

INVESTIGATION OF COMMODITIES TRADING OF PULP
WITH a focus on China and Canada

by

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FACULTY OF NATURAL RESOURCES MANAGEMENT
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and Canada

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ABSTRACT

Lei X. 2017. INVESTIGATION OF COMMODITIES TRADING OF PULP WITH a focuson China and Canada.

Keywords: wood pulp, dissolving pulp, Canada, China, international trade.

Abstract: Canada is the current largest supplier of pulp products in China. However, the current international wood pulp market exists several challenges. The quantity of exported pulp and pulp production in Canada is represented a decreasing tendency. On the other hand, China, who is the largest consumer of wood pulp in the world, still import more and more wood pulp to meet the domestic demand. Strong competitors such as Brazil, Russia and Indonesia have their advantages in wood pulp trade with China. Canada can only increase the wood pulp import by enhance the public awareness, stabilize the monetary exchange rates, and focus on build a better relationship with Chinese industries.

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INTRODUCTION

Canada is a resource-rich country, viewed as a country of water and woodland. With the third-largest area of woodland in the world, Canada is the classic example of a country whose development and inhabitants' prosperity has been built on the wealth of its forests (Hu 2009). Canada has more than 400 million hectares of forests, which take up about half of Canada's total area, and woodland in Canada accounts for 10 percent of the planet's total treed area (Poon 2010). Of the treed land, 290 million hectares of Canada's woodland are commercial forest, and 150 million hectares of commercial forest has not been developed for production (Poon 2010). British Columbia, Ontario and Quebec own almost 60 percent of Canada's developed productive forestland, about 77 percent is managed by provincial governments, with another 16 percent managed by the federal government (Poon 2010).

China has the largest population in the world, and holds the fourth largest forest resources: about 170 million hectares occupy 4.2 percent of the planet's total treed area (Tian 2005). In China, 64 percent of the total forest is natural; the other 36 percent is planned forest (Tian 2005). In 2003, China issued

a direction that set some targets to increase the forest cover of the total land area, which is 19 percent till 2010, 23 percent till 2020 and 26 percent till 2050 (CCOCPC et al. 2003). The major characteristics of China's forest resource are the increase of natural forest: 41 percent of forests are developed for forest production, 29 percent of forests are used for conservation of water and soil, and the other 24 percent of forests are multi-purpose forest. There has also been a rapid expansion of planned (artificial) forests, which have increased from 61690 (2009) thousand hectares to 69330 (2013) thousand hectares (He et. al 2015).

Forests are a major source of wealth, especially in Canada, 42 percent of land covered by forests; the country contains 10 percent of the world's forest land. In 2013, forest sector created \$19.8 billion to Canada's real Gross Domestic Product (GDP), which occupied 1.25% of Canada's real GDP (NRC 2016).

Furthermore, forest product trade balance of Canada is C\$19.3 billion during 2013; While, forest trade balance of China is nearly C\$ -12 billion (NRC 2016).

Directly compare between two countries, the model of Canadian's forest product market is the best example for China to imitate and approach.

With the rapid development of business and the enhancement of the population of education, the requirement of paper increases widely; with the early development of science and technology and the improvement of life quality, people are willing to live in house instead of living in apartment, especially wood-made house, result in the increase of timber production. The rate of GDP occupied by forest product market will increase because of the increased requirement, particularly in Canada and China. China has the largest population in the world, the potential market of forest products might also be the largest; on the other hand, the system of forest products in China is not completely.

This paper will introduce the current situation of pulp market in Canada and China. The data collected must present the current volume of pulp that made in Canada and China. The export and import volume of pulp will be helpful to decide the direction of future development and international trade. The data of forest resources, domestic supply, domestic supply, and pulp consumption are also required to analyses the differences between Canada and China.

LITERATURE REVIEW

Wood pulp is a fibrous material made from plant fiber, such as raw material, and processed by different methods. Wood pulp can be divided into mechanical pulp, chemical pulp and chemical machinery pulp according to the processing method. Furthermore, wood pulp can be divided into wood pulp, straw pulp, reed pulp, bamboo pulp and so on according to the fiber raw material. In addition, wood pulp can also be divided into refined pulp, bleached pulp, unbleached pulp, and semi-chemical pulp according to the different purities. In general, the wood pulp is used to make paper and cardboard. However, the refined pulp can be used to produce special paper and can also be used to produce cellulose ester, cellulose ether and other cellulose derivatives of raw materials.

INTERNATIONAL MARKET OF PULP AND PAPER

When analyzing the international pulp and paper market, analyzing the demand of pulp for paper first. In the long term, paper industry still is a growth industry. China occupied 26 percent of the production of paper and paperboard of the entire world (McClay 2014). The share of pulp of the entire cellulose products was 14 percent in 2012, and increased to 16 percent by 2013, which means

approximately 56 million tonnes pulp (McClay 2014). The share of pulp of the whole cellulose products will increase to 18 percent by 2018 (McClay 2014). The market of dissolving pulp is still a market with good market foreground, the production of pulp will increase to 10 million tonnes by 2020; in addition, it will increase to 20 million tonnes by 2030 (McClay 2014). In the past ten years, the average rate of increase of Northern Bleached Softwood Kraft Pulp was only 1,3 percent, on the other hand, the average increase rate of Bleached Elm Kraft Pulp was 8.5 percent at each year (McClay 2014). Furthermore, the share of Bleached Elm Kraft Pulp (BEK) has become the largest in the entire pulp market by 2008, and the tendency of BEK still presented positively (McClay 2014). The long-term global tendency of pulp market presented by Brian McClay, which is the president of Brian McClay & Associates in Canada, during the China Paper and Pulp Industry Chamber of Commerce (CPICC) in 2014 are:

- China the major impetus of the improvement of the global pulp and paper market.
- Emerging market like India and Turkey have favorable demand of pulp

and good growth prospect.

- The fundamental advantage of pulp market is sustainability.

CURRENT PROBLEMS OF FOREST MARKET IN CHINA AND CANADA

Canada's forest products industry has been a major GDP contributor to the country. However, during the last decade the industry has gone through the worst economic crisis in its history. Benoit (2008) contends:

A number of factors, both domestic and international, explain the precarious situation in which Canada's forest industry now finds itself.

Chief among them are the depressed U.S. housing market, the rapid appreciation of the Canadian dollar, the mountain pine beetle epidemic, and the intensification of global competition coupled with years of underinvestment in Canada in new technologies and equipment. (Page 49)

Since 2003, Natural Resources Canada reports that more than 300 plants have closed, including pulp mills, paper machines, sawmills and etc., and about 33,000 mill jobs have been lost (Benoit 2008). For now, to make the forest

product market great again, Canada's industries should focus on the production of low-value products such as newsprint and lumber for export to the U.S.A (Bouthillier 2008).

China's industrial wood production increased from 6 million cubic meters (1949) to 68 million cubic meters (1995), then decreased to 44 cubic meters (2002), and after that increased to 48 cubic meters (2003) again (Zhu et. al 2004). As a result of the exhaustion of China's mature natural forest resource, forest production has declined. After the government issued China's logging bans, 80 percent of China's state mature natural forest have become exhausted and cannot even support their own industries (Hyde et. al 2003). Import volumes of timber have increased from 30 million cubic meters (1993) to 93 cubic meters (2003) to fill the gap left by decreasing forest production; however, the rapid growth of China's forest products export sector began in 1998 in the form of value-added products (Zhu et. al 2004). China's market for industrial timber, pulp and paper is currently the second largest in the world, only after the U.S. market. Zhu (2004) contends that "the Chinese industry remains extremely fragmented,

with more 6,000 paper mills; at least 80 percent of these mills are small and uncompetitive on the international stage, lacking the economies of scale and efficiency of the larger, more modern, mills.” China’s total demand for wood will increase significantly over next 5 to 15 years because of the closure of small scale mills and their replacement by new large scale wood fibre mills (URS Forestry 2004).

THE FUTURE FOR FOREST PRODUCT MARKET IN CHINA AND CANADA

Canada’s forest products industry now is in the midst of an adjustment period; however, the challenges faced by the industry are not insurmountable. Forest products form a cyclical market; over the mid to long-term, numerous opportunities will present themselves. Opportunities will present in either new or traditional markets. The U.S. market is the most important one for Canada’s wood products; however, the U.S. has been experience an economic downturn (2008), so this effect indirectly weakens the Canadian forest market. On the pulp and paper side, the global demand for paper led by Asian economies is growing every year by an amount equal to all of Canada’s paper production (Benoit 2008).

