BC SAWMILLS UNDER SIEGE:
INDUSTRY RESPONSES TO THE US-CANADA
SOFTWOOD LUMBER DISPUTE
2001-2008

by

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Bachelor of Arts
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THE REQUIREMENTS FOR THE DEGREE OF

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ABSTRACT

Since the 1980s the Canadian and BC lumber industries have been embroiled in an acrimonious lumber dispute with the US. The prolonged constraints placed on Canadian access to the US lumber markets have constituted significant threats to the viability of the BC softwood lumber industry. This thesis examines how BC sawmill factories have adjusted the size and scope of their operations. The empirical research utilizes an extended case study approach to study in-situ location adjustments from 2001-2008. This analysis particularly focuses on how trade costs, uncertainties and the politics associated with the dispute have affected employment, production, productivity, product mix, the geography of sales and industry sentiment. The results indicate significant differences in regional and factory size adjustments and declining percentage of US exports. Firm behaviour is important for analyzing spatial implications of the trade dispute, as firm responses will ultimate indicate the direction of change in the industry.

Keywords: Softwood lumber; trade dispute; BC lumber industry; international trade; Canada-US international relations; location adjustments
DEDICATION

I dedicate this thesis to my brother Brendan. You have given me a wonderful appreciation for life and there can be no greater gift.

To the rest of my family, Mom, Dad, Keenan and Caitlin, thank you for all the love and support. I could not have done it without you. Family is always the most important thing in life.

To Rachel, your support and friendship has truly been instrumental.
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# TABLE OF CONTENTS

Approval ..................................................................................................................... ii  
Abstract ..................................................................................................................... iii  
Dedication ................................................................................................................... iv  
Acknowledgements .................................................................................................... v  
Table of Contents .................................................................................................... vi  
List of Figures ........................................................................................................... viii  
List of Tables ........................................................................................................... ix  
List of Acronyms ....................................................................................................... x  

## 1: Introduction ......................................................................................................... 1  
1.1 Research Objectives ............................................................................................ 6  
1.2 Extended Case study method .............................................................................. 8  
1.3 Data Collection ................................................................................................... 9  
1.4 Thesis Organization ........................................................................................... 12  

## 2: Paradox of the Softwood Lumber Dispute and Implications for Industrial Adjustment .............................................................................................................. 13  
2.1 Introduction ......................................................................................................... 13  
2.2 Trade Organizations: NAFTA and the WTO ...................................................... 14  
2.3 The Softwood Lumber Dispute – An Historical framework ................................. 19  
   2.3.1 Lumber IV .................................................................................................... 22  
   2.3.2 2006 SLA .................................................................................................... 24  
2.4 Political Agendas ................................................................................................ 29  
2.5 Policy and Corporate Responses to the Softwood Lumber Dispute .................... 33  
2.6 Conclusion ......................................................................................................... 40  

## 3: Industrial Adjustments and Trends in the BC Lumber Industry ...................... 41  
3.1 Introduction ......................................................................................................... 41  
3.2 Industry Trends in Employment, Output and Exports (2001-2008) ..................... 43  
   3.2.1 Lumber IV (2001-2006) ............................................................................ 43  
   3.2.2 The SLA Period (2006-2008) .................................................................... 49  
3.3 Changes in Timber Supply - The Elephant in the Room ..................................... 55  
3.4 Adjustments by Selected Large Lumber Producers ......................................... 58  
   3.4.1 Trends in Lumber Sales ............................................................................. 59  
   3.4.2 Adjustments in Total and Regional Lumber Production ............................ 60  
   3.4.3 Acquisitions and Mill Closures ................................................................. 63  
   3.4.4 Changes in Lumber Export Markets .......................................................... 65  
3.5 Conclusion ......................................................................................................... 67
4: Factory Adjustments to the Softwood Lumber Dispute (2001-2008).............. 69
4.1 Introduction ........................................................................................................... 69
4.2 Respondents’ Perceptions of the Softwood Dispute and the 2006 SLA........ 71
   4.2.1 In favour of the 2006 SLA.............................................................................. 71
   4.2.2 Withdraw from the 2006 SLA....................................................................... 72
   4.2.3 The 2006 SLA – Has it Instilled Certainty? .................................................. 73
4.3 Factory Adjustments .............................................................................................. 76
   4.3.1 Adjustment to Inputs..................................................................................... 77
   4.3.2 Adjustments to Outputs ............................................................................... 83
4.4 Factory Size Related Adjustments ....................................................................... 95
   4.4.1 Small Size Factories - Adjustments .............................................................. 96
   4.4.2 Medium Factories - Adjustments ................................................................. 98
   4.4.3 Large Sized Factories – Adjustments ......................................................... 101
4.5 Summary ............................................................................................................. 103

5: Concluding Comments ............................................................................................ 105

Reference List ............................................................................................................. 111

Appendix ..................................................................................................................... 120
LIST OF FIGURES

Figure 1-1 BC GDP and Forestry Sector as a Percentage of GDP ......................... 4
Figure 3-1 Lumber Prices plotted against SLA Export tax levels .......................... 42
Figure 3-2 BC Total and Regional Lumber Production (2001-2008) ...................... 44
Figure 3-3 BC Lumber Exports: Quantity of Shipments ..................................... 44
Figure 3-4 BC Lumber Exports: Value of Shipments ......................................... 45
Figure 3-5 Value of BC Wood Products Exports ............................................. 46
Figure 3-6 Percentage of Wood Products Exports ............................................ 46
Figure 3-7 Percentage Distribution of US Imports of Softwood Lumber ............... 47
Figure 3-8 Percentage Distribution of US Lumber Imports, Excluding Canada ....... 47
Figure 3-9 Percentage Distribution of Value of BC Softwood Lumber ................ 48
Figure 3-10 Value of BC Lumber Exports by Market ......................................... 48
Figure 3-11 SPF Lumber Prices and US-Canadian Foreign Exchange Rate .......... 51
Figure 3-12 Investment in BC Wood Product Manufacturing ............................ 53
Figure 4-1 SE Kootenay Region Output and Export Markets ............................. 90
Figure 4-2 Okanagan Region Output and Export Markets .................................. 91
Figure 4-3 Central Interior Region Output and Export Markets .......................... 92
Figure 4-4 The Coast Region Output and Export Markets ................................ 94
Figure 4-5 Small Factories Output and Export Markets .................................... 97
Figure 4-6 Medium Factories Output and Export Markets ................................. 100
Figure 4-7 Large Factories Output and Export Markets .................................... 102
LIST OF TABLES

