's population, according to the International Monetary Fund. China's population is still growing, and may add as many as 100 to 300 million people to the population by 2030. This is because the one child family policy does not apply to 1) many rural families, 2) ethnic minorities, and 3) children from one child families who marry another who is also from a one child family. Also, there is some indication that China may slowly relax the one child policy in future, as its population ages. This is partly in order to avoid a demographic driven economic slowdown brought on by many older retired citizens and fewer younger workers, as has happened in Japan. Population growth in China, combined with growing income, could make China a substantial net food importer in future.

Reasons for Non-Tariff Food Trade Barriers in China

While U.S. non-tariff barriers for food have been rising, Canada also faces some challenges with China's non-tariff barriers for food. There are many reasons why China

and other countries place barriers on food imports. (Table 3.1) Sometimes these barriers protect consumers from unhealthy or dangerous food imports that could harm consumers, due to food safety issues. Other times, food safety is not an issue and domestic producer forces have applied pressure to restrict imports of some food and agriculture products to permit domestic farmers and the food industry to gain an advantage over imports, and avoid competition with lower cost imported food. For example, it was alleged in the case of BSE (“mad cow disease”) that beef from Canada and the U.S. was restricted from Japan, China, and South Korea, even though recognized world scientific bodies considered the beef “safe.” Also, this may occur, for example, during periods of an abundant harvest and excess domestic supplies. As well, it is alleged by some western exporters that China may attempt to block imported food, as a response to Western countries that have banned various Chinese products for alleged safety concerns including toys, toothpaste, and melamine related concerns.

However, Chinese food producers have also been subject to some recent relatively high non-tariff barriers, especially from Japan, where considerable Chinese food is exported for Japanese hotels, restaurants, and other institutions. In May 2006, a new law came into effect in Japan which substantially served to restrict Chinese agricultural and food imports through non-tariff barriers. “The new law stipulated about 97,000 limitation standards on 135 kinds of foodstuffs and 724 kinds of pesticides. But before May, there were 9,000 limitation standards on 130 kinds of imported farm products and 229 kinds of pesticides, meaning the old standards equaled only 10 percent of the new” (China Daily, 2006). Table 3.1 contains a list of Non-Tariff barriers for food in various countries.

Table 3.1 List of Non-Tariff Barriers for Food in Various Countries

- WTO SPS conditions (sanitary and phytosanitary conditions) for food/meat standards (e.g. BSE in beef, avian flu, foot and mouth disease for pork, contaminants, chemicals, residues, and bacteria)
 - Food labeling and nutritional regulations
 - Food safety standards regarding food additives, and hormones and antibiotics given to animals (e.g. meat and dairy products)
 - Quality assurance certifications, approvals, stamps and institutions (e.g. government, private, international, etc.)
 - Food regulations on ingredients, preservatives and extended shelf life, irradiation, product expiration dates, packaging regulations and processing/handling regulations (e.g. HACCP)
 - Organic and green food standards
 - Traceability standards of food (tracing food from farm to processor to retailer to consumer)
 - Genetically modified (GM) food regulations
 - Country of origin
 - Food import licenses
 - Undervalued exchange rate
 - Trade retaliation
 - Patriotic factors
-
-

Costs of Non-Tariff Food Trade Barriers

The Uruguay Trade Agreement for GATT (later WTO) in 1994 brought agriculture (and food) under the agreement, along with the elimination of trade distorting

subsidies. Quotas and non-tariff barriers (with some exceptions) were also to be converted to tariffs, in order to make trade restrictions transparent and measurable. While non-tariff barriers were to be prohibited, many countries have managed to maintain previous non-tariff barriers for food, and create new ones as well.

Non-tariff trade barriers can be costly and lead to trade disputes with costs such as blocked imports, shortages and higher prices, legal costs, delays in shipments, late penalties, extra warehousing and storage costs, food spoilage, exceeded product exportation dates, rejected shipments, and lost sales. In the case of China, a considerable share of these higher costs is often passed on to the Chinese consumer in the form of higher prices.

Benefits of Fewer Non-Tariff Food Trade Barriers in China

Through reducing or eliminating non-tariff barriers to trade, Chinese policy makers can assist in providing Chinese consumers with more abundant food supplies and at lower prices, which is especially important for lower income consumers. Given the 2008 world food shortages, the United Nations Agency FAO has advocated that countries spend \$30 billion annually to feed the world's 860 million hungry people, which is about one tenth of the \$300 billion spent annually on farm subsidies (Moore, 2008). However, reducing non-tariff barriers for food could also be very useful in solving world food shortages and the high cost of food. A study by IFPRI indicates that getting rid of trade restrictions could result in up to 30 percent lower food prices in some countries (Economist, 2008a).

Lowering of non-tariff trade barriers could also boost Canadian food exports and assist with lowering of Canada's relatively large trade deficit with China. As Canada's fourth largest and fastest growing trade partner in 2008, Canadian imports from China were about \$42 billion annually, while Canadian exports to China were lower at about \$10 billion, leaving a large trade deficit of \$32 billion for Canada (Figure 3.2).

According to the Globe and Mail, Canada's imports from China, meanwhile, soared 17 percent from 2006 to 2007 (York, 2007). Canadian food exports are an important contributor for Canada's trade balance with China. Over the years, the agricultural industry in Canada has exported products to China such as wheat, canola, some higher valued dairy products, and meat and processed food products.

Background on China's Food Trade and Growth

China's role in the world food trade is growing along with its economy, and China mainly imports food from North America, Latin America, and Asia, and exports food to Asia, North America, and Europe. According to the Asian Region Food Strategy Review (Stanton, Emms, and Sia (2008), the Chinese market for imported food was growing at 27.7 percent annually from the year 2002 to 2006, with food imports rising from approximately 9 billion to 21 billion U.S. dollars. China has been experiencing the fastest growth in food imports in Asia, and this has been driven partly by China's high 9 to 10 percent annual economic growth for over 15 years since the early 1990's, and also the liberalization of its market since China entered the WTO. In 2006, some of China's main food imports included oil seeds (US \$ 8.1 billion), fats and oils (US \$3.9 billion),

fish and seafood (US \$3.1 billion), cereals (US \$820 million), vegetables (US \$755 million), fruit (US \$738 million), meat and poultry (US \$685 million), sugar (US \$617 million), drinks (US \$585 million), and dairy (US \$565 million).