Canada must take the necessary steps to further tap into this global market.

Wood fibre is also an opportunity for Canada's forest product market as the demand of wood fibre has increased because as the global environment has worsened, mostly due to the effects of climate change particularly (Benoit 2008).

With ongoing improvements in the standard of living, and due to people who live in China and love wooden furniture, the demand for natural wooden furniture will increase. The demand for forest tourism and recreation will also increase, thus, forest tourism will become an important growth factor for the forest economy in China (The State Forestry Administration People's Republic of China 2009). As a result of the Asian financial meltdown in the late 1990's, China's government has avoided a rapid devaluation for their currency, the RMB, by pegging it to the U.S. dollar (Cohen et.al 2007). Due to the undervalued RMB, the U.S. opportunities will increase related to the continued decline in the U.S. dollar; in other words, it will support the export-driven growth model in China (Cohen et. al 2007).

METHODS AND MATERIALS

This thesis will focus on a graphical comparison between China's forest Pulp & paper market and Canada's forest pulp & paper market. For the Chinamarket, the data I have found are from official government documents like the China Forestry Database, which summarized by State Forestry Administration of the People's Republic of China, and Nation Bureau of Statistics of China. Another part of data are found in industrial website such as China Pulp & Paper Website, China Paper Website and China's Commerce Intelligence Website. Data for Canada's market are selected from Statistics Canada and also collected from the Government of Canada. As is also the same for China, data can be collected from industrialwebsites, like the Forest Product Association of Canada and Pulp & Paper Canada Website. Third-party organizations like World Trade Organization, Food and Agriculture Organization of United Nations and United Nations Statistics Division can also provide data. Another some third-party website like Wanfang Database in China and Reportlinker in Canada can provide related published papers.

The types of data I have collected include the forest resources in China and

Canada and the amount of forest used to product pulp & paper. The quantity of production of special type of pulp will be presented in article. The quantity and value of export pulp of China and Canada will appeared in this article in the form of table, so does the quantity and value of import pulp of China and Canada. Data of several types of pulp will be collected, including chemical pulp, semi-chemical pulp, mechanical pulp and dissolving pulp. Furthermore, chemical wood pulp including unbleached sulphate wood pulp, bleached sulphate wood pulp, unbleached sulphite wood pulp and bleached sulphite wood pulp.

RESULTS

The data shows in the form of table below. The data include the production of pulp of China and Canada from 2006 to 2015, the quantity and value of export and import of both China and Canada from 2006 to 2015.

Table 1. The Production of Pulp in China and Canada from 2006 to 2015 (Unit: Tonnes). Source: FAO, 2016.

	Types	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINA	Mechanical wood pulp	565000	565000	865000	865000	865000	865000	865000	865000	865000	865000
	Semi-chemical wood pulp	1710000	1710000	1710000	1710000	1710000	1710000	1710000	1710000	1710000	1710000
	Chemical wood pulp, sulphate, unbleached	1129000	1129000	1129000	1129000	1129000	1129000	1084000	1222000	1222000	1222000
	Chemical wood pulp, sulphate, bleached	2225200	3018200	3384200	2176200	3746200	4998200	4815200	5388200	6197200	6237200
	Chemical wood pulp	3354200	4147200	4513200	3305200	4875200	6127200	5899200	6610200	7419200	7459200
	Dissolving wood pulp	15000	15000	15000	15000	95000	165000	350000	375000	375000	215000
CANADA	Mechanical wood pulp	11363000	10588000	9653000	8106000	8859000	7719000	7665000	7755000	7054000	7655000
	Semi-chemical wood pulp	477000	493000	488000	459000	447000	463000	386000	379000	384000	383000
	Chemical wood pulp, sulphate, unbleached	10262000	10036000	9194000	7586000	8467000	8877000	8430000	8420000	8483000	8215000
	Chemical wood pulp, sulphate, bleached	1060000	994000	746000	771000	485000	419000	396000	434000	409000	437000
	Chemical wood pulp, sulphite, unbleached	211000	204000	219000	141000	228000	235000	272000	265000	222000	270000
	Chemical wood pulp, sulphite, bleached	68000	66000	65000	34000	50000	29000	0	0	0	0
	Chemical wood pulp	11601000	11300000	10224000	8532000	9230000	9560000	9098000	9119000	9114000	8922000
Dissolving wood pulp	230000	230000	280000	280000	400000	600000	700000	800000	725000	630000	

Table 2. The Quantity and Value of Imported Pulp in China from 2006 to 2015 (Unit: Tonnes). Source: FAO, 2016.

	Types	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Mechanical wood pulp	72389	63914	72507	52169	62271	59433	11883	3135	5107	5247
	Semi-chemical wood pulp	1106359	1093937	1134704	1386036	1454130	1440079	1472483	1443042	1545960	1763878
	Chemical wood pulp, sulphate, unbleached	874348	875168	648907	738600	556981	712453	753735	604542	589616	643165
IMPORT	Chemical wood pulp, sulphate, bleached	6223921	6545474	7752058	11204883	8892485	11593271	13185736	13530611	14237416	15683262
QUANTITY	Chemical wood pulp, sulphite, unbleached	25326	24264	12497	9922	9622	12422	13382	11904	13318	15780
	Chemical wood pulp, sulphite, bleached	68682	62764	69328	81107	75113	142018	68904	46873	51513	51576
	Chemical wood pulp	7192277	7507670	8482790	12034512	9534201	12460164	14022757	14193930	14891863	16393783
	Dissolving wood pulp	537656	688207	635961	949110	1086720	1248469	1710619	1967749	2229685	2399354
	Mechanical wood pulp	36860	34535	44990	23592	36489	33270	6423	1772	2924	2532
	Semi-chemical wood pulp	538959	589493	724280	612127	873594	790982	797543	771664	842286	792660
	Chemical wood pulp, sulphate, unbleached	3509631	4297824	5430122	5405192	6621770	8887737	8241507	8767264	9195732	9852537
IMPORT	Chemical wood pulp, sulphate, bleached	430140	506995	335108	332163	351109	481758	419611	344892	374127	362231
VALUE	Chemical wood pulp, sulphite, unbleached	41898	43465	53696	43408	62543	136149	51247	35530	37451	34457
	Chemical wood pulp, sulphite, bleached	12149	14482	7898	4963	6793	8535	7392	6404	7919	8592
	Chemical wood pulp	3993818	4862766	5826824	5785726	7042215	9514179	8719757	9154090	9615229	10257817
	Dissolving wood pulp	395021	701133	769927	846084	1532725	2251082	1973187	1979505	2092662	2173285

Table 3. The Quantity and Value of Exported Pulp in China from 2006 to 2015 (Unit: Tonnes). Source: FAO, 2016.

	Types	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Mechanical wood pulp	186	156	231	230	155	592	355	915	760.45	744.45
	Semi-chemical wood pulp	64	340	122	4	313	3	64	201	1049	62
	Chemical wood pulp, sulphate, unbleached	63305	76799	24388	34880	44163	28868	36593	37795	43582	83449
EXPORT	Chemical wood pulp, sulphate, bleached	3987	488	2386	2730	1805	852	297	5526	2758	1750
QUANTITY	Chemical wood pulp, sulphite, unbleached	765	2808	215	461	1149	628	301	175	134	71
	Chemical wood pulp, sulphite, bleached	411	120	193	175	1863	27	314	57	59	150
	Chemical wood pulp	68468	80215	27182	38246	48980	30375	37505	43553	46533	85420
	Dissolving wood pulp	339	373	756	12531	295	14632	758	150	9	17
	Mechanical wood pulp	95	100	135	113	96	331	235	494	354	417
	Semi-chemical wood pulp	43	183	93	4	182	4	32	57	674	48
	Chemical wood pulp, sulphate, unbleached	32815	43412	15995	16628	31840	20700	23187	33816	26341	50010
EXPORT	Chemical wood pulp, sulphate, bleached	2049	336	1295	1265	1246	796	336	2419	1636	830
VALUE	Chemical wood pulp, sulphite, unbleached	431	538	149	341	994	575	282	169	155	66
	Chemical wood pulp, sulphite, bleached	248	88	143	134	1281	31	272	52	45	120
	Chemical wood pulp	35543	44374	17582	18368	35361	22102	24077	36456	28177	51026
	Dissolving wood pulp	271	295	747	12590	292	21647	763	150	11	20

Table 4. The Quantity and Value of Imported Pulp in Canada from 2006 to 2015 (Unit: Tonnes). Source: FAO, 2016.