Table 2-1 Export Measures in the SLA..............................................................................25
Table 2-2 Option A: Regional Percentage share of US Consumption..........................26
Table 2-3 Price Adjustment Factor for Option B Quota..................................................27
Table 2-4 Option B: Regional Percentage share of US Consumption..........................28
Table 3-1 Lumber Production (mmbf) by region for selected firms .........................61
Table 3-2 Combined regional lumber production for selected firms .........................62
Table 4-1 Overview of Factories Interviewed (2008) .................................................70
Table 4-2 Are you in Favour of the 2006 SLA?...............................................................71
Table 4-3 Should Canada withdraw from the SLA?.......................................................73
Table 4-4 Has the 2006 SLA given your factory certainty? .........................................74
Table 4-5 Emotional response to the Softwood Lumber Dispute ..................................75
Table 4-6 Regional Factory Output and Employment changes from 2001 to 2008 ......78
Table 4-7 Factory change in percent of output to the US from 2001-2008 ..................87
Table 4-8 Has the SL dispute affected your factory’s trading patterns since 2001? ..............................................................................................................................88
Table 4-9 Changes in Total Employment and Total Output by Factory size.............95
<table>
<thead>
<tr>
<th>ACRONYM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAC</td>
<td>Annual Allowable Cut</td>
</tr>
<tr>
<td>AD</td>
<td>Anti-dumping</td>
</tr>
<tr>
<td>BBF</td>
<td>Billion board feet</td>
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<tr>
<td>BC</td>
<td>British Columbia</td>
</tr>
<tr>
<td>BCMBP</td>
<td>British Columbia Mountain Pine Beetle</td>
</tr>
<tr>
<td>CI</td>
<td>Central Interior Region</td>
</tr>
<tr>
<td>CIT</td>
<td>US Court of International Trade</td>
</tr>
<tr>
<td>CFLI</td>
<td>Council for Fair Lumber Imports</td>
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<td>Co</td>
<td>Coast Region</td>
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<td>COFI</td>
<td>Council of Forest Industries</td>
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<td>Canada US Free Trade Agreement</td>
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<td>CVD</td>
<td>Countervailing Duties</td>
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<td>CVP</td>
<td>Comparative Value Pricing</td>
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<td>DoC</td>
<td>US Department of Commerce</td>
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<tr>
<td>EEC</td>
<td>Extraordinary Challenge Committee</td>
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<td>EUSC</td>
<td>Expected United States Consumption</td>
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<td>FLC</td>
<td>Framing Lumber Composite</td>
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<td>GDP</td>
<td>Gross domestic product</td>
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<td>ITC</td>
<td>US International Trade Commission</td>
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<tr>
<td>LCIA</td>
<td>London Court of International Arbitration</td>
</tr>
<tr>
<td>MBF</td>
<td>Thousand board feet</td>
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<tr>
<td>MMBF</td>
<td>Million board feet</td>
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<td>MPB</td>
<td>Mountain pine beetle</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>Abbreviation</td>
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<tr>
<td>NAICS</td>
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<tr>
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<td>Okanagan Region</td>
</tr>
<tr>
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<td>Regional Quota Volume</td>
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<td>Seasonally Adjusted Factor</td>
</tr>
<tr>
<td>SLA</td>
<td>Softwood Lumber Agreement</td>
</tr>
<tr>
<td>SE</td>
<td>South-East Kootenay Region</td>
</tr>
<tr>
<td>TEA</td>
<td>Transaction Evidence Appraisal</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organization</td>
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1: INTRODUCTION

Trade disputes between countries are not unusual; however, the lumber dispute between Canada and the United States is distinctive in terms of its duration, acrimonious nature, the degree of integration between the two countries and their beliefs in free trade. Since the 1980s the Canadian and especially the British Columbia lumber industry has been embroiled in an ongoing dispute that has serious implications for firms and the forest industry as a whole (See, Percy and Yoder 1987; Hayter 1992, 2000, Cashore 1997, McKinney 2004, Zhang 2007). This dispute has evolved through alternating and irregular periods of bi-national trade agreements and periods of litigation. Currently, a seven-year softwood lumber agreement (SLA) signed in October 2006, controls Canada’s lumber exports to the US. The continued restraints placed on Canadian access to the US market have contributed to the troubles facing the BC softwood lumber industry (Hayter 2004). The SLA, in effect until 2013, has imposed significant costs on exporters, and while it has brought a degree of “certainty” to the lumber industry, the US has continued to file grievances with a London-based arbitrator. This thesis examines how BC firms have responded to recent developments in the long-standing Canada-US softwood lumber dispute.

The US-Canada lumber trade dispute is an overarching theme prevailing through various recessionary downturns and economic booms in the BC forest sector since the early 1980s. The dispute officially began in 1982 when the US
lumber industry, through the Council for Fair Lumber Imports (CFLI), petitioned the US Department of Commerce (DoC) to impose countervailing duties on Canadian imports of softwood lumber. Canada and BC’s merchantable timberlands are predominantly publicly owned and timber prices are determined through an administered stumpage system. The CFLI argued that the stumpage system sets timber prices below market value, but at that time, the DoC found that Canada’s stumpage system was not countervailable. This decision was only round one in what has proved to be a long trade war. The CFLI, in 1986, again lobbied the DoC to countervail Canadian lumber imports. This time the DoC found in favour of the CFLI and applied a 15% countervailing tariff. Subsequently, within the context of negotiations towards a general free trade agreement, Canada and the US signed a Memorandum of Understanding (MOU), that included a 15% export tax on Canadian softwood lumber. In 1991, Canada withdrew from the MOU because the Federal government felt they had adjusted forest policies sufficiently that lumber exports would no longer be countervailable. The Canadian stance proved naïve, as the US DoC immediately self-initiated a countervailing duty investigation and again found that Canadian softwood lumber exports were countervailable and imposed duties. After much debate, Canada and the US agreed to a five-year SLA, wherein if Canadian lumber exports to the US exceeded 14.7 billion board feet (bbf) per year, they would be subject to a tax. This SLA expired in 2001, and the Canadian industry again naïvely believed there was no need for further export restraints. A new period of litigation began as the US collected duties on Canadian lumber exports
to the U.S from 2001 to 2006. Following further debate, the two parties agreed to a new 7-year SLA in 2006. It imposes either an export tax or a quota. The export tariffs only come into effect when lumber prices are depressed. As it happens, lumber prices have been depressed since the signing of the agreement.

Unfortunately, softwood lumber agreements have only served as temporary truces in an ongoing battle between Canadian lumber producers and the CFLI. The SLA’s have constrained Canadian access to the US market and contributed to job losses, mill closures, lost output and reduced investment in the lumber industry. The softwood lumber dispute has created uncertainty in the Canadian forest industry for almost 30 years. As the largest provincial lumber producer in Canada, BC has suffered the most.