From 2002 to 2006, China's annual imports of meat and poultry increased by 1.9 percent, fish and seafood increased by 20.3 percent, dairy products increased by 21.5 percent, vegetables increased by 57.8 percent, fruit increased by 19 percent, unprocessed cereals increased by 14.1 percent, milling industry products increased by 31.8 percent, oilseeds increased by 38.5 percent, fats and oils increased by 29.6 percent, sugar increased by 24.2 percent, and drinks increased by 59.1 percent, according to China's National Bureau of Statistics (2007). China's geographic location allows it to produce a wide range of agricultural and food products, including fruits, vegetables, grains, livestock, poultry, and seafood. Therefore, China mainly uses imported food to cover the shortfalls in its own production. Despite the fact that China is a large food importer, the value of China's food exports is still greater than its imports. In 2006, China's food imports were valued at 21.4 billion U.S. dollars, and its exports were valued at 27.6 billion U.S. dollars, though this may reverse in future with higher income and higher population.

Identification and Analysis of Possible Non-Tariff Barriers

There are various measurements that have been used as non-tariff barriers from food by different countries. Table 3.2 lists some specific examples of non-tariff barriers from food that are discussed below.

Table 3.2 A Few Specific Examples of Possible Non-Tariff Barriers for Food

Food Labeling:

- Food labeling and Codex
- GM (genetically modified food) labeling
- COOL (country of origin) labeling

SPS (Sanitary and Phytosanitary) conditions:

- Low residue limits for hormones, ractopamine in pork, etc.
- Measures for diseases of BSE, avian flu, foot and mouth disease, Salmonella, etc.

Other:

- QIP (Quarantine Inspection permits) and import licenses
-
-

Food Labeling

Food Labeling and Codex. Labeling requirements for packaged food products have become an important issue for international trade, and may sometimes become non-tariff barriers. Common agreements on labeling systems between countries could lead to fewer trade disputes regarding non-tariff barriers. However, common agreements are not always being reached and so there are different labeling systems between nations. Codex was initiated in 1963 by the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO), in order to develop food standards and guidelines for the joint FAO/WHO Food Standards Programme. According to Hobbs (2001), “Although the general philosophy of the Codex approach is widely accepted, in practice getting countries to accept and implement codes standards has been more difficult,” and Codex standards are sometimes only being used as a guideline when there are disputes within the WTO agreement on the application of sanitary and phytosanitary measures, which is known as the SPS Agreement.

Food Labeling in China and Trade Disruptions. According to Chinese government policy, any packaged food imported into China must meet its mandatory labeling requirements. The mandatory labeling requirements include the name of the food, the list of ingredients, net contents, weight, name and address of the manufacturer and distributor, date, storage instructions, quality grades, and whether the package contains irradiated foods or genetically modified foods. However, labeling for energy and nutrients, batch identification, and product instructions are voluntary.

Some types of labeling requirements have a tendency to trigger trade disruptions, and “Often, disagreement arises as to whether the labeling of process attributes is primarily for the benefit of consumers or is a trade measure designed to protect the interests of domestic producers” (Hobbs, 2001). In other words, labeling requirements can be used as a non-tariff barrier to protect farmers, and the domestic food industry from import competition.

Labeling of Fumigated and Irradiated Food. For example, a mandatory labeling requirement for irradiated foods may reduce the sales of imported irradiated foods, since some consumers view food irradiation with uncertainty, or believe it to be unhealthy. Yet, chemical fumigation, which is a similar practice, is not facing the same requirement. The Consultative Group on Food Irradiation (CGFI) claims that “Given the unfair marketing position and additional expenses of mandatory labeling of irradiated foods when competitive chemical treatments do not require it, labeling of irradiated foods should be voluntary” (Marcotte, 1998).

Labeling of GM (Genetically Modified) Food. Genetically modified organisms (GMO) food, also known as GM food, can be seen as a product’s process attribute, which is the way a food is produced, or a characteristic of the product. With the strong mistrust of GM food by many consumers, the mandatory labeling requirements of GM food may become a non-tariff trade barrier. Labeling of genetically modified food is probably one of the most vital trade issues with respect to process attributes. For various environmental, ethical, and food safety reasons, some consumers do not wish to consume genetically modified food (Hobbs and Plunkett, 1999). GM food is a relatively new

concept for many Chinese food consumers, and more Chinese consumers have an increased interest in food safety and biotechnology issues as income rises and food choices increase. Therefore, new regulations regarding GM food were created by the Chinese central government in 2002. “The Ministry of Agriculture announced three new implementation regulations on biosafety management, trade, and labeling of GM farm products, that were planned to take effect after March 20, 2002” (Huang and Wang, 2002).

The mandatory labeling requirements for GM food in China may raise costs for food processors, retailers, and consumers. “The firms must ensure that food is accurately represented to the consumer. This increases the information, monitoring and enforcement costs of the supply chain, providing an additional incentive for closer vertical coordination along the agrifood supply chain (Hobbs and Plunkett, 1999). Often the higher costs associated with labeling are at least partially passed on to consumers. Since there is still no material scientific evidence of any GM food safety concerns regarding consumers, agricultural producers in both Canada and the US have opposed a mandatory labeling requirement, and argue this requirement will only create unnecessary costs in the food system. However, proposed legislation in Canada may revisit GM food labeling, as more consumer groups are becoming vocal about GM food issues (Carter, 2008).

GM Wheat and Labeling. Many GM products are consumed everyday in the global food market. Among the products, genetically modified wheat is facing a serious marketing challenge. Wheat is often for direct human consumption in contrast to feed

grains, and so the consumers are more concerned about whether the product is safe, and so GM wheat has yet to be commercially produced on a large scale. But unlike wheat, canola and soybeans are often processed into vegetable oils, which are often exempt from GM labeling since the GM protein is believed to be removed during the procedure. Therefore, wheat farmers may have missed out on the profits that biotechnology has brought to the producers of canola, soybeans and corn. However, GM food exporting countries such as Canada and the U.S. argue that since there is no scientific evidence that GM food is harmful, and they argue that blocking it violates WTO rules.