	Types	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Mechanical wood pulp	0	200	436	1000	1000	1656	2000	1795	5015	3070
	Semi-chemical wood pulp	0	43	1000	1000	1000	998	1000	1077	568	794
	Chemical wood pulp, sulphate, unbleached	260000	266000	297000	235000	216000	204832	236000	231541	253612	312181
IMPORT	Chemical wood pulp, sulphate, bleached	13000	23000	8000	2000	1000	833	2000	349	20529	5288
QUANTITY	Chemical wood pulp, sulphite, unbleached	16000	14000	8000	6000	7000	12626	23000	9886	7809	8687
	Chemical wood pulp, sulphite, bleached	3000	6000	2000	1000	1000	1210	4000	5755	1315	1240
	Chemical wood pulp	292000	309000	315000	244000	225000	219501	265000	247531	283265	327396
	Dissolving wood pulp	21000	2000	19	0	0	23	0	93	54	12
	Mechanical wood pulp	37	59	214	363	526	694	897	759	2393	1473
	Semi-chemical wood pulp	26	25	971	297	465	748	1030	794	425	467
	Chemical wood pulp, sulphate, unbleached	104965	125960	158537	136722	158509	158784	167193	156716	166433	202510
IMPORT	Chemical wood pulp, sulphate, bleached	7495	15201	5061	1129	746	585	1316	231	12612	2959
VALUE	Chemical wood pulp, sulphite, unbleached	11634	11445	7639	5152	6997	8236	15398	6981	4391	3463
	Chemical wood pulp, sulphite, bleached	1092	1116	1376	1157	1299	1749	2161	2446	2122	1630
	Chemical wood pulp	125186	153722	172613	144160	167551	169354	186068	166374	185558	210562
	Dissolving wood pulp	23662	3210	24	9	44	28	47	128	66	12

Table 5. The Quantity and Value of Exported Pulp in Canada from 2006 to 2015 (Unit: Tonnes). Source: FAO, 2016.

	Types	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Mechanical wood pulp	101000	84000	66000	38000	41000	33247	34000	33074	30405	30823
	Semi-chemical wood pulp	1829000	1875000	1760000	1743000	2138000	1849252	2162000	2068411	2027834	2012855
	Chemical wood pulp, sulphate, unbleached	8317000	7907000	7107000	5886000	6391000	6901155	6660000	6558249	6561594	6855148
EXPORT	Chemical wood pulp, sulphate, bleached	203000	242000	171000	174000	176000	155471	157000	235317	209421	220725
QUANTITY	Chemical wood pulp, sulphite, unbleached	248000	214000	227000	166000	243000	219789	217000	213931	221344	263536
	Chemical wood pulp, sulphite, bleached	19000	28000	2000	0	0	0	3000	834	4449	23
	Chemical wood pulp	8787000	8391000	7507000	6226000	6810000	7276415	7037000	7008331	6996808	7339432
	Dissolving wood pulp	183000	269000	272000	268000	316000	516446	680000	712503	624970	528814
	Mechanical wood pulp	40609	37717	35884	15316	22258	17139	17556	16244	14509	13057
	Semi-chemical wood pulp	932246	1053851	1146177	886419	1387054	1094680	1166319	1117056	1081749	910563
	Chemical wood pulp, sulphate, unbleached	4387459	5005612	4827424	3120644	4689844	5153734	4264542	4442532	4598000	4384145
EXPORT	Chemical wood pulp, sulphate, bleached	95192	147839	102076	88847	123421	117645	95926	144524	142553	132564
VALUE	Chemical wood pulp, sulphite, unbleached	134245	136518	162744	94445	182064	138130	134946	123298	119340	121114
	Chemical wood pulp, sulphite, bleached	7065	14545	935	12	11	0	1736	491	2304	9
	Chemical wood pulp	4623961	5304514	5093179	3303948	4995340	5409509	4497150	4710845	4862197	4637832
	Dissolving wood pulp	133858	245101	314310	259177	399796	764300	749582	698876	573711	440922

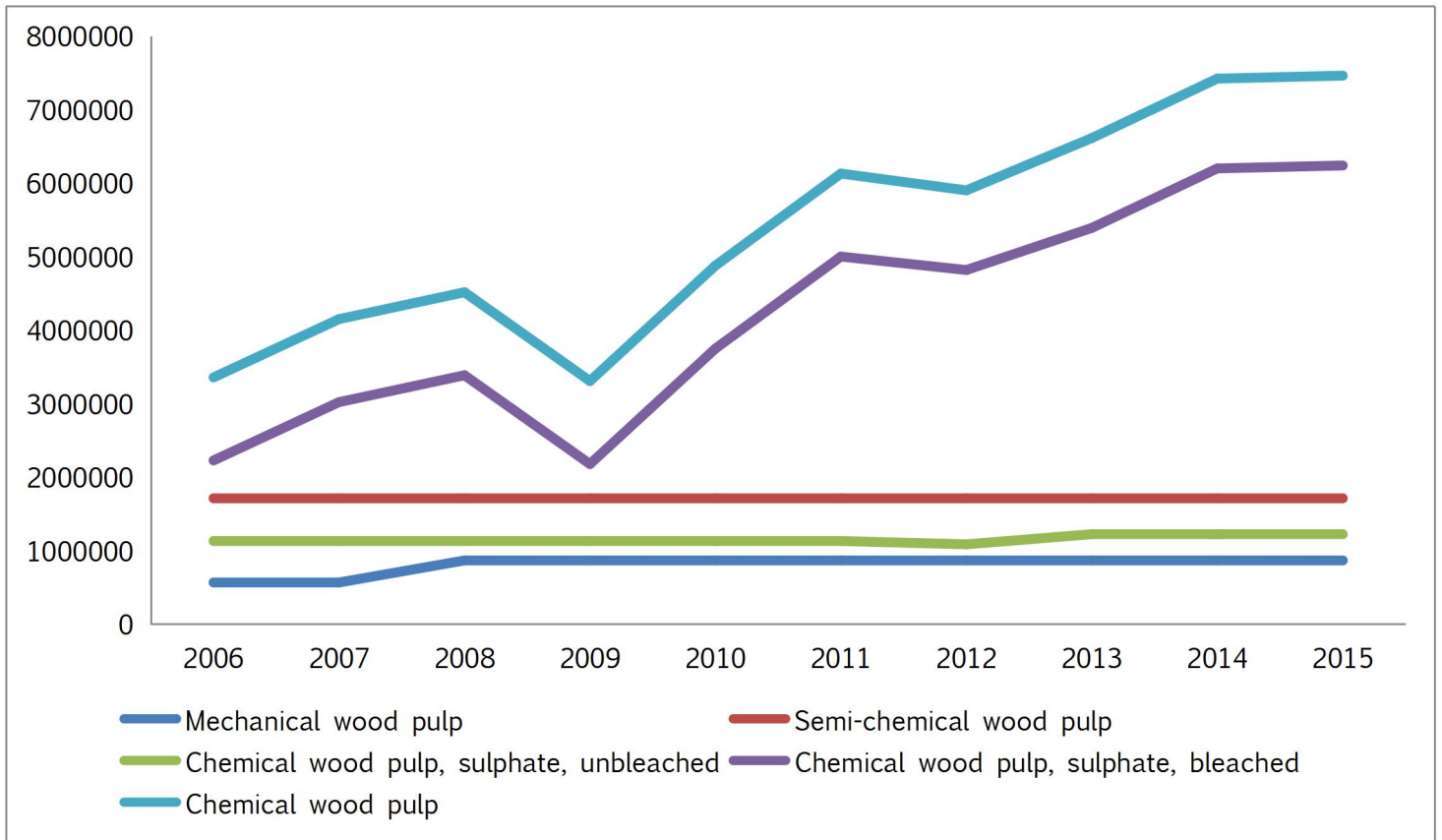


Figure 1. Production of pulp in China from 2006 to 2015.(FAO 2016)

The production of different types of pulp presents an increasing tendency from 2011 to 2015. The production of semi-chemical wood pulp produced 1,710,000 tonnes every year (FAO 2016). Unbleached sulphate chemical wood pulp and mechanical wood pulp appeared slightly increase. The bleached sulphate chemical wood pulp have become the major wood pulp product in China, in addition, the production of bleached sulphate wood pulp have become the most important factor, which can influence the future development of production of chemical wood pulp in China. Since 2006, the production of

bleached sulphate chemical wood pulp increased sharply and have become the major product of wood pulp in China now, which occupied 60.86 % of the total production of wood pulp in 2016.