The trade dispute has important consequences for the province. At one time 50 cents from every dollar in the BC economy were purported to flow from the forest sector. While those days are long gone, logging, wood manufacturing, and pulp and paper are still vital components of the BC economy, and they account for approximately 4% of a $180 trillion Provincial GDP in 2006 (see Figure 1.1).
Gross domestic product (GDP) is at basic prices, by North American Industry Classification System (NAICS). Forestry Sector includes NAICS: 113, 321 and 322. (Statistics Canada)

It is not easy to assess with precision the recent effects of the trade dispute on industrial adjustment, whether at the industry or firm and factory level. Part of the problem is the trade dispute has existed for such a long time, and behaviour and attitude adjustments may have already occurred. Furthermore, firms have been required to take into account other profoundly important changes to their business environment. These include a high valued Canadian dollar, cyclical changes in US housing starts, the mountain pine beetle (MPB) epidemic, high energy costs, technological change, international competition, fluctuating lumber prices, environmental opposition and land claims. In practice, firms and factories must adjust their operations in the context of all these factors, as well as rules established by various trade agreements.

Locational adjustment by firms is a central theme of this thesis and in particular, it focuses on the adjustments made by firms at existing factory sites or in situ. As Krumme (1969) noted, whether in relation to external crises, problems
in the business environment or internal changes in business strategies, firms can spatially adjust existing operations in various ways and, broadly speaking, can either invest in new locations or adjust existing ones. The possible range of adjustments varies by time horizon. In the short run, firms can only change variable inputs such as employment, number of production shifts, change inventory levels or shut down temporarily. Over longer time horizons, firms can adjust their marketing and supply networks, the size of operation and invest in new equipment and technology to improve productivity and/or change the product mix, invest in new locations or close down permanently.

The kind of adjustments available to firms also depends on their size and geographic scope. Thus, multi-plant firms can modify and re-arrange their product mix and output levels among a set of existing sites. *In situ* adjustments can be complemented or replaced by geographical expansion, either through investments in new (‘greenfield’) sites or external acquisitions. In general, large firms are more likely to expand into new regions and acquisitions are generally a faster form of growth than investment in new sites.

Hayter’s (1992) study of the BC softwood lumber industry analyzed how firms and factories in the BC forestry industry responded to the early years of the Canada-US softwood lumber dispute, particularly emphasizing the diversification of exports to Japan. While Hayter examined the forest industry at the level of the firm and factory, much of the recent literature on the Canada-US softwood lumber dispute focuses on: a) aggregate macro impacts of the 1996 SLA (Zhang 2001, Gulati and Malhotra 2006, Nagubadi and Zhang 2006) and b) the political
and industry ramifications of extensive litigation and the 2006 SLA (Kukucha 2005, Niquidet 2007, Gagne and Roth 2008, Quayat 2009). Despite the abundance of literature, (see Zhang 2007 for a comprehensive analysis of the dispute) there is a surprising lack of micro level analysis of changes by firms and factories within the Canadian and BC forest industries (Thorpe and Sandberg 2007). More generally, Glasmeier, Thompson and Kays (1993) contend that it is necessary to understand how state actions and trade policy influence the structure of global competition. They point out that in economic geography, trade policies and their impacts on location adjustments are under studied.

Within a North American context, this study contributes a specific industry and regional perspective to recent examinations of how NAFTA has affected Canada-US trade (Andresen 2009, 2010). In BC, this study contributes to political and economic trade-oriented studies of BC’s changing forest economy (Rayner, Howlett, Wilson, Cashore and Hoberg 2001, Stennes and Wilson 2005, Hayter 2003, Kukucha 2005).

1.1 Research Objectives

The objective of this research is to assess how the Canada-US lumber dispute has affected BC’s sawmill industry and, in particular, how factories are adjusting, in situ, the size and scope of their operations to the 2006 SLA. More specifically, this study seeks to assess:

1) factory level adjustments with respect to changes in inputs (employment, productivity and technology) and changes in outputs (production, product mix and geographic markets).
2) variations in factory adjustments with respect to factory size and regional differences.

The empirical research focuses on sawmills from four sub-regions of B.C and studies their *in situ* location adjustments from 2001-2008. This period covers litigation (2001-2006) and managed trade (2006-2008). The study particularly focuses on the ways factories have adjusted their operations in relation to trade policies, external trade costs, uncertainties and the politics of the softwood lumber dispute. Geographical shifts in the location of production by large publicly owned lumber firms and provincial trends in employment, production and export markets are also examined within the context of the study’s research questions. Furthermore, the research examines industry perception and sentiment with respect to the lumber dispute and the SLA.

Conceptually, this research adopts an institutional perspective. The institutional approach in economic geography recognizes the complex external political and economic environment that informs firms’ decision-making, and identifies the intricate relations between different actors and their ability to control and manipulate the economic and political landscape (Hayter 1992, Maskell 2001, Hayter, Barnes and Bradshaw 2003, Barnes and Hayter 2005). It is difficult, if not impossible, to isolate the effects of the trade dispute on the behaviour of firms in the BC forest industry from other political, economic and environmental factors, contingencies that require consideration. Nevertheless, the lumber dispute has remained a constant constraining feature since 1982. It
continues to impose costs and uncertainties as it concerns a fundamental imperative of firms: the need to access markets.

The purpose of this thesis is to examine the effects of the US-Canada softwood lumber dispute and trade policy, on industrial behaviour, especially location adjustments. In response to policy changes, firms can move to new locations, close existing locations or adjust existing factories. In situ location adjustments occur at the existing factory site. Adjustments can be either input oriented, such as changes in employment, productivity and investment, or output oriented, such as changes in output levels, product mix, and markets. The SLA directly targets firms’ markets by imposing restrictions to the US market through export taxes and quotas. Location adjustments for BC sawmills from 2001-2008 are examined using an extended case study approach.

1.2 Extended Case study method

The extended case study method attempts to address issues of uniqueness without neglecting the issue of representation. Extended case studies involve more cases than a traditional case study (the analysis of an individual case or two) but involve fewer cases than associated with random sampling techniques. The extended case study approach is the methodological middle between case studies and surveys. Case studies are an in-depth, longitudinal examination of a single event or individual firm (Yin 2003). In economic geography, a case study will generally incorporate a significant player in a particular industry; accordingly, knowledge extrapolates towards broader industrial trends. In contrast, surveys emphasize representation by attempting to
standardize questions, stabilize field conditions and give representativeness through sample size (Burawoy 1998). Individual case studies reveal distinctive behaviour, while recognizing implications of general trends; in contrast, random sampling approaches seek to reveal general trends in behaviour while recognizing variations around trends. Extended case studies seek to reveal more about distinctive behaviour while still providing insight into overall trends. Rees (1993) and Reiffenstein (1999) both utilized an extended case study approach to examine different aspects of the BC forest industry.

For this extended case study, region and output level are the basis for factory categorization. This study examines four BC regions: 1) Okanagan (OK), 2) Central Interior (CI), 3) S.E. Kootenays (SE), and 4) the BC Coast (Co). The factory size classification is based on 2008 production in million board feet (mmbf), but also takes into consideration overall factory capacity. The classification is as follows: 1) Large (>200 mmbf), 2) Medium (60-199 mmbf), 3) Small (<60 mmbf). The factories interviewed for this study have a production output range from 0.4 mmbf to 390 mmbf per year and 2008 employment from 6 to 305 employees. In total, 22 factories were interviewed, 5 to 6 from each region. The study focuses on the period from 2001 (the expiration of the 1996 SLA) to 2008 (3 years into the 2006 SLA).