(COOL) Country of Origin Labeling. Currently, China does not have a country of origin labeling (COOL) requirement, and therefore the COOL requirement poses no immediate threat to food exporters that are exporting to China. However because countries like Japan, Korea, United States, and Canada are paying more attention to this issue, China may adopt such requirements in the future. Supporters of the mandatory COOL requirement believe that it may provide more of a competitive advantage (a non-tariff barrier) for domestic products, and they argue that consumers have a right to know the origin of their food in order to make a proper choice. However, opponents of the mandatory COOL requirement believe it is another non-tariff trade barrier to increase the costs for importers and consumers. The U.S. 2002 Farm Security and Rural Investment Act (2002 Farm Bill) requires retailers to provide consumers with information on the country of origin of their products, and “The 2002 COOL provision has become one of the most polemic labeling programs” (Loureiro, 2005).

In May, 2008, the United States Congress approved a new five-year farm bill, and Canadian agriculture minister Gerry Ritz promised to launch a trade complaint if COOL provisions in the bill take effect and hurt Canadian exports (Wilson, 2008). Later, in April 2009, Canada filed a formal complaint at the WTO on U.S. COOL regulations for meat, as it was estimated that Canadian cattle producers had lost \$400 million in cattle exports to the U.S., and hog exports to the U.S. had dropped by 40 percent, because of U.S. COOL regulations (Winnipeg Free Press, 2009).

SPS (Sanitary and Phytosanitary) Measures

SPS measures such as preventing the import of certain food products are often taken to protect against risks linked to food safety, animal health and plant protection, and can sometimes become non-tariff barriers. For example, banning imports of certain animals or plants may prevent the spread of a disease or pest, or protect humans from unsafe food diseases or bacteria found in food. Regarding SPS, Japan is known to often have some of the strictest requirements in chemical residues and microbial levels when dealing with agricultural imports, however, Chinese requirements sometimes are even tougher. One reason is because China is relatively new to the WTO, and only started importing more agricultural and food products on a larger scale in the past thirty years, and so is not yet fully experienced in dealing with SPS world scientific standards.

Levels of China's SPS Standards. China does not have a long established legal infrastructure and regulation for international trade, and has since attempted to catch up by sometimes choosing the toughest rules from other countries. When there was no international standard established by other countries or agencies such as Codex, China

established its own standards. “These China-specific standards sometimes appear to lack a particular technical or scientific basis, and could create significant barriers for China’s markets because of the high cost of producing products that comply with the China-specific standards” (USTR, 2008). As well, according to the USTR, “In 2006, China’s general lack of transparency remained a problem. China either failed to notify or belatedly notified to the WTO on numerous SPS measures, resulting in measures that were adopted without the benefit of comments from other interested WTO Members” (USTR Press Release, 2006).

SPS and Ractopamine Residues for Pork. Officials from China seized U.S. pork which contained ractopamine residues in July 2007, and two months later a Canadian shipment was seized for the same reason. Ractopamine is a drug used as a feed additive to add leanness and muscle growth in swine, and is not a steroid or hormone, and is approved by 26 countries, though not China. According to the United States Food and Drug Administration, the use of ractopamine was approved in 1999, and since has been approved by many countries for feed use. However, China’s policy towards ractopamine is zero tolerance. International pork producers hope that China can be convinced in future that residues of ractopamine have no harm to humans.

Ractopamine and Delisting of Pork Plants that Export to China. Martin Rice, executive director of Canadian Pork Council has stated regarding ractopamine, “We are hoping that China will, as Japan did, look at the tolerance that the international body called Codex is arriving at even though it has not yet made the product available for its own producers.” Still, China stood firm on this issue and until December 2007, China

had delisted 15 U.S. pork plants from exporting pork to China due to pathogens and animal drug residue issues such as ractopamine, and two Canadian plants were delisted. Ractopamine and pathogens may be examples of China's SPS restrictions on imported food, "in total China denied entry to Canadian food products on 70 occasions for incorrect labeling and 57 occasions for violating health safety standards in the period from January 2006 to March 2007" (York and Shufelt, 2007).

BSE (Bovine Spongiform Encephalopathy) Food Trade Issue. BSE was discovered in England in 1986, and according to USDA's data there are more than 180,000 confirmed cases in cattle worldwide. The first human case of BSE was found in 1994 in North Wales. Before that, scientists and the general public believed BSE was equivalent to Scrapie, a disease commonly found in sheep that did not infect humans. Around 200 people are believed to have died worldwide, though the disease is now believed to be controlled and "low risk." As the world reacted to BSE, it also became another non-tariff trade barrier for which some countries would block foreign competitor's beef products.

BSE and Canada's Beef Trade in China. In May 2003, the Chinese agriculture ministry announced a ban on imports of live cattle and beef from Canada, after Canada found its first case of BSE, also known as mad cow disease. Half a year later China put another immediate ban on imports of U.S. beef and beef related products. This was after the United States found its first case of BSE. In 2007, after Japan lifted its ban on North American beef from cattle up to 20 months old, Canadian beef was still blocked from the Chinese market. Also, Canada had exported about 30 million dollars of tallow to China

annually before the BSE ban was imposed, and tallow is considered zero risk for BSE contamination. However, China's border remains closed to all North American tallow. As well the Paris based World Organization for Animal Health (OIE), which is recognized as a reference organization by the WTO, has designated the U.S. and Canada as controlled risk countries for BSE. Some argue that China may be using the BSE issue as negotiating power in order to get more favorable access to other markets. An example might be allowing Canadian beef into the Chinese market in exchange for allowing more Chinese poultry access to the Canadian market, as the Canadian poultry market is heavily protected by high tariffs, and as well may be partially protected to some extent by potential food safety non-tariff barriers.

Trade Concerns Over BSE, Avian Flu, Foot and Mouth Disease, and Listeria.