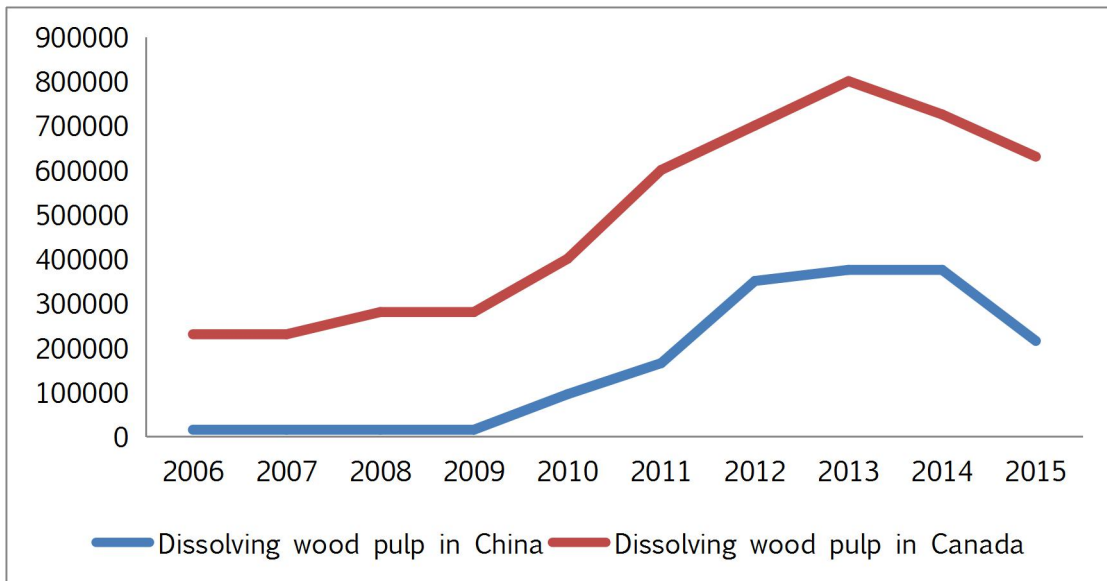


Figure 2. The production of dissolving wood pulp in China and Canada from 2006 to 2015. (FAO 2016)

Mr. Brian McClay have mentioned that the production of dissolving pulp will become the next popular pulp product all over the world during the China Paper and Pulp Industry Chamber of Commerce (CPICC) in 2014. The production of dissolving pulp in China has increased 23,333% in three years from 2009 to 2012. The production of dissolving pulp in China still increased from 2012 to 2014, and has reached the peak in 2014. However, the production of dissolving wood pulp declined sharply during 2015, which have decreased 42.66%. On the

other hand, the same tendency showed on the production of dissolving pulp in Canada too. The production of dissolving pulp in Canada have reached the peak in 2013, and then appeared the tendency of decrease. The diminution of demand of dissolving wood pulp is the major reason why the largest (Canada) and second largest (China) producer of dissolving all reduced the production of dissolving pulp.

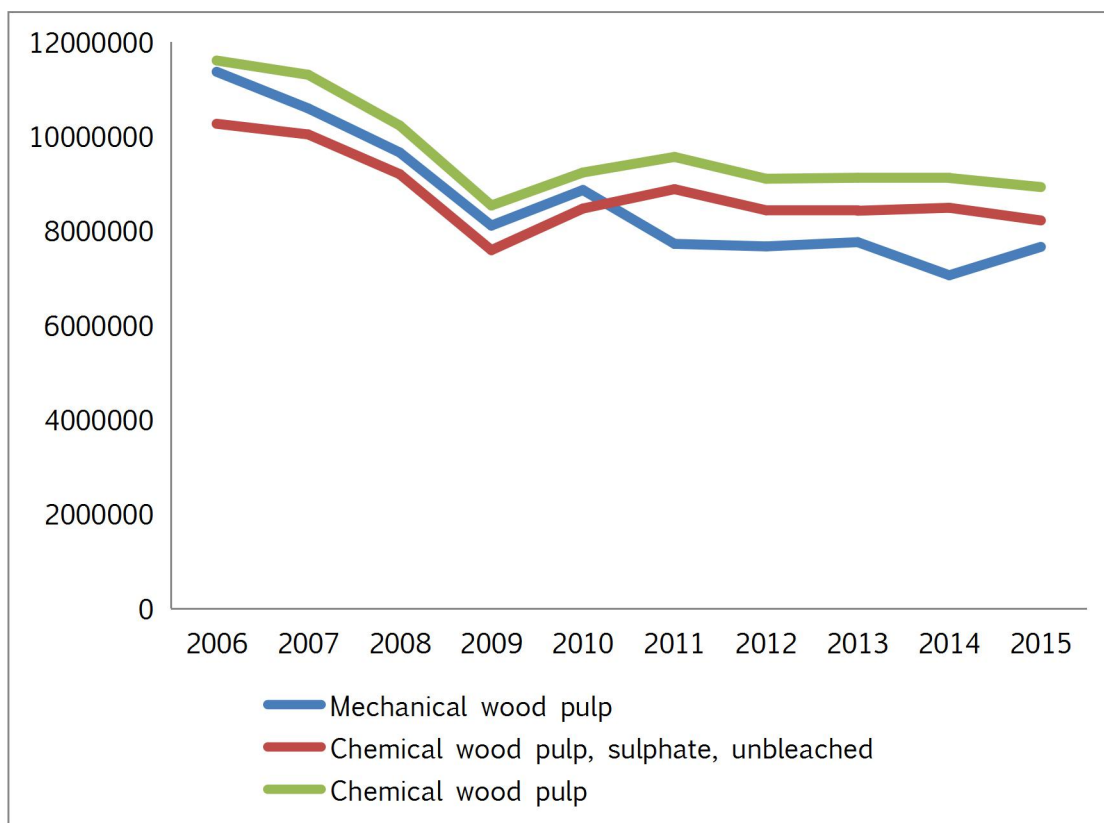


Figure 3. The production of pulp in Canada from 2006 to 2015, Part I. (FAO 2016)

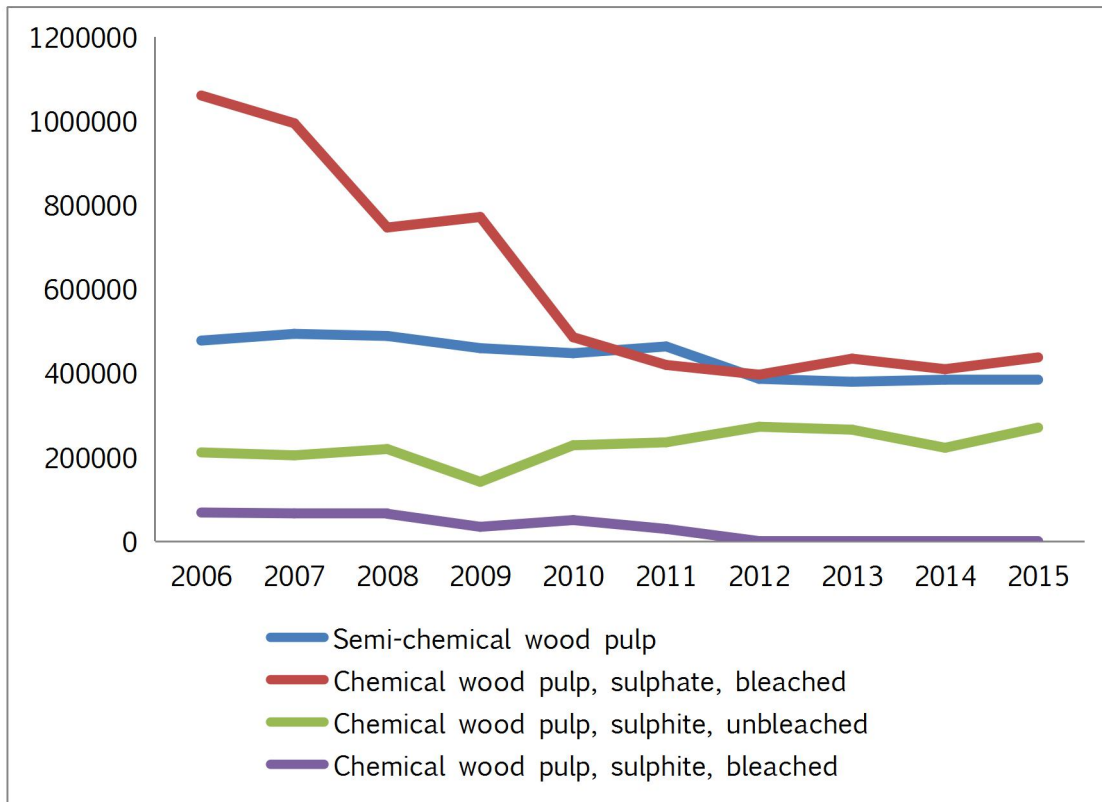


Figure 4. The production of pulp in Canada from 2006 to 2015, Part II. (FAO 2016)