1.3 Data Collection

For this thesis, the lumber industry incorporates sawmills (321111) as classified in the North American Industry Classification System (NAICS). The BC lumber industry comprises operations including the manufacturing of dimension
lumber, structural lumber, boards, siding, and timber and poles. In the SLA, the
definition of softwood lumber is dimension lumber, flooring and siding. Sawmills
in the study were chosen from the BC Manufacturing Directory and Scott’s
Manufacturing Directory. Factories were contacted by telephone and interviews
took place at their site of operation. All factories interviewed have produced
products covered under the SLA.

The primary research component was semi-structured interviews.
Interviews were approximately one and a half hours in length and conducted in
person. They included a combination of open and closed questions regarding
decisions made in response to the trade dispute (see Appendix). Respondents
included owners, mill managers, human resource personnel and woodlands
directors. All responses were personal opinion but were judged to be important
reflections of factory or firm views. Some of the interview responses do coincide
with a firm’s position; this was often the case with smaller firms, as the owner
would partake in the interview process, while respondents with larger firms
generally reflected firm level beliefs. It is felt that the sample population is a good
representation of individuals working in small, medium and large operations, as
well as a variety of job titles in the different regions of the BC softwood lumber
industry.

Open questions allowed individuals to elaborate on thematic issues and
factory level responses most relevant to their specific situation. Closed questions
produced standardized qualitative and quantitative data, allowing for comparison
between factory sizes and regions. Some firms have more than one factory
involved in the study. Sawmills are not a generic entity and produce a variety of different products. In this study, sawmills are categorized as either Dimension mills, Specialty (cedar decking, panelling, and boards), Diversified or Custom Cut. Diversified mills may produce some dimension lumber, but it is not their primary product. Other products such as Metric, J-grade, timbers, and specialty cuts represent a significant proportion of diversified mills' output.

In addition, there were supplementary interviews with labour and lumber associations. These followed a similar format to the factory interviews. BC Statistics, Statistics Canada and Council of Forest Industries (COFI) provided industry level secondary data. Additional secondary data included annual reports made public by BC's largest public forest product firms (Canfor, West Fraser, Interfor and Western Forest Products).

The analysis of the data sheds light on how the softwood lumber trade conflict has affected factory and firm input and output location adjustments. These adjustments are important to understand, as there are ramifications for BC communities and the BC economy. Firms' responses to the trade dispute inevitably dictate the direction of the industry. Therefore, firm behaviour needs to be the basis for analyzing the impact of the trade dispute. This thesis provides an analysis of factory and firm behaviour to complement the large number of macro studies associated with the Canada-US softwood lumber trade dispute.
1.4 Thesis Organization

This thesis consists of four sections. Chapter 2 focuses on the political and economic nature of the softwood lumber dispute and related literature. Chapter 3 provides an analysis of provincial and regional trends in the BC sawmill industry based on secondary data. Chapter 4 is an analysis of factory and firm input and output adjustments based upon primary data collected in the summer of 2009. This chapter also examines trends relating to factory size and region. Chapter 5 is a summary and conclusion.
2: PARADOX OF THE SOFTWOOD LUMBER DISPUTE AND IMPLICATIONS FOR INDUSTRIAL ADJUSTMENT

2.1 Introduction

Free trade is not free. Rather there are transaction costs required to coordinate international markets and rules to ensure that these markets operate in an orderly and fair manner. Because free trade involves markets that cross political boundaries, these rules are especially contentious. Disagreements between countries are frequent, as governments often want both the benefits of free trade and to protect domestic industries when necessary. Trade disputes are essentially about the violation and/or interpretation of established or proposed trade rules. Disputes arise when one country enacts policy measures that another member deems inconsistent with established trade rules. These disagreements can be long lasting, as demonstrated by the decades’ long softwood lumber dispute. There are, however, dispute resolution systems in place, in both the North American Free Trade Agreement (NAFTA) and the World Trade Organization (WTO), as well as independent arbitrators such as the London Court of International Arbitration (LCIA). Indeed, the softwood lumber dispute stimulated the incorporation of a dispute resolution mechanism in the Canada-US Free Trade Agreement (CUSFTA). Dispute resolution findings, as well as the trade agreements themselves, have forced BC lumber producers to adjust their operations at the factory and firm level.
This chapter contains four sections. The first section examines free trade from a Canadian perspective, including a discussion of the development of trade organizations and their dispute settlement processes. The second section provides an historical framework of the Canada-US softwood lumber dispute. It elaborates upon the current and previous lumber agreements as well as the periods of litigation. The third section discusses the political agendas associated with the lumber dispute. Finally, the fourth section reviews policy studies and corporate responses associated with the lumber dispute.

2.2 Trade Organizations: NAFTA and the WTO

The consensus is that free trade with the US has benefited Canada and BC. Canadian exports to the US have risen from C$100 billion in 1988 to around C$350 billion in 2008 (BC Stats). Canada has maintained a visible trade surplus with the US since 1988; however, the Canadian share of US imports has decreased over the last 20 years (BC Stats). The Canada-US Free Trade Agreement (CUSFTA), signed in 1988, evolved into the North American Free Trade Association (NAFTA) with the inclusion of Mexico on December 8, 1993. The original objectives of these trade agreements were (Castel 1989):

1) to eliminate trade barriers to goods and services between the parties
2) improve fair competition within the free trade region
3) liberalize investment conditions
4) institute procedures for joint administration and resolution of disputes
The impact of free trade on the Canadian economy has been well-researched (see, Baldwin and Gu 2004, Trefler 2004, Andresen 2008, Andresen 2009). Trefler (2004) concluded that the CUSFTA affected Canada in three major ways: 1) employment loss, 2) productivity gains and 3) CUSFTA created more trade than it diverted, and raised aggregate welfare. Baldwin and Gu (2004) found similar results as they examined how Canadian manufacturing plants responded to tariff reductions. They found trade liberalization led to substantial growth in exports and plant productivity. Recently, Andresen (2008) examined the quality of trade between Canada and US and finds with the establishment of free trade, a shift from the lower to the higher end of quality trade.

NAFTA is one of the largest trading blocks in the world and while most goods flow freely across borders trade disputes do arise. Formal mechanisms for resolving trade disputes are included in the NAFTA: Chapter 11 covers disputes on investment, Chapter 19 issues associated with anti-dumping and countervailing duty laws, and Chapter 20 addresses disputes with respect to the general interpretation of the agreement (NAFTA 2010). Each chapter contains different methods and mechanisms for solving disputes. Chapter 19 in NAFTA generally covers complaints relating to the softwood lumber dispute.