The world has been facing concerns related to food safety, given the greater movement of people and plant and animal products between countries. As well, there has been greater publicity of news reports of food safety problems, and also more testing and identification of food safety problems, which may have earlier gone unnoticed. Consequently SPS's importance will likely grow in the future, especially in the sectors of meat and dairy. The 2008 Listeria meat contamination at a large company in Canada allegedly was related to at least 19 Canadians dying, many of whom were senior citizens. Three children allegedly died from toxic milk powder containing melamine in China. The number of ill children had increased to 294,000 worldwide, according to a World Health Organization (WHO) report in December, 2008. Therefore, SPS regulations are important in ensuring the protection of human, animal and plant health.

Canadian Canola Blackleg Disease. In November 2009, China restricted Canadian and Australian canola imports after samples tested positive for blackleg disease. The reason provided for such a restriction by China was phytosanitary, that blackleg would enter the country and damage China's domestic crop. However, some experts hold that China was trying to reduce its own large canola stocks. One analyst has pointed out that China has been importing canola from Canada for over 10 years knowing about the existence of blackleg, yet no Chinese crops have been infected (White 2009).

Blackleg is a common disease in Canada, and it is unlikely that blackleg could be eliminated from Canadian canola. China imported 2.87 million tons of canola seed, valued at 1.3 billion Canadian dollars in 2008-2009. Canadian canola that tested positive for blackleg could only be shipped to two designated crushing locations in China, where no rapeseed is grown. Despite ongoing meetings, the Chinese government has not lifted the zero tolerance blackleg restrictions on Canadian canola. This possible non-tariff trade barrier could cost the Canadian canola industry over a billion dollars.

Import Licences

Quarantine Inspection Permits (QIP). Upon China's entry into the WTO in December 2001, China committed to the non discriminatory, fair, and simplified application process for import licenses. However, complaints have been filed by many foreign license applicants and importers, as they claimed some sensitive business information was required without explanations, for the license application, leading to non-tariff barriers.

A Quarantine Inspection Permit (QIP) requirement was imposed by China's Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). This requirement is one of the most important trade policy issues that adversely affect China's agricultural trading partners, and it has reportedly led to many restrictions on imports of agricultural commodities. "Two AQSIQ measures issued in 2002 require importers to obtain a QIP prior to signing a purchase contract for nearly all trade agricultural commodities" (USTR, 2008). The slowdowns and suspensions on issuing QIPs were particularly troublesome for agricultural commodities, since some commodities are perishable, and may diminish in quality with time.

The related costs of the slow issuance of the QIP, such as storage, labour costs, and spoilage, are often passed on to the Chinese consumers, and food exporters to China have also been concerned about these extra costs. Officials hope to see some progress on the QIP system soon, especially the arbitrary quantity limits on imports, through QIP's, which have been allegedly used often by AQSIQ during the peak harvest season in China. These limits on the inflows of imported food commodities during harvest are reportedly used to reduce any excess domestic food supplies during harvest, and prevent prices from falling, according to the USTR 2008 report.

AQSIQ's Relationship with the Canadian Food Inspection Agency (CFIA). The CFIA has been regarded as effective and well respected, both nationally and internationally in preventing the spread of food born diseases and illnesses. The surveillance plan and protocols for the various industry sectors are at the upper end of international standards. China's AQSIQ has received a considerable number of its ideas

from CFIA. ACSIQ has often sent a number of its employees to the CFIA in Ottawa for training during the year, and a considerable share of ACSIQ's upper management team was trained in Canada, and both sides have benefited from this exchange. However, the BSE outbreak in 2003, and the 2008 outbreak of Listeria at a large Canadian meat processing firm with reportedly at least 19 related deaths, has presented challenges for food safety in Canada and unfavorable publicity. Also, prior to the outbreak of Listeria, the Canadian government had proposed that CFIA hand over more of the food inspection duties to industry, and this was alleged by some to lead to less rigorous inspections, though it appears that this has been at least partially reconsidered by the government.

China's Exchange Rate

Another alleged non-tariff barrier has been China's supposedly undervalued or "manipulated" currency. Some argue that this could potentially favor Chinese exporters by providing lower cost exports. The argument for the undervalued currency is that the "low" Chinese Yuan exchange rate is set by the government. Therefore, this would make Chinese imported goods relatively more "expensive," and Chinese export goods "cheaper," so would serve as trade deterrent and a non-tariff trade barrier.

However, the argument against China's currency being undervalued is that Chinese prices are relatively flexible and free to adjust upward in the long-run, in response to decreases in the Chinese exchange rate. Therefore, prices in China should rise to competitive levels with a lower currency value, and Chinese goods and exports would not be unfairly "cheap" and would not gain a trade export advantage. The U.S. government also appeared agree with this view, as on April 15, 2009 the U.S. Treasury

Department's report on foreign currency practices determined that China was not manipulating its currency to gain an unfair trade advantage. However, this position later appeared to be changing.

Trade Retaliation

Toothpaste and Toys from China in the Media. It is sometimes alleged that trade retaliation can sometimes lead to non-tariff trade barriers. In 2007, China was hit by a string of food and product safety scandals, including tainted toothpaste, contaminated pet food, and lead in toys.

Much attention was given in the western media about safety concerns over Chinese made products and falling consumer confidence in western countries regarding Chinese products. The Chinese government had criticized the U.S. media claiming that it was unfair and irresponsible for the U.S. media to single out China by exaggerating China's food safety problems and misleading the consumers. The American Chamber of Commerce in China voiced concern that overly political legislation in the U.S. could "undermine the international trade regime, derail constructive dialogue, and ultimately weaken the competitive position of U.S business and overall economy" (McCary and Batson, 2007).

Food Trade Retaliation. "Friday's (June 08, 2007) announcement said Chinese inspectors in the ports of Ningbo and Shenzen found bacteria and sulfur dioxide in supplements and raisins shipped by three American companies. No details were given on when or how the inspections were conducted" (Fox News, 2007). To some, this

statement appeared that China may have been engaging trade retaliation, regarding the tainted toothpaste, contaminated pet food, and the lead in toys. Also, some analysts believed that China was trying to show the world that it was not the only country having safety issues, and it was also reminding the west that excessively publicizing safety concerns of Chinese products would be not in their best interests as well, especially if they want to narrow their trade deficit by exporting more products to China. Also, 15 U.S. meat plants and several Canadian plants were delisted for exports to China, and some questioned whether this was retaliation for the toothpaste, pet food, and toys.