When compared with the production of pulp in China, it is easy to find that the amounts of production of different type of pulp in Canada are much bigger. However, the production of wood pulp in Canada appeared entirely different tendency. All the different types of pulp product appeared decreasing tendency except the unbleached sulphite chemical wood pulp. The unbleached sulphite wood pulp increased slightly from 2006 to 2015. In addition, the major products in Canada are different from China's major product. In Canada, mechanical wood pulp and unbleached sulphate chemical wood pulp are the major products

during the period from 2006 to 2015. The production of mechanical wood pulp was the largest till 2010, and then the production of unbleached sulphate chemical wood pulp has become the largest. On the other hand, the production of bleached sulphate chemical wood pulp decreased sharply since 2006. The production of bleached sulphite chemical wood pulp and semi-chemical wood pulp are both decreased slightly since 2008.

The total quantity of import and export of pulp in China and Canada present in figure 4. As the figure shows, the quantities of pulp export in China and pulp import in Canada are close to 0 tonnes nearly and present like two straight lines when compared with pulp import in China and pulp export in Canada.

Furthermore, during this article, discussion will only focus on the pulp import in China and pulp export in Canada. The pulp export in China and pulp import in Canada will also be discussed, however, maybe just mention it with few paragraphs.

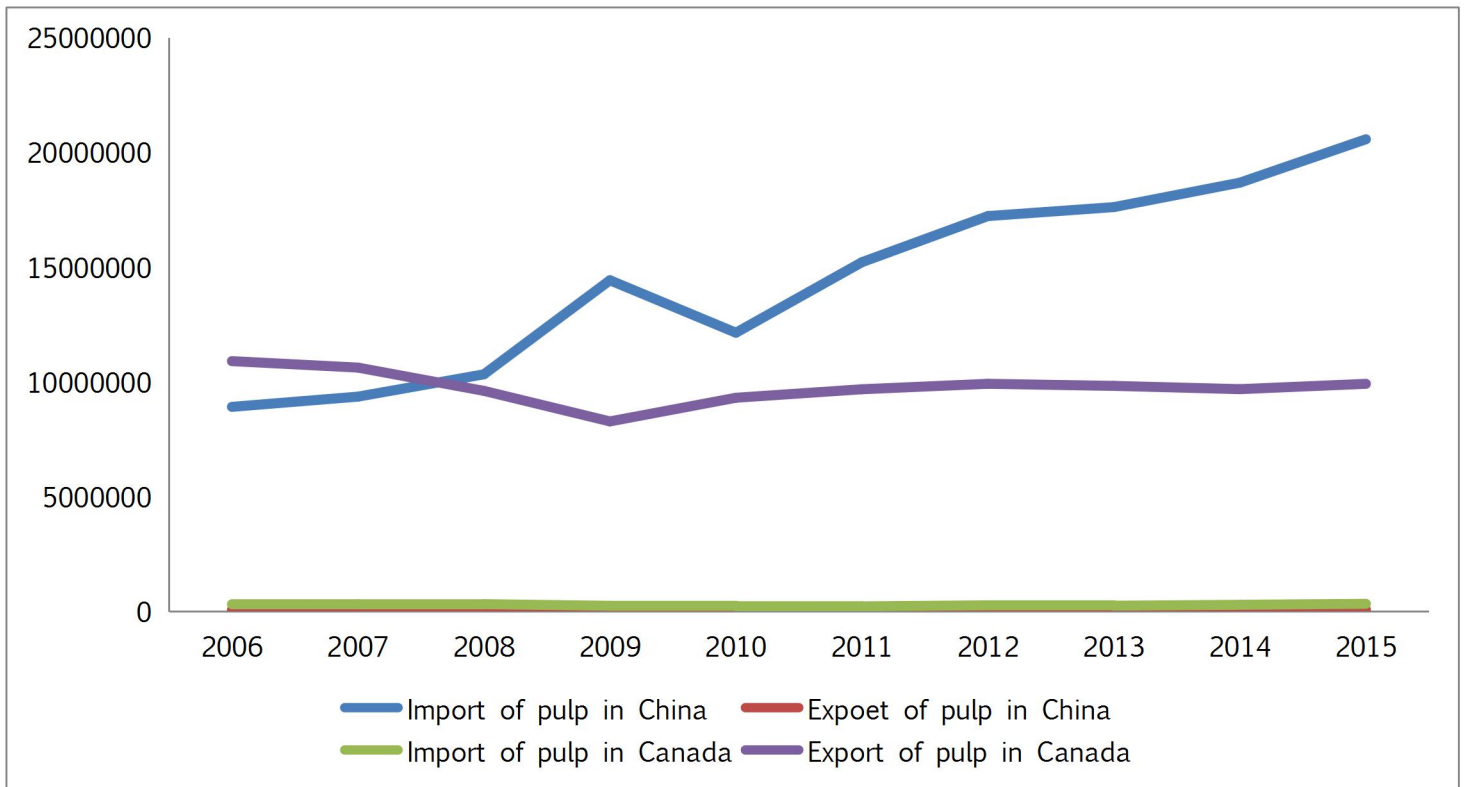


Figure 5. The import and export of pulp in China and Canada from 2006 to 2015 (Unit: Tonnes). (FAO 2016)

The import of pulp in China from 2006 to 2015 have presented a increasing tendency, in addition, because of the economic crisis in 2008, the import of pulp in China have appeared a sharp increase and then another sharp decrease happened in 2009. On the other hand, the export of pulp in Canada decreased slightly till 2009, and then increases slightly till 2015. An obvious decrease has presented during 2007 to 2009, and another rebound happened in 2009.

Table 6 present the export and import of sulphite pulp in China from 2006 to 2015. China does not produce even 1 tonne sulphite pulp, so all the market demand of sulphite pulp related on import. However, the quantity of sulphite

that China imported every year between 2006 to 2015 are higher than the domestic demand of sulphite pulp. Furthermore, China can export sulphite pulp with zero production of sulphite pulp.

Table 6. The quantity and value of sulphite pulp export and import in China from 2006 to 2015. Source: FAO, 2016.

Type	Unit	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
IMPORT	Chemical wood pulp, sulphite, unbleached	Tonnes	16000	14000	8000	6000	7000	12626	23000	9886	7809	8687
	Chemical wood pulp, sulphite, bleached	Tonnes	3000	6000	2000	1000	1000	1210	4000	5755	1315	1240
	Chemical wood pulp, sulphite, unbleached	1000US\$	11634	11445	7639	5152	6997	8236	15398	6981	4391	3463
	Chemical wood pulp, sulphite, bleached	1000US\$	1092	1116	1376	1157	1299	1749	2161	2446	2122	1630
EXPORT	Chemical wood pulp, sulphite, unbleached	Tonnes	765	2808	215	461	1149	628	301	175	134	71
	Chemical wood pulp, sulphite, bleached	Tonnes	411	120	193	175	1863	27	314	57	59	150
	Chemical wood pulp, sulphite, unbleached	1000US\$	431	538	149	341	994	575	282	169	155	66
	Chemical wood pulp, sulphite, bleached	1000US\$	248	88	143	134	1281	31	272	52	45	120