In Chapter 19, a formal dispute arises when a complainant requests a panel review with the NAFTA secretariat. The secretariat establishes a five-member panel through national registers, two members from each country with the fifth member alternating for each dispute. The panel reviews countervailing
and antidumping duties to determine whether the relevant agency legally applied its nation’s laws (NAFTA 2010). The panel operates under the general legal principles of the country where the determination occurred. Panel decisions are binding. However, if a party feels the original panel’s decisions are affected by conflict of interest, incorrect procedures, or exceeds its authority under the agreement, the complainant can request an Extraordinary Challenge Committee (ECC) (NAFTA 2010). This involves a three person bi-national committee comprised of judges and former judges.

During the period 2001-2006, Canadian authorities and individual Canadian lumber companies sent complaints to the NAFTA secretariat regarding the US DoC determination and imposition of countervailing duties, anti-dumping duties and a threat of injury report. These cases spanned several years as each was remanded several times, meaning it was sent back to court with instructions about further proceedings.

In 1995, after the Uruguay Round of GATT, the WTO replaced the 1947 General Agreement on Tariffs and Trade (GATT). The WTO is a supra-national institution with established and trade governance procedures; it incorporates 153 sovereign nations and covers 97% of world trade (WTO 2010). It is a forum for governments to negotiate trade agreements, liberalize trade and resolve disputes (WTO 2010).

The WTO dispute settlement mechanism features the automatic establishment of panels to review complaints, a guideline for timelines, and the right to appeal to the Appellate Body (WTO 2010). Settling disputes is the
responsibility of the Dispute Settlement Board. The WTO encourages members to resolve disputes internally through consultation, mediation and discussion. Indeed, by 2005, only 130 of 332 cases had reached the full panel process (WTO 2010). If a case does run the full course it can take 12 months to complete, and if appealed, 15 months.

From 2000 to 2006, Canada initiated eight complaints to the WTO concerning softwood lumber trade to the United States (WTO 2010). These complaints primarily concerned US import restraints and countervailing duties. The SLA agreement of October 2006 settled or terminated all unresolved softwood lumber files.

The WTO provides only a quasi-legalistic framework, as its panel results are not binding. When a panel issues a ruling there is “no prospect of incarceration, injunctive relief, damages for harm inflicted or police enforcement” (Bello 1996), as the WTO relies upon voluntary compliance from its members. Consequently, as Castel (1989:122) puts it: “short of sanctions [against the US], an unrealistic possibility, Canada will have to rely upon the good faith of its partner”. Davey (2005) concludes that the operational aspects of the WTO dispute settlement mechanisms have worked reasonably well in providing a platform for dispute resolution. Bello (1996) argues there is a degree of flexibility in the WTO system that allows for the exercise of national sovereignty, while endorsing compliance through incentives. Historically, sovereign nations generally choose to cooperate with trade partners and comply with WTO final determinations, as it is in their best interest to stay connected and in good
standing in the interdependent global economy (Bello 1996). Nations still have sovereignty, as they can act against the WTO rules; however, most nations comply for a number of reasons, including:

1) benefits when other nations comply with WTO rules
2) loss of international credibility if they do not comply
3) potential retaliations can cause damage to economic interests
4) potential to decrease international cooperation (Bello 1996)

Adherence to supranational trade organizations involves a balance between the loss of autonomy and economic benefits. Clarkson (2003) suggests that the discrepancy between lost autonomy and gained benefits depends on a nation’s place in the global hierarchy, as there are discernible differences between the positive and negative impacts of free trade on individual nations. With respect to the Canadian and American trade relationship, the US has greater political power and a stronger bargaining position, because Canada, as an exporting country, is dependent upon US markets (Andresen 2010). For Canada, concessions of political autonomy are acceptable because of assured access to American markets. Castel (1989) concludes that legalistic models adhering to the rule of law serve Canada better, as a smaller economy.

The free trade agreement unfortunately has not provided unobstructed access to the US market for softwood lumber; rather, lumber trade continues to operate through a managed trade agreement that includes export taxes and quotas. The softwood lumber dispute has its own inner dynamic and, while trade
in other commodities between Canada and the US has improved, softwood lumber remains shackled with constraints.

### 2.3 The Softwood Lumber Dispute – An Historical framework

The contemporary trade dispute started in 1982, when the Council for Fair Lumber Imports\(^1\) (CFLI) petitioned the Department of Congress (DoC) claiming the Canadian forest industry is subsidized. This attack on Canadian forest policies was in response to the early 1980s recession, when Canada’s lumber market share within the United States rose to over 30%. The CFLI argued that the growth in US market share achieved by Canadian and especially BC producers was due to subsidized low stumpage rates. Stumpage rates are the fees administered by provincial governments and paid by forest companies to obtain the rights to harvest Crown timber.

The American argument is that trade restrictions are the only way to create a ‘fair’ and ‘level playing field’ for American producers (Yin and Baek 2002). From the US perspective, managed trade will be the only viable solution to the softwood lumber problem unless Canada changes its stumpage pricing system. The Canadian view is the US position is outright protectionism, solely intended to reduce Canadian lumber imports. This gets to two key issues at the heart of the softwood lumber problem. First, Canada and the US have fundamentally different forest policy structures, stemming from the proportion of public land (95% in Canada), to private land (70% in the US). This structural

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\(^1\) The organization was originally called Council for Fair Canadian Lumber Imports; the ‘Canadian’ was subsequently dropped.
difference has led to the development of different timber pricing systems. The American argument is the Canadian stumpage system is not price-oriented and, as a result, does not constitute a viable market pricing system. The second issue is Canada and the US disagree on what constitutes a countervailable government subsidy, as well as on the appropriate methodology to determine the appropriate duty, if a subsidy does exist (Kennedy 2006). A CVD is a duty administered by the importing country to negate subsidies in the exporting country (Quayat 2009).

There are two distinct and conflicting national positions with respect to the trade in softwood lumber. First, Canada, as a nation, has the right to control national resource policy and implement a stumpage system that meets Canadian needs. Second, the United States, as a nation, has the legal right to refuse trade or impose CVD’s or anti-dumping duties on a trading partner, if it deems economic injustice or injury is occurring to their domestic industry (Quayat 2009). Canada maintains their stumpage system is market oriented. Stumpage calculations are complicated and the WTO and NAFTA have produced conflicting findings concerning whether Canada subsidizes the softwood lumber industry. The US has nevertheless carefully expanded the definition of softwood lumber to close any perceived loopholes that Canadian producers could exploit.

Over the decades, the US has forced Canada to accept a variety of softwood lumber trade agreements. This, however, has not stopped US litigation. Four periods of litigation commonly categorize the softwood lumber dispute: Lumber I, II, III, and IV. Bilateral trade agreements in 1986, 1996 and
2006, punctuate these periods. The following sections review the chronology of the softwood lumber dispute.

**Lumber I:** The softwood lumber dispute started in 1982 when the CFLI petitioned the DoC to impose countervailing duties on Canada under the US CVD law, claiming that the Canadian stumpage fee represented a subsidy and materially injured the US lumber industry. The DoC found the Canadian stumpage system was not *specific* to any one industry and as a result was not countervailable.