Patriotic Non-Tariff Trade Barriers

2008 Olympic Incidents and Boycott of French Business and Carrefour in China.

An incident with the Beijing Olympic Torch Relay in 2008 brought widespread anger among Chinese citizens both inside and outside China. A picture of Jin Jing, who was in her wheelchair and was a Chinese Paralympics' fencer, was shown in the news as she protected the Olympic torch, from adversaries in France. Since the incident, angry crowds had gathered outside of the French based Carrefour supermarket stores in China, and were protesting. According to Business Week on April 22, 2008, if the anti French protests spread, they could harm Carrefour, and luxury goods maker Louis Vuitton, which count China as one of their fastest growing markets (Matlack, 2008). Such retail and luxury products were at high risk, as well as French food products, since these products were highly visible to consumers.

These protests concerned Carrefour deeply, since its business in China had generated almost 3 billion Euros in revenue in 2007. Carrefour board member Jacques

Beauchet told Reuters on a telephone interview that “It is too soon today to estimate the impact on sales. We won’t be able to make a precise assessment of the situation until the end of May since we have to go through May Day. Boycott calls are notably targeting May Day,” and he added that Carrefour could not so far assess the impact of the boycott on its image in China (Reuters, 2008).

Issues Regarding Evaluation of Non-Tariff Trade Barriers

A number of important non-tariff trade barriers for food and agriculture are identified in this section, and are summarized in Table 3.3.

Table 3.3 Summary of Issues Regarding Evaluation of Non-Tariff Barriers for Food and Agriculture

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- Transparency
 - Scientific and Technical Basis of Food Import Regulations
 - China’s Import Procedures May Be More Flexible when Product is Needed:
Example of Peas
-

Enforcement of Pesticide Residues, Hormone Use, and Sanitation Standards.

While the trade policy of many countries including China is often recognized to be generally equitable and fair, some of China's trading partners are concerned about unfair standards and policies, which are alleged to be only directed towards Chinese food imports, rather than domestic food producers in China. As mentioned earlier, China has some of the toughest food safety standards regarding imported food, yet domestic producers are sometimes not required to meet the same standards. The Chinese Ministry of Health sets limits on pesticide residues on food and hormone use and there are about 400 food sanitation standards, but the enforcement of these standards is not strictly monitored.

According to the U.S. Subcommittee on Oversight and Investigations Staff Trip Report conducted in China on August 2007, "When committee staff asked how closely these standards are followed, the response was that the firms holding a Ministry of Health (MOH) license are believed to follow the standards by and large" (Dingell and Stupak, 2007). Nevertheless, there is no information on compliance by the domestic unlicensed firms. Much of these products are traded freely within the domestic market such as supermarkets and wet markets. The alleged lack of enforcement in the domestic food market could be unfair in some cases to imported foreign products that compete in the same market.

SPS Zero Tolerance of Pathogens, Codex Consistency, and Laboratory Testing.

Another alleged non-tariff barrier is the 'Zero Tolerance for Pathogens' requirement that has received numerous complaints over the years. Since 2002, China introduced SPS

related requirements on imported raw poultry and meat, which are not consistent with the Codex guidelines. For example, China has a zero tolerance limit for Salmonella bacteria, E. coli and Listeria pathogens. However, these pathogens can only be reduced through the process of irradiation, which some consumers are reluctant to accept. Moreover, the Chinese domestic raw poultry and meat does not need to comply with these stringent standards. Some Chinese importers also allege unfair treatment and uneven enforcement of standards and technical regulations. For instance, imported products must be tested in certain designated laboratories and this can require prolonged waiting time. The laboratories' expertise in the field has also been questioned due to inadequate transparency.

Lack of Coordination between AQSIQ, Certification and Accreditation of China (CNCA) and the Standardization Administration of China (SAC) for food imports. It is also alleged that sometimes the Chinese local officials do not fully understand the complexities of China's WTO commitment, such as China's commitment for both domestic and imported products to face the same technical regulations, standards, and assessment procedures. "Coordination between AQSIQ and its affiliated bodies, the Certification and Accreditation of China (CNCA), and the Standardization Administration of China (SAC), is lacking, as is coordination between these bodies and China Customs and other ministries and agencies, at both the central and local government levels, on issues related to technical regulations" (USTR press release, 2006). These may result in inconsistency and confusion for many food importers in China.

Transparency

The lack of transparency on how China's trade standards and regulations are developed has caused some concern among many of China's trading partners, as one principle of trade policy is transparency. Lack of transparency frustrates efforts of foreign and domestic businesses to receive the full benefits of China's entry into the WTO. For example, in 2008, in the United States Trade Representative's report on China's foreign trade barriers, the word transparency appeared forty two times, plus an entire section on the issue. The USTR report claims that, "the vast majority of Chinese standards-setting bodies are not fully open to foreign participation, in some cases refusing membership to foreign firms to vote". Many foreign firms have had a hard time finding out which regulations apply to their operations in China.

Difficulty in Understanding Chinese Laws and Regulations. To add to the problem, laws in China tend to be more general and vague than in some other countries, and government officials who implement laws are often given a high degree of flexibility, and foreign firms have alleged that implementation and enforcement of laws affecting foreign and domestic firms have been arbitrary at times and sometimes favor domestic firms. Although there is an effort to improve China's legislative drafting, it will likely take time. Thus, the lack of a clear and consistent set of laws creates barriers for China to fulfill the WTO requirement for transparency. To China's credit, it has been working hard on increasing the transparency of its trade related law and regulation since its WTO accession. "Today, the publication of central and provincial level reports, laws, regulations, and other official trade related texts can be found easily in China. This has

contributed significantly towards transparency” (Synder, 2002). Nevertheless, transparency still remains a concern.