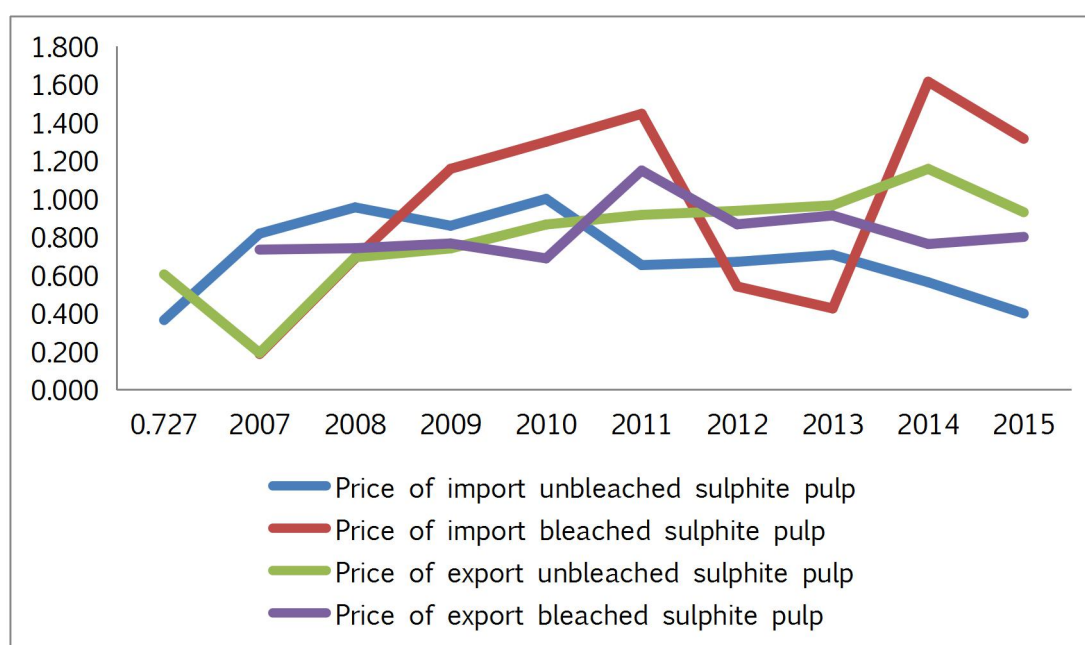


Figure 6. Unexpected price of sulphite pulp. (Unit: 1000 US\$/T). (FAO 2016)

The prices of sulphite pulp are unexpected. In addition, this is the most

important reason why Canada produced less bleached sulphite pulp, even does not produce it in some years. So, in my opinion, sulphite pulp cannot become the major pulp product unless the price of it can stabilize in recent years.

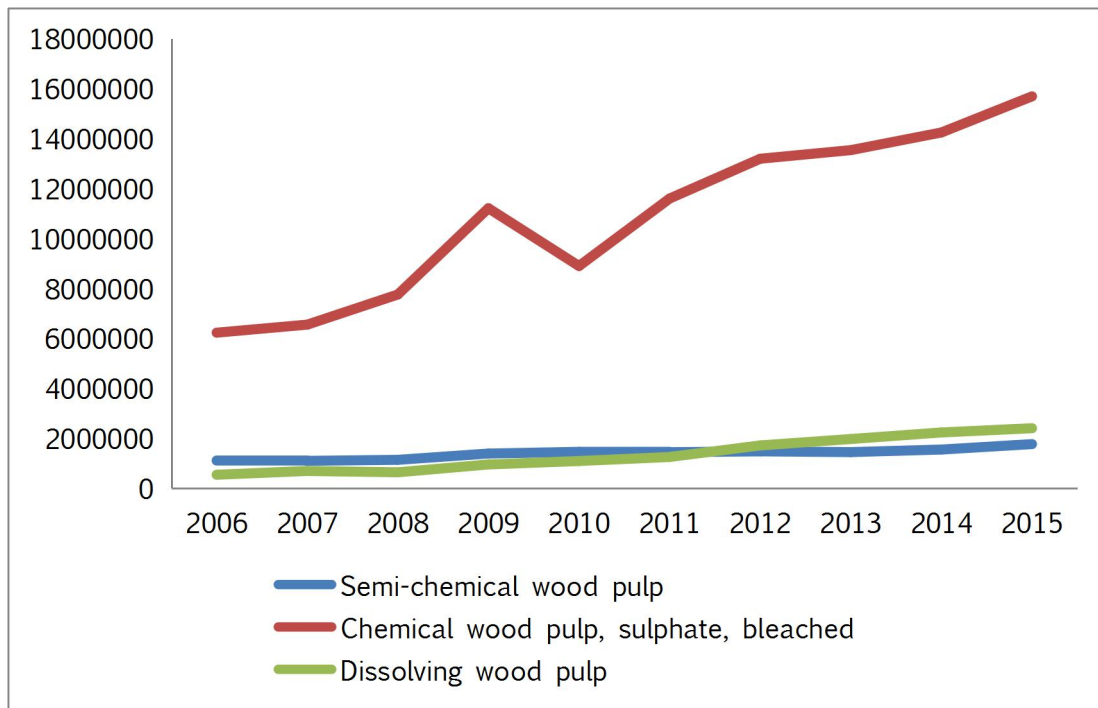


Figure 7. Quantity of the import pulp with increase tendency. Source: FAO, 2016.

There are three types pulp presented increasing tendency during the period 2006 to 2015, which are semi-chemical pulp, bleached sulphate pulp and dissolving pulp. According to the figure, the slope of bleached sulphate pulp is the largest, however, dissolving pulp have increased 446% from 2006 to 2015 while the increase rate of bleached sulphate is 252%. In addition, the increase rate of semi-chemical pulp is 159%.

Table 7. Change rates of different pulp in China between 2006 and 2015.

	Rate of change
Mechanical wood pulp	7%
Semi-chemical wood pulp	159%
Chemical wood pulp, sulphate, unbleached	74%
Chemical wood pulp, sulphate, bleached	252%
Chemical wood pulp, sulphite, unbleached	62%
Chemical wood pulp, sulphite, bleached	75%
Dissolving wood pulp	446%

Other types of pulp, like mechanical pulp, unbleached sulphate pulp, unbleached sulphite pulp and bleached sulphite pulp all appeared the trend of decline. The decline of mechanical pulp can reach 93% when compared with the quantity of import in 2006. The tendency presented by mechanical pulp means the market demand of mechanical pulp in China shrank nearly 20 times in 2015 compared with the market demand of mechanical pulp in 2006.

Table 8. Change rates of different pulp in Canada between 2006 and 2015.

	Rate of change
Mechanical wood pulp	31%
Semi-chemical wood pulp	110%
Chemical wood pulp, sulphate, unbleached	82%
Chemical wood pulp, sulphate, bleached	109%
Chemical wood pulp, sulphite, unbleached	107%
Chemical wood pulp, sulphite, bleached	0.12%
Dissolving wood pulp	289%

The situation of export in Canada presented the similar tendency compared with import in China. The pulp appeared largest slope is dissolving pulp, which is 289% in 2015. Semi-chemical pulp, bleached sulphate pulp and unbleached sulphite pulp were present the trend of increase. Other types of pulp like mechanical and bleached sulphite pulp appeared decreasing tendency. The most prominent point in Table 8 is the change rate of bleached sulphite pulp, which have decreased over 99%, from 19,000 tonnes to 23 tonnes (FAO 2016). Some years in the period between 2006 and 2015, Canada does not even exported 1 tonnes bleached sulphite pulp.

DISCUSSION

The relationship between China and Canada can explained as customer and producer. China has consumed over 19 percent of the global pulp production, and Canada produced 9 percent of the global pulp production (FAO 2015).

INTERNATIONAL COMPETITORS OF CANADA

Three major international competitors of Canada are Brazil, Russia and Indonesia.