**Lumber II:** In 1986, the US lumber industry filed a new countervailing duty petition on the same basis, arguing that stumpage fees undervalued the market price for standing timber. There had been no changes in provincial policies and stumpage fees. However, there had been a change in US law. The new legislation made input product subsidies countervailable in situations where they lowered the cost of the final product (McKinney 2004). The DoC found that Canadian subsidies existed and set a 15% provisional duty. It was at this time that Canada and the US agreed to the MOU, which lasted from 1986-1991, and Canadian producers paid a 15% export tax on softwood lumber.

**Lumber III:** In 1991, Canada terminated the MOU as provincial governments had increased stumpage fees and implemented other changes to forestry management practices (McKinney, 2004). The DoC responded by self-initiating
a countervailing duty investigation, and again it imposed countervailing duties. In response, Canada appealed the ruling to the bi-national panel organized under CUSFTA. The panel found there was not enough evidence to support the DoC’s ruling. Canada incurred large litigation costs to win Lumber III and a negotiated solution was a manageable option to eliminate further litigation. Under pressure from the CFLI, Canada and the US signed the 1996 SLA. The agreement required Canada to collect an export tax of $50 per thousand board feet (mbf) once annual lumber exports exceeded a threshold of 14.7 million board feet (mmbf), and $100/mbf on annual exports in excess of 15.35 mmbf. The agreement also stated the US could not take any legal action against Canada, such as CVD’s, as long as Canada adhered to the SLA. This agreement lasted from 1996 to 2001.

The next two sections present Lumber IV and the 2006 SLA in detail as they encompass the study period examined (2001 to 2008).

2.3.1 Lumber IV

When the 1996 SLA expired in April 2001, the CFLI filed countervailing duty and anti-dumping petitions against Canada, requesting a 40% CVD and a 28-38% AD\(^2\) (anti-dumping) duty. The DoC, after twice extending its preliminary determinations, established a 19.3% CVD and 12.6% AD duty for combined

\(^2\) In international trade law, dumping is defined as a manufacturer exporting a product at a price which is either below its costs of production or below the price charged in the home market (Quayat 2009).
duties of 31.9% (dropped to 27.2% with the DoC’s final determination in April 2002). Canada appealed the preliminary CVD determination to NAFTA and the WTO. The WTO ruled Canadian stumpage prices can constitute a subsidy, but the US cannot determine the level of subsidy using cross border comparisons (Random Lengths 2009). In September 2003, a NAFTA panel, citing “extensive lack of analysis” ruled the US must remand the CVD case. In April 2004, for a second time, the NAFTA panel remanded the US threat of injury case. The panel stated the International Trade Commission (ITC) did not prove Canadian softwood lumber imports threatened the US softwood lumber industry with material injury. The threat of injury case is significant; as the US cannot legally collect duties if they cannot prove Canadian lumber imports injure or threaten to injure the US lumber industry.

The lumber dispute continued to wind through NAFTA decisions, but the ITC accused the NAFTA panel of “overstepping its authority, violating the NAFTA, seriously departing from fundamental rules of procedure, and committing legal errors” (Random Lengths 2009:18). In December 2004, the DoC once again lowered duties on Canadian lumber shipments to the US from 27.2% to 21.2%. In August 2005, the NAFTA ECC ruled Canadian lumber imports did not pose injury or threat of injury to the US lumber industry, and the US could not legally collect duties. However, the US continued to collect duties as a previous ruling by the WTO declared Canadian lumber imports did in fact threaten US lumber producers with injury. In December 2005, for the fifth consecutive time, the DoC lowered its combined CVD and AD to 10.8%.
During this litigious period, panels under NAFTA Chapters 11 and 19 and the Dispute Settle Understanding of the WTO rendered 26 decisions on softwood lumber, while Canada paid $5.5 billion in cash deposits held in trust at US customs (Quayat, 2009). It is difficult to assess “who” won these cases, as generally both Canada and the US claimed victory with every ruling. The Lumber IV period ended in April 2006 when Canada and the US signed a tentative softwood lumber agreement that incorporated export taxes and quota restraints.

2.3.2 2006 SLA

The SLA, implemented on October 12, 2006, is the third major softwood lumber agreement since 1982. The agreement holds for seven years with an option to extend for an additional two years. Canada and the US decided to utilize a dispute resolution process outside of North America: the London Court of International Arbitration (LCIA). The LCIA is one of the largest international institutions for resolution of commercial complaints, and governed by universally applicable arbitration rules. The SLA states LCIA rulings are final and binding and cannot be appealed or reviewed. The agreement includes a termination clause allowing either party to withdraw with 6 months notice. Termination of the SLA would result in one calendar year of free trade.

The basis of the 2006 agreement is a commitment by the Canadian government to impose export tax and quotas on softwood lumber exports to the US. The export tax and quotas shield US lumber producers from Canadian competition. They only come into effect once the prevailing price of lumber-defined by the agreement as “the most recent 4 week average of the weekly
The framing lumber composite\textsuperscript{3} falls below $US 355 per 1000 bf (SLA 2006:Annex 7A). The agreement is two-tiered, as each province included in the SLA selects either an export tax (Option A) or a quota (Option B) on US bound lumber (Table 2.1) (The agreement is actually three-tiered, as the Maritime Provinces, the Yukon, the Northwest Territories and Nunavut are excluded from the SLA\textsuperscript{4}). Further complicating the agreement is that all regions have volume restraints. Option A regions can exceed their base allocation but will pay higher taxes, while Option B regions have a quota plus an additional export charge.

<table>
<thead>
<tr>
<th>Price/1000 board feet</th>
<th>Option A: Export Charge</th>
<th>Option B: Quota and Export Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over US $355</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>US $336-355</td>
<td>5%</td>
<td>Regional share of 34% US consumption + 2.5%</td>
</tr>
<tr>
<td>US $316-335</td>
<td>10%</td>
<td>Regional share of 32% US consumption + 3%</td>
</tr>
<tr>
<td>US $315 and under</td>
<td>15%</td>
<td>Regional share of 30% US consumption + 5%</td>
</tr>
<tr>
<td>Provincial selection</td>
<td>B.C., Alberta</td>
<td>Ontario, Quebec, Manitoba, Saskatchewan</td>
</tr>
</tbody>
</table>

Option A: Retroactive surcharge of 50% if volume of regional shipments exceeds 110% of base allocation  (Adapted from Article VII, 2006 SLA)

The BC Coast, BC Interior and Alberta selected Option A: an export tax up to 15%, depending on monthly lumber prices, and an additional 50% tax if monthly exports exceed 110% of base allocation. Base allocation is calculated for each region’s share of the US market by “multiplying 34% by the Region’s share of total Canadian exports of Softwood Lumber to the United States during the period January 1, 2004 to December 31, 2005” (2006 SLA: Annex 8.5)(Table 2.2

\textsuperscript{3} The framing lumber composite is a weighted average of fifteen structural lumber prices.