Scientific and Technical Basis of Food Import Regulations

Chinese Standards Versus Codex and OIE Standards. A principle of food trade policy is that food safety import regulations should be determined on a scientific and technical basis, and recognized by world scientific bodies, such as Codex and OIE. Despite the well-established international standards, which are agreed upon by the international community, many Chinese specific standards were developed by China based on its own technical requirements. Many questions have been raised over these requirements. According to the United States Trade Representative (USTR), “The Chinese-specific standards appear to be more in favor of protecting the domestic companies from competing foreign standards and technologies, rather than based on technical or scientific evidence” (USTR, 2008).

More Scientific Basis Needed in Developing China’s SPS Standards, and BSE Controls. Sanitary and Phytosanitary (SPS) measures have also been accused of lacking scientific evidence. Seven years after its WTO accession, the problem still allegedly remains large. “Various U.S. agricultural exports continue to be subjected to entry, inspection, and labeling requirements, and these appear to be maintained without sufficient scientific evidence” (USTR, 2008). This was especially true when there were an increasing number of bans on western products in 2007 with limited details on when or how the inspections were conducted. Thus, many western exporters questioned whether China imposed these bans to show retaliation for recent western actions against

Chinese products. To date, China has not yet provided any widely accepted scientific evidence on maintaining its BSE bans. As well the Paris based World Organization for Animal Health (OIE), which is recognized as a reference organization by the WTO, has designated the U.S. and Canada as controlled risk countries for BSE.

Need for Scientific Tolerance Limits for Salmonella, E. Coli, and Listeria. Many of China's tolerance limits such as zero tolerance limits on Salmonella, E. coli, and Listeria pathogens do not appear to be consistent with scientific principles and risk assessment. The maximum residue levels (MRLs) accepted by China are another difficulty for exporting companies, since many of these MRLs are incompatible with commonly accepted Codex standards. Many exporters have encouraged China to develop or adopt standards that are more science based, and more broadly accepted.

*China's Import Procedures May Be More Flexible when Product is Needed:
Example of Peas*

One aspect of doing business with China is that China may find flexibility in its procedures when needed. It is alleged in the Chinese food import industry that if a certain product is needed, China may relax its procedures to accept the product, if the product has much safer standards than are needed. An example may be the selenium level in peas, and China sets a 0.3ppm selenium tolerance level. This is considerably lower than other countries, and lower than necessary, and so can result in pea imports being easily blocked. However, China depends largely on imported peas for its vermicelli noodle market. Imports from Canada alone are about 75,000 million tons annually.

The selenium level in Canadian peas and peas from many countries is higher than 0.3ppm, but since China desires Canadian peas, it is believed that China tests residue levels for finished pea products only, which pass the tests more easily, rather than raw peas which are less likely to pass the tests. Similar cases can be found in other imported food products such as seafood. Imported food products, as well as Chinese food products, often exceed China's import tolerance levels for chemical residues, as sometimes China's levels appear to be set arbitrarily low compared to world standards, and with limited scientific basis.

Costs of Non-Tariff Trade Barriers

Non-tariff barriers in food can constrain international trade, and cost billions of dollars in lost trade each year, and lower the welfare of consumers. Examples of costs of non-tariff trade barriers for food and agriculture are shown in Table 3.4.

China is one of the largest exporting countries and is facing challenges regarding its trade surplus, since many of China's trading partners are experiencing a growing trade deficit with China. The EU trade commissioner, Mr. Peter Mandelson has stated that "Chinese non-tariff barriers cost EU operators no less than € 21.4 billion a year in lost business opportunities" (International Herald Tribune, 2007). Exporting nations are not the only ones affected by non-tariff barriers, but consumers in importing countries are also impacted through higher prices.

Table 3.4 Examples of Costs of Non-Tariff Trade Barriers for Food and Agriculture

- **Higher Food Prices in Importing Country**
 - e.g. Blue ear pig disease in China in summer of 2007, caused a 60% increase in pork price. But Chinese pork imports were blocked due to ractopamine, and many North American pork exports were blocked
 - **Inefficiency in Customs Clearance**
 - e.g. Supply Chain congestion, ports, warehouses. Inventory costs, storage costs, lost time, delayed shipments, spoilage, lost sales, exceeded expiration dates, perishables, and fresh food
 - e.g. 40,000 Euro container could cost 35 Euros per day if delayed in port
 - **Legal Costs of Settling Trade Disputes**
 - e.g. \$90,000 - \$ 240,000 for lawyers
 - e.g. Other costs such as experts, travel, communication, data, accommodation may bring the total cost to \$500,000
-
-

Food Prices in China

The Role of Food Price Inflation in China. Higher food prices can be costly, and in 2007, the price of pork rose 63.4 percent, fresh vegetables were up 46 percent and cooking oil was up 41 percent (2008, China Statistics Bureau), which has highlighted the need to lower the non-tariff barriers for food in China. Food price is a key barometer for inflation, since it makes up approximately 30 percent of China's consumer price index.

In 2007, the 63.4 percent increase in pork prices triggered an abnormal increase in overall food prices, and the spill over effect has been reflected in the inflation rate. A few factors have played a role in the rising price of pork. One is the outbreak of the deadly blue-ear disease in 2007. According to *The Economist*, “the disease had infected 257,000 pigs in 26 provinces, of which 68,000 died and 175,000 were destroyed” (*Economist*, 2007b). The other reason is that raising pigs have become more expensive due to costly raw ingredients such as feed. With the mounting pressure on soaring food prices and the inflation rate, economists speculated that the Chinese government would have to increase its pork imports, which could also involve a reduction in any pork non-tariff barriers at some point.

Import Regulations in China Partly Contributing to High Pork Prices. However, while the price of pork continued to spike in summer 2007, Chinese officials seized American and Canadian produced pork which contained ractopamine, and delisted a number of plants in the U.S. and Canada for exporting to China, even though American and Canadian officials believed the pork was safe. These actions taken by the Chinese officials reduced pork imports, and did not help toward the lowering of pork prices in China, and made pork imports more challenging.