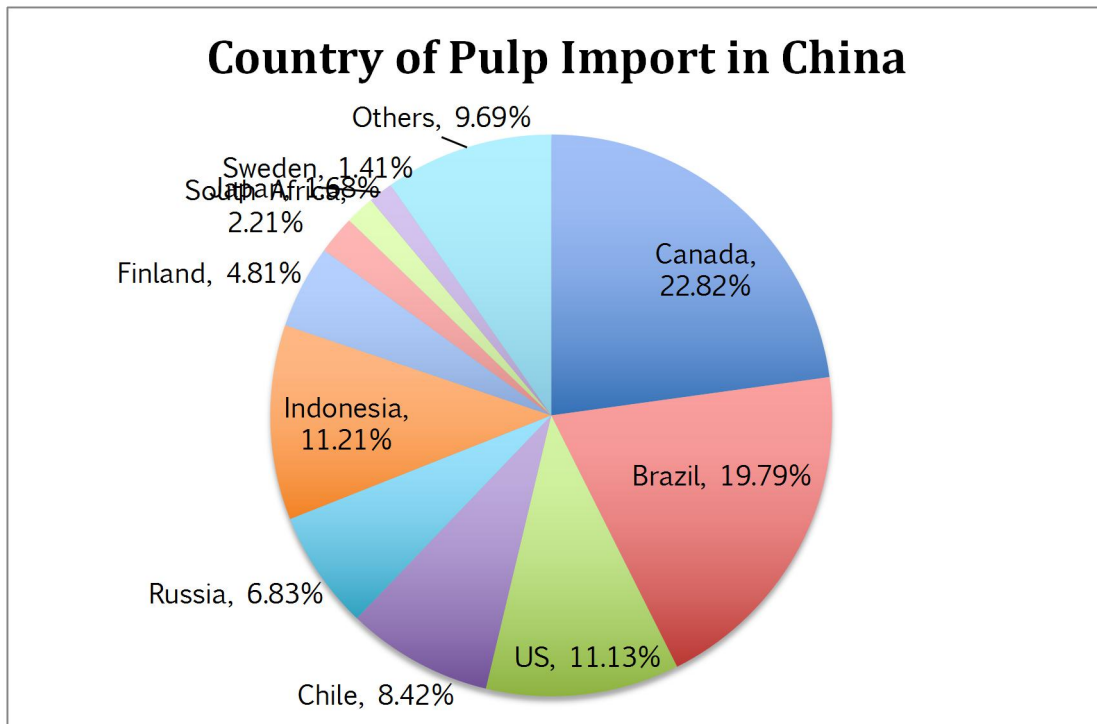


Figure 8. The percentage of pulp imports in China by country (Jiang 2015)

In China, the pulp imported from Canada in 2015 occupied 22.82 percent of the total pulp import, while, the pulp imported from Brazil occupied 19.79 percent. Furthermore, Russia and Indonesia can become the next major competitors of Canada. In 2015, 6.83 percent of pulp are imported from Russia and another 11.21 percent of pulp are imported from Indonesia. In addition, the best advantage of Russia or Indonesia is short-distance transportation.

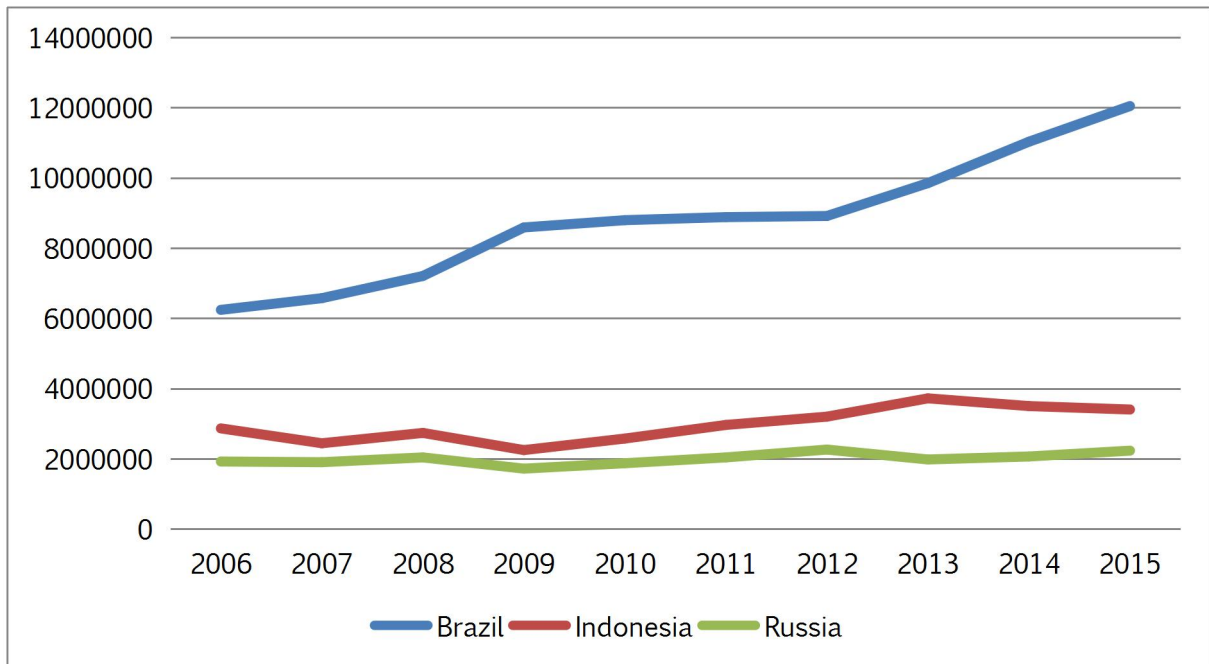


Table 9. Exported chemical pulp of Brazil, Russia and Indonesia from 2006 to 2015.(Unit: Tonnes). (FAO 2016)

The quantity that exported by Brazil increased 188% from 2006 to 2015

(Data see appendix). Furthermore, because of the corruption, Brazil must export more and more pulp to subsidize the high domestic deficit. The strongest competitor of Canada is Brazil, which occupied 10 percent of the global pulp production (FAO 2015). The percentage of global pulp production that Brazil owned is higher and Brazil exported more chemical pulp when compared with Canada. In addition, Brazil have better public awareness in China. People in China will think of sunshine and beach, Amazon rainforest and samba when people mention Brazil. Meanwhile, people in China can only think of Justin Bieber and The Toronto Raptors when someone mention Canada.

Another competitor is Russian Federation. The advantages of Russia are short distance of transportation and convenient transportation. Russia and China owned two national boundary lines and an international rail train between China and Russia. So the cost of transportation of Russia to China will be less than Canada-China transportation. In addition, Russia want to export more products because of the domestic sluggish economy, and the China must be the first choose of Russia's Government. The relationship between Russia and China is another advantage for Russia. In China, the public called Russia "The old brother of China" cause the Soviet Union helped China for industrial development.

Indonesia is another competitor of Canada. The distance between Indonesia and China is much shorter than the distance between China and Canada. However, according to the data and figure 8, the quantity of pulp that Indonesia export was decreasing.

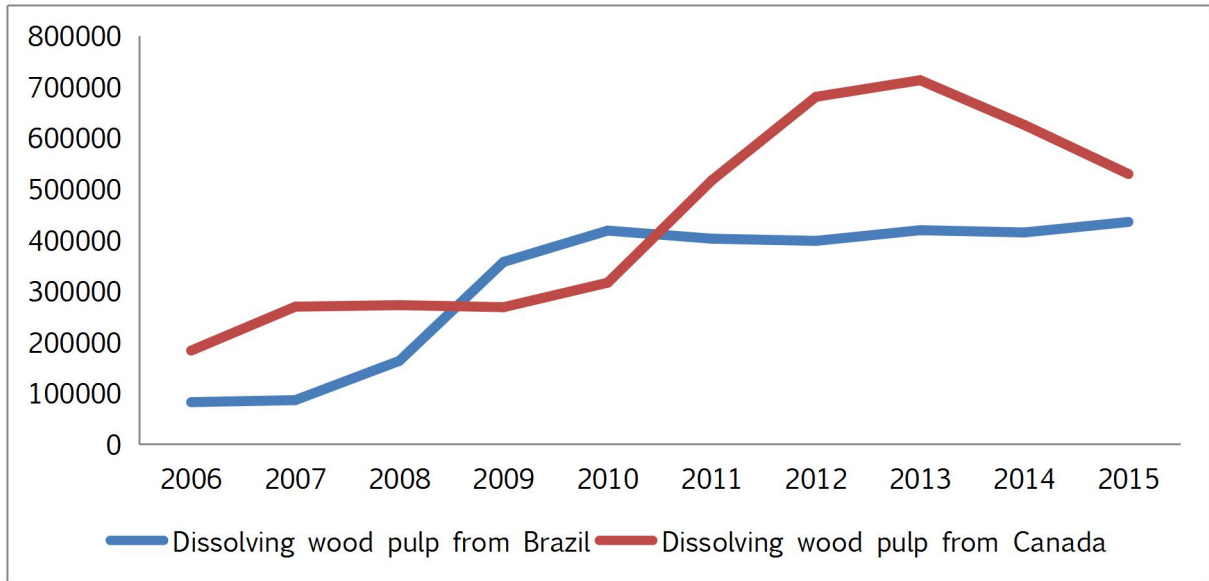


Figure 10. Dissolving pulp export from Brazil and Canada from 2006 to 2015 (Unit: Tonnes). (FAO 2016)

For the market of dissolving pulp, Brazil appeared a trend of increase, however, Canada presented a decreasing tendency since 2013. In addition, according to the tendencies showed on figure 10, the quantity of dissolving pulp that export by Brazil will surpass the quantity of dissolving pulp that export by Canada. Overall, Brazil can be the strongest pulp market competitor of Canada in the near future.