\textsuperscript{4} In addition, 32 individual companies are excluded from the agreement: 29 from Quebec and 3 from Ontario.
and 2.4). The definition of US consumption is the sum of Canadian softwood lumber exports to the US plus US softwood lumber imports from other countries, plus US shipments of softwood lumber, minus US exports of softwood lumber (SLA 2006). Base allocation remains fixed in each region for the duration of the agreement. It denominates their allowable percentage of US monthly consumption. The regional trigger volume (110% of base allocation) takes into account Expected Monthly US Consumption (EUSC)\(^5\), and determines the volume of exports at which each region must pay the additional 50% tax. The regional trigger volume is the product of monthly EUSC, the region’s base allocation of US market share and the number 1.1. The number 1.1 creates a volume of 110% of base allocation for each region.

Table 2-2 Option A: Regional Percentage share of US Consumption

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage Share of US Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.C. Coast</td>
<td>1.86</td>
</tr>
<tr>
<td>B.C. Interior</td>
<td>17.43</td>
</tr>
<tr>
<td>Alberta</td>
<td>2.49</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>0.42</td>
</tr>
<tr>
<td>Manitoba</td>
<td>0.29</td>
</tr>
<tr>
<td>Ontario</td>
<td>3.15</td>
</tr>
<tr>
<td>Quebec</td>
<td>4.39</td>
</tr>
</tbody>
</table>

(Table 1 of Annex 7D, SLA 2006)

A hypothetical example for the BC Interior helps explain the export tax. If the price of lumber is $300 per 1000bf, the BC Interior pays a 15% export tax on all lumber exported. However, if the BC Interior exports more than its regional trigger volume (EUSC x Base Allocation x 1.1), the whole month’s shipments are

\(^5\) EUSC=[USCR/12]x SAF (where USCR is the US consumption for the latest 12 month period and SAF is a seasonal adjustment factor as specified in Table 1, Annex 7D in the 2006 SLA).
retroactively taxed 22.5%. If the price of lumber is $340 per 1000bf, the BC Interior pays a 5% export charge and a 7.5% export charge if it exports more than its regional trigger volume.

Option B is a quota restriction plus an export tax. Saskatchewan, Manitoba, Ontario and Quebec selected Option B. At each price level ($315, $335, $355), a region can export its base allocated regional share of either 30-32-34% of EUSC (Table 2.1). The calculation of a region’s monthly quota volume (RQV) is the product of the monthly EUSC, the region’s share of US consumption, and a price adjustment factor (PAF). The PAF limits export volume to the US when the price of lumber is low (Table 2.3). The RQV is calculated each month.

Table 2-3  Price Adjustment Factor for Option B Quota.

<table>
<thead>
<tr>
<th>Framing Lumber Composite Price</th>
<th>PAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>$US 336 or over</td>
<td>1</td>
</tr>
<tr>
<td>$US 316-335</td>
<td>(32/34)</td>
</tr>
<tr>
<td>$US 315 or under</td>
<td>(30/34)</td>
</tr>
</tbody>
</table>

(Table 2 of Annex 7B, SLA 2006)

In addition to volume restraints, an export charge of either 2.5%-3%-5% is administered for all transactions when lumber prices fall below the $355 threshold (Table 2.1). Furthermore, a region can carry back (or borrow) from the next month a volume equal to 12% of its monthly quota volume (2006 SLA).

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6 The Canadian Department of Foreign Affairs and International Trade records and updates lumber shipment data so firms are aware of how close their region is to the surcharge level for Option A or volume quota for Option B.
Table 2-4  Option B: Regional Percentage share of US Consumption

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage Share of US Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.C. Coast</td>
<td>1.79</td>
</tr>
<tr>
<td>B.C. Interior</td>
<td>16.59</td>
</tr>
<tr>
<td>Alberta</td>
<td>2.63</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>0.46</td>
</tr>
<tr>
<td>Manitoba</td>
<td>0.31</td>
</tr>
<tr>
<td>Ontario</td>
<td>3.34</td>
</tr>
<tr>
<td>Quebec</td>
<td>4.86</td>
</tr>
</tbody>
</table>

(Table 1 of Annex 7B, SLA 2006)

A hypothetical example for Ontario helps explain the quota option. If the price of lumber is $300 per 1000bf, Ontario can export \( \text{RQV} = \text{EUSC} \times 3.34 \times 30/34 \). In addition, Ontario pays a 5% export tax. If the price of lumber is $330 per 1000bf, Ontario can export \( \text{RQV} = \text{EUSC} \times 3.34 \times 32/34 \) and pays a 3% export tax.

Despite the SLA, inefficiencies and ambiguities persist. The retroactive surge mechanism for Option A is a source of discontent, as Canadian firms must operate on a month-to-month schedule, instead of setting quarterly or yearly production goals. There is also ambiguity in the definition of lumber. Two BC firms, Gormon Bros. and Wynndel Box and Lumber, have gone through the NAFTA dispute settlement process in an attempt to exempt their products from the agreement (NAFTA 2010). Both challenged a March 3, 2006 DoC decision that certain ‘end-matched’ lumber products entering the US fell under the scope of softwood lumber imports. In 2008, NAFTA ruled against the two firms. It was

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7 End-matched means that ends of lumber products are tongue and grooved.
determined that the products are ‘lumber’ as defined in the SLA and are thus subject to export taxes.

NAFTA has taken the position that all issues relating to softwood lumber have been resolved with the 2006 SLA, rendering all complaints moot. The LCIA settles all complaints associated with the 2006 SLA. In 2008, the US complained Quebec and Ontario were not administering export restraints appropriately. The LCIA found in favour of the US, and the Canadian federal government offered to pay the US $46.7 million dollars in compensation. The LCIA rejected the Canadian proposal to fix the breach and declared the fees are the responsibility of each firm (Office of the US Trade Representative 2009).

The 2006 agreement may set the stage for managed trade over the next 7-9 years, but it also reveals the underlying structural disagreements concerning softwood lumber, disagreements that flow in part from the parties’ institutional and political agendas.

2.4 Political Agendas

The softwood lumber dispute highlights US dominance in North American trade relations and its ability to manipulate Canadian trade and resources. This power dynamic is clear in the fact that despite the dire straits of the lumber industry in the economic downturn of 2008/9, the Canadian government is afraid to introduce budget measures to help the struggling forest industry for fear of breaching the SLA and triggering US retaliation (Brethour, 2008). In fact, in the SLA, the Canadian government gives the US veto power over changes to
Canadian forest policy. Clearly, for Canada, maintaining access to US markets is paramount.