At the same time, Canadian pork producers were facing very low prices, high feed grain prices, and many were struggling to survive financially. It would have appeared that both Chinese pork consumers and Canadian pork producers could have benefited from more pork trade between the two countries, rather than having the alleged non-tariff ractopamine pork restrictions by China. The pork market in China was an export

opportunity for Canadian pork producers, since the pork industry in Canada faced challenges such as low prices, a strong Canadian dollar, and facing country of origin labeling restrictions for exports to the U.S. This was especially true in provinces such as Manitoba and Saskatchewan, where a number of pork producers were facing bankruptcy.

Other Non –Tariff Trade Barrier Related Costs

Inefficiency Costs in Customs Clearance. Delays of shipments can be caused by many factors, especially inefficiency in customs clearance or inspection delays. If imported products cannot get through customs clearance in a timely manner, or they must go through unnecessary inspections, then supply chain congestions will be unavoidable. This is largely because of the rising volumes and capacity constraints in many ports, and logistics channels. To avoid congestion, the ports and customs clearance must be managed in a timely manner. Lost time and extra logistics costs such as additional inventory costs, and food spoilage costs, are associated with delayed shipments and are often passed on to the consumer in higher prices.

Costs of Container Delay at Port in China. For example, one extra day incurred by a container load with a value of 40,000 Euros would result in the following costs: First, opportunity costs (3%-4% per year) = 3 to 4.5 Euros per day. Second, economic depreciation (typically 10%-30% per year for consumer products) = 10-30 Euros per day (Notteboom, 2006). If the products are time sensitive, delays will result in spoilage, or exceed product expiration dates, and the products will be rejected by the importers. In order to avoid the extra costs and sometimes even lost sales, avoiding delays are crucial.

High Cost of Settling Trade Disputes. Since China joined the WTO in 2001, and attempted to adjust to increased imports, it has increasingly become the target of WTO complaints. A number of China's trading partners allege that China is a major beneficiary of the WTO system, but does not fully comply with the rules, such as reducing non-tariff trade barriers. Trade dispute settlements through the WTO can be extremely costly and time consuming. This can include investigating a possible claim, to lobbying the government, and then pursuing with litigation.

Legal Costs of Trade Disputes. "Taking a conservative estimate of attorney fees in trade litigation cases at a billable rate of \$350 per hour, one estimate of the average number of hours indicated that the bill for hourly legal services could run from \$89,950 for a "low" complexity Dispute Settlement Understanding (DSU) case to a \$240,100 for a "high" complexity case" (ACWL, 2004).

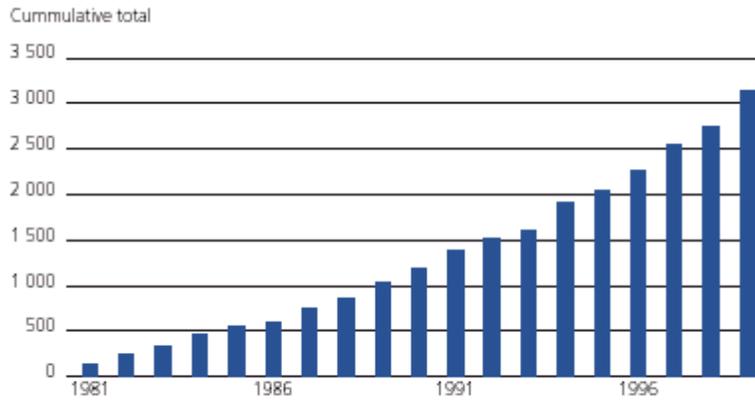
Aside from attorney fees, there are other costs linked with litigation support. For example, the additional costs for hiring trade and economic experts as witnesses for testimony, data collection costs, litigation related travel, communication, and accommodation costs. A litigation only bill of \$500,000 for an exporter for a market access case is likely to be fairly typical (Bown and Hoekman, 2005). However, trading nations often try to settle any disputes through bilateral procedural agreements before taking the case to WTO, given the high cost and time delay related to WTO rulings.

Summary and Implications

This study attempted to identify, document, and evaluates some of the main non-tariff barriers in food and agriculture. As trade has become “freer” in recent years, many countries have erected non-tariff barriers to offset this especially in food and agriculture. Overall, Canadian exporters need patience and a long-term commitment to succeed in the international food market, and cope with trade barriers. It is important for Canadian food exporters to understand that because Canada is a relatively small trading nation (30 million population), it faces some limitations in exporting to the large markets, such as the Chinese food market (1.3 billion population). The small size means that Canada does not have the export capacity to gain a large share of the huge Chinese food market, and does not have the resources to “open” all markets in China. Therefore many Canadian food exporters to large countries such as China may be better off to specialize in particular segments a large country or region, regarding the food market.

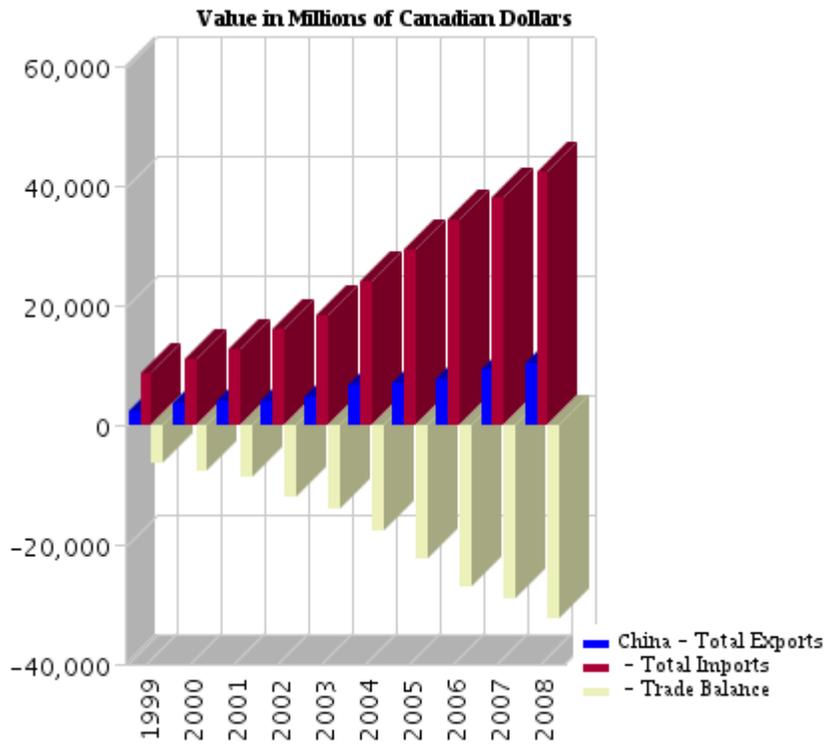
As well, the smaller size also means that Canada does not likely have the legal resources or economic power to challenge many non-tariff trade barriers, but instead is more likely to succeed through quietly solving food trade issues, and also working together with other food exporting countries in future WTO negotiations to reduce non-tariff barriers. Also, a number of developing countries such as China are relatively new players in international trade and the WTO, and with less experience than other countries, and so the policies for these countries on issues such as non-tariff barriers and regulations may have more variation and less transparency than other countries.