Dissolving pulp is a high-purity lignocellulose, a substitute for lint pulp. The price of cotton has increased over 10% in 2010 in China (Wang 2011). As the prices of cotton continued to rise sharply, the cost of downstream textile industry in China increased sharply, so more and more industries choice cotton

substitutes to reduce the cost of production (Wang 2011). In addition, the dissolving pulp can be the perfect cotton substitute. Overall, this is the reason why China wants to import more dissolving pulp.

INFLUENCE OF MONETARY EXCHANGE RATE

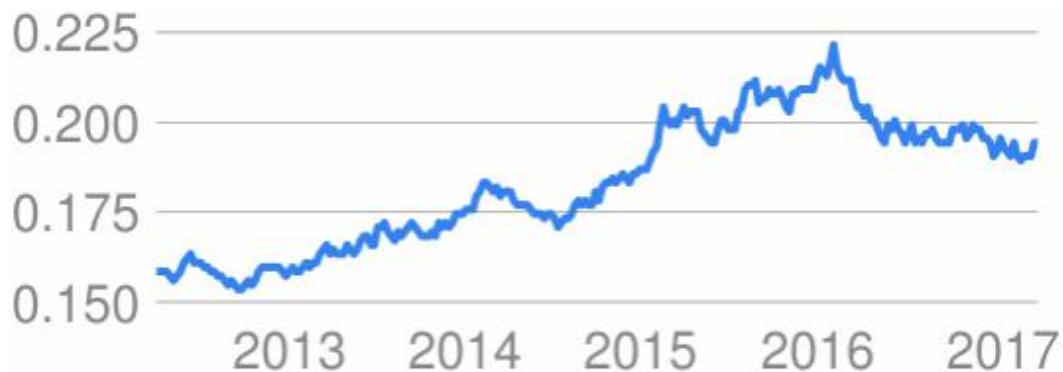


Figure 11. Monetary exchange rate from CNY to CAD. Source: Google Finance.

The monetary exchange rate is another important factor that can influence international trade. The official currency of China is Renminbi, also called Chinese Yuan (CNY); the official currency of Canada is Canadian Dollar (CAD). The exchange rate between CNY and CAD, according to figure 11, presented a decreasing tendency. The decreasing tendency of monetary exchange rate between CNY and CAD will bring disadvantage to the international trade between Canada and China. For example, in 2016, 1 Yuan equal to nearly 0.22 CAD, but 1 Yuan only equal to 0.2 CAD. The decreasing monetary exchange rate

means China will pay more when import the same quantity of pulp in 2017.

INFLUENCE OF THE FINANCIAL CRISIS IN 2008

The figures of production in China and Canada and the figures of export appeared a sharp decrease in 2008, then another sharp increase present in 2009.

These changes are result from the 2008 Financial Crisis. The financial crisis in 2008 result in thousands companies became bankrupt, millions people lost job.

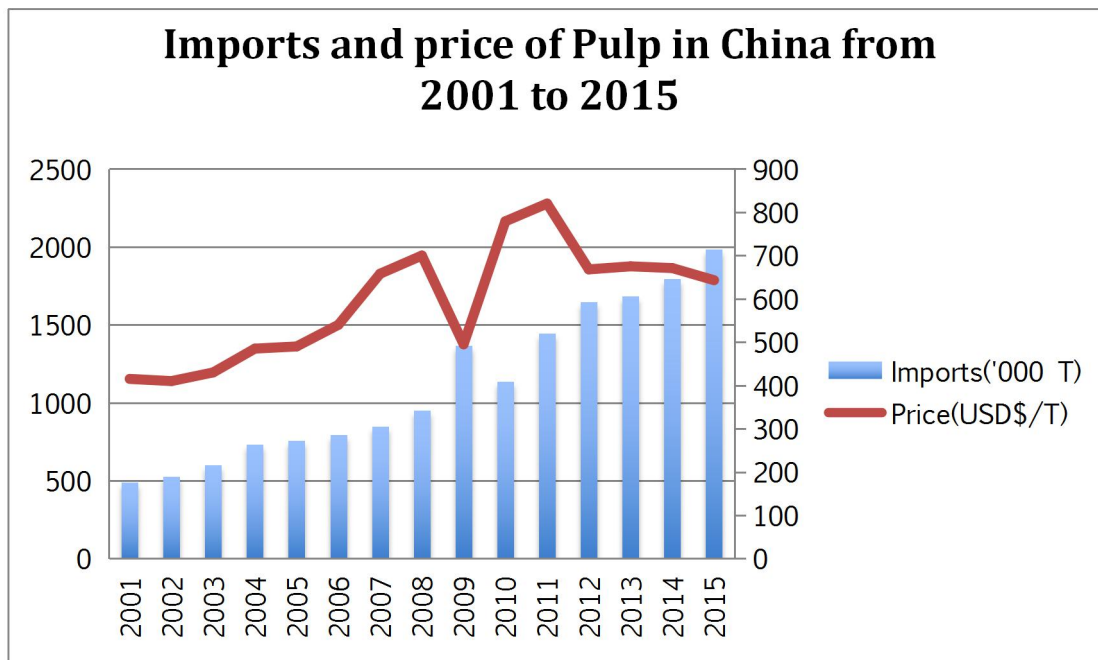


Figure 12. Imports and price of Pulp in China from 2011 to 2015 (Jiang 2015)

The figure 12 is the import quantity and price of pulp in China from 2011 to 2015. According to the figure, the price of pulp appeared a sharp decrease in 2008, and this is the reason why the quantity of imported pulp presented a dramatic increase. In 2009, price rebounded sharply result in a dramatic decline

in import quantity. The pulp import in Canada presented the same tendency in 2008 and 2009.

On the other hand, because of the decreasing price of pulp, the production and export of pulp presented the opposite tendency when compared with the tendency of export. The quantity of production and import decreased sharply in 2008 and then rebounded again in 2009. According to these tendencies, the 2008 Financial Crisis is a global influence feature.

CONCLUSION

China still in the major customer of pulp worldwide, and the future market of dissolving pulp is bright. Canada should focus on the pulp market in China, China still need to import more pulp to supple the domestic demand. However, the competitors like Brazil, Russia and Indonesia are strong enough to take Canada's Chinese pulp market away. So what should Canada to do to ensure China is willing to import pulp from Canada.

First, improve the quality of Canadian pulp products. Quality is the chiefly feature of product and is also the most important factor to decide weather the trade can be successful or not. Secondly, try to stabilize the monetary exchange rate between CNY and CAD. This countermeasure will increase the benefit of China; meanwhile, it will not reduce the revenues of Canada. Third, as Mr. Brian McClay said, focus on dissolving pulp production. Last but not the least, trying to formulate new policies to support the direct cooperation between Canadian companies and Chinese Companies.

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APPENDICES

Table 9. The Export Quantity of Brazil, Russia and Indonesia from 2006 to 2015. (Unit: Tonnes). (FAO 2016)

	Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Brazil	Chemical wood pulp	6156000	6485000	7040000	8229176	8375000	8477563	8513658	9429547	10614065	11564905
	Dissolving wood pulp	82000	86000	163000	356654	418000	402141	397867	418783	414337	434954
	Mechanical wood pulp	0	175	0	0	0	69	13	5	10	1111
	Semi-chemical wood pulp	0	0	0	0	0	0	0	0	0	42262
Indonesia	Chemical wood pulp	2755739	2321600	2615700	2193738	2546092	2933677	3195520	3717527	3497111	3399381
	Dissolving wood pulp	104434	115700	115700	49899	26247	26247	797	0	0	276
	Mechanical wood pulp	1200	1200	1200	0	0	0	0	0	0	0
	Semi-chemical wood pulp	0	0	0	332	0	239	0	0	0	0
Russia	Chemical wood pulp	1779000	1734000	1754000	1580000	1686257	1789215	2008274	1772440	1878759	2068213
	Dissolving wood pulp	139000	165000	160000	3000	18909	55084	63512	28042	0	0
	Mechanical wood pulp	0	0	0	64	0	0	0	4	0	1
	Semi-chemical wood pulp	0	0	121000	132000	164366	190874	186546	176012	182591	159166