Canadian economic policies perpetuate US dominance by structuring the Canadian economy around US exports. Indeed, Thorpe and Sandberg (2007) argue that federal and provincial bargaining with the US for a “fair” softwood lumber agreement continues Canada’s role as staple supplier to the US. Furthermore, Canadian and US economic integration involves a division of labour between the two countries, in which Canada is the resource supplier (Hayter 1992, 2002). Ciccantell (2001) argues NAFTA structures the trade of raw materials to flow towards the US and raw material industries played a significant role in US strategic efforts to ensure continental integration. While lumber is important to the US economy, other Canadian resources such as energy, natural gas, oil, potash, uranium and water, may become increasingly so. It is possible the US will draft similar types of managed trade agreements for other resources and press them on Canadian governments.

Political agendas dramatically affect the business climate for specific industries. Stephen Harper (elected Prime Minister of Canada in February 2006) promised to improve relations with US lumber traders. A deadline for the US to invoke an ECC through NAFTA for the CVD case was set for April 27, 2006. Canada and the US tentatively agreed upon the SLA, on the eve of this deadline. The timing is important, as Canada expected a positive ruling in American courts. In July 2006, a US court ruled that the US could not legally collect duties on Canadian lumber imports. The day after the SLA came into effect, the US Court
of International Trade (CIT) determined the US must refund all deposits collected on Canadian softwood lumber imports (Quayat 2009). However, the SLA included a clause stating $1 billion of the collected duties would remain in the US, rendering the CIT decision moot. Furthermore, under the SLA, the CFLI receives $500 million, the lobby group who originally petitioned for duties on BC and Canadian softwood lumber (SLA 2006). With the SLA, the Canadian lumber industry gives half a billion dollars to the organization actively disrupting the flow of lumber from Canada to the US since 1982. The Canadian lumber industry is concerned the CFLI’s ‘war chest’ is full. The worry is the CFLI will accuse the Canadian softwood lumber industry of subsidization and the litigation process will commence again after the expiration of the SLA.

The softwood lumber dispute was an important issue in Harper’s 2006 election campaign. The agreement highlights how ‘Canada’ and political relationships can be chosen over a specific industry. According to Doug Waddell, a Canadian negotiator during Lumber IV, the reasons for the 2006 agreement were very similar to those for the two earlier agreements: 1) broader Canada-US issues, 2) assuring refunds of deposits and 3) avoiding countervailing duties and anti-dumping duties (Mach and Shaw 2007).

The lumber industry did attempt to defend itself. Individual firms such as Canfor, Tembec and Terminal Forest Products, for example, battled through NAFTA’s dispute settlement process. In addition, industry associations such as the BC Lumber trade council and the Council of Forest Industries (COFI) paid tens of millions of dollars to fight US duty charges from 2001-2006. There is,
however, disagreement within the BC lumber industry between firms who believed managed trade would be the best course and those who believed continued litigation would work. David Emerson, Canada's chief negotiator in the 2006 Agreement and a former CEO of Canfor, could well have viewed the softwood lumber industry from the perspective of a large firm for he negotiated a settlement benefitting larger firms.

Another large company, Weyerhauser, an American firm operating in Canada, lobbied strongly for an agreement and even threatened to shut down operations without one (Mach and Shaw 2007). In fact, even after the agreement, Weyerhauser closed mills in B.C, and consolidated its BC lumber operations into one Princeton sawmill. Many multinational firms such as West Fraser, Canfor and Western Forest Products have invested significant portions of their returned duties, not in Canada, but in the US. This is a hedging strategy to protect against tariffs and antagonistic US behavior.

Despite softwood lumber agreements, the US always reserves the right to ignore NAFTA and WTO rulings, and impose barriers when required (McKinney, 2004). This disregard for international regulations, and Canada’s powerlessness in the face of it, is a function of US dominance in bilateral trade. The US insists on Canada’s compliance with treaties, but will comply itself only when it serves its best interest. As van Kooten (2001 in Devadoss et al. 2005:180) observes, the US-Canada lumber dispute “has little to do with economic efficiency, but everything to do with politics.”
2.5 Policy and Corporate Responses to the Softwood Lumber Dispute

The crux of the lumber disagreement between Canada and the US remains entrenched in the different national forest policies. The US has argued provincial governments do not charge firms appropriate stumpage when they log on Crown land. Spelter (2006) claims that during 2000-2005 an average market-dependent mill in the US South would incur a 25% cost disadvantage in timber procurement compared to Canadian mills. The Canadian counter-argument is Canada’s stumpage system is based upon timber license holders bearing the burden of forest management costs, such as silviculture, reforestation and road building charges, and distance to markets are much greater than in the US (Spelter 2006, Sedjo 2006).

The comparative value pricing (CVP) system Canada previously used to determine stumpage was established in 1987 and modified in 1994. The CVP calculated stumpage by adding the base rate of a stand ($/m³) to the value index of the stand, and subtracting the mean value index of all stands (Niquidet and van Kooten 2006). The base rate was determined by the provincial government’s revenue target. The CVP utilized an ad valorem approach, calculating total stumpage as a percentage of lagged lumber prices, as calculated in the value index (Grafton, Lynch and Nelson 1998). The US DoC has been critical of the (CVP) system to set stumpage rates and stressed stumpage fees need to be based on information from a sufficient amount of timber sold in market auctions.
In response to continued American criticism, a regression approach to stumpage appraisal in the form of transaction based evidence (TEA) market pricing system was established in 1999. The TEA market pricing system was modified with the inception of the BC Forest Revitalization Plan in 2003. The central element of the revitalization plan was a redistribution of tenure, as the government shifted 20% of the timber held under long term licenses to short term tenures distributed through auction (Niquidet 2007). The changes in BC forest policy were a direct response to US criticism, designed to create a competitive market for timber in which market prices could be incorporated into the calculation of administered stumpage prices. Even though forest policy reform may provide long term economic benefits through a more transparent stumpage appraisal system and the removal of appurtenancy, Niquidet (2007) found that the new policies were ‘damaging’ to the industry in the short term.

The redistribution of timber into an auction system has led to concerns about varying levels of competition. Niquidet and van Kooten (2006) found there was a varying degree of competition throughout the province at timber auctions. The Northern Interior was uncompetitive with reduced bids for standing timber, while the Southern Interior region was competitive. The explanation behind the lower bids in the Northern Interior region was attributed to fewer firms in the region and significant barriers to entry for new bidders. Their recommendations include the creation of an ‘upset rate’ for uncompetitive regions, artificially raising bids to their true value. Furthermore, Niquidet and van Kooten (2006)

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8 Appurtenancy clauses were embedded in long term tenure contracts where in exchange for harvesting rights firms had to build and maintain mills in the communities where the timber was logged (Parfitt 2005).
recommend the relaxation of log export restrictions. While admitting the political sensitivity of the issue, they argue that log exports provide benefits on a competitive level which will be translated to more competitive standing timber auctions.

While Niquiedet and van Kooten (2006) argue for reducing log export restraints in BC, Parfitt (2007) associates log exports with employment loss. In BC, logs exported to the US and other markets are taxed a fee in lieu of manufacturing