Figure 3.1 The Increasing Number of Notifications of Technical Measures (Non-Tariff Barriers) to GATT/WTO: 1981 – 1999



Source: S. Hensen et al. (2000), University of Reading

Figure 3.2 Canada's Trade Balance (Deficit) with China: 1999-2008



KavaChart images from YE.com

Source: Industry Canada <http://www.ic.gc.ca>

CHAPTER 4

SUMMARY

Summary of Food Purchasing Decisions by Consumers in China

China has been facing increased pressure from a large population, and increasing demand for higher quality food. With 1.3 billion people to feed, growing incomes, and a demand for more value added food, China's food market will continue to grow. To meet the Chinese consumer's food demand and to improve food safety, such as food industry regulations, the Chinese government has been promoting the expansion of supermarkets throughout the country. In 1990 there were few supermarkets, and by 2003 there were well over 60,000 supermarkets nationwide (Gale and Reardon, 2004). This chapter focused on the factors affecting the Chinese food consumer's decision to shop at a supermarket. A total of 824 surveys were collected in China in the summer of 2006. Surveys were primarily undertaken involving food consumers in wet markets and supermarkets in the cities of Beijing, Tianjin, Dalian, and Huhhot. Information such as the Chinese food consumers' perceptions regarding supermarket shopping habits, supermarkets food attributes, and socio-demographics were collected in this survey. An ordered probit model was estimated to explain the factors influencing Chinese consumers' food purchases from supermarkets.

Result showed that consumers' expenditure on food and foreign food was related to supermarket food purchases. Trust and satisfaction level, was also positively related to supermarket food purchases. Labeling of expiration dates was related to the percentage

of food Chinese food consumers purchased from supermarkets. With the rising concerns over food safety issues in China, there is a greater tendency for consumers to look for basic information regarding the food they are purchasing such as an expiration date. Many consumers may think that small stores and wet markets provide products with fewer expiration dates.

Education level was found to be positively related to percentage of food purchased from supermarkets, and consumers with higher education levels seemed more willing to shop at a supermarket. Consumers from larger cities were found to be more likely to purchase food from supermarkets. Although supermarkets can be found in almost every concentrated residential area in the larger Chinese cities, supermarkets are still relatively new to other regions.

In summary, many factors affect supermarket food purchases in China. Nine variables were used to examine food purchased from supermarkets, and seven of nine variables were statistically significant. The international food industry may find the information from this study useful in order to better understand the factors that affect the Chinese food consumers' shopping behavior. As well, this information may be useful to food retailers, and policy analysts, especially those focusing on the Chinese food market.

Summary of Non-Tariff Barriers in Chinese Food and Agriculture

APEC and the WTO have called for reductions in non-tariff barriers, in order to increase world trade and improve the standard of living of consumers. However virtually

all countries have non-tariff barriers, especially for food and agriculture products, either intentional or unintentional, and China is not alone. In the case of food non-tariff trade barriers, these restrictions can include, for example, import regulations, such as food safety regulations, food standards, labeling requirements, inspections, import licenses, and SPS. China is of interest because of its growing and large food import market, and trade surplus with other countries. As well China is relatively new to the WTO, and not yet having long standing trade regulations and policies, and it is still developing in these areas. China's economy is growing quickly, along with its role in world trade. Yet, it is important for China's international trade policy to reduce its non-tariff trade barriers, in order to provide consumers with more imported food at lower prices, especially given the rising food prices in China and around the world. Since China's entry into WTO in 2001, many trading partners of China have been running a large trade deficit with China, including the United States and Canada, and a reduction in China's non-tariff barriers for food and agriculture would help reduce this deficit.

After China became a WTO member, China made considerable progress in lowering tariffs. However, a number of non-tariff trade barriers still exist in China, including those in areas of food and agriculture. Many exporters stress that there is a lack of transparency and openness in China's trade policy, regulations, and contract law. Also, numerous complaints have been filed by foreign companies, because Chinese domestic producers sometimes do not have to comply with the same standards as foreign exporters. In order to improve these trade regulation conditions, it is essential to encourage an open dialogue with China, as well as cooperation in the scientific, scholarly, government, and

science based, exchanges, along with educational and training exchanges for food trade regulations. As well, China is taking steps in improving its food trade regulations and standards by working closer with standards setters in other countries, such as Japan, South Korea, the U.S., and Canada.

Overall, for exporters such as Canada, they will need patience and a long-term commitment to succeed in China's food market. It is important for Canadian food exporters to understand that because Canada is a relatively small trading nation (30 million population), it faces some limitations in exporting to the large Chinese food market (1.3 billion population). The small size means that Canada does not have the export capacity to gain a large share of the huge Chinese food market, and does not have the resources to "open" all markets in China. Therefore many Canadian food exporters to China may be better off to specialize in particular segments of the Chinese food market.

As well, the smaller size also means that Canada does not likely have the legal resources or economic power to challenge many non-tariff trade barriers, but instead is more likely to succeed through quietly solving food trade issues with China, and also working together with other food exporting countries in future WTO negotiations to reduce non-tariff barriers. Also, China is a relatively new player in international trade and the WTO, and with less experience than other countries, and so China's policies and regulations may have more variation and less transparency than other countries.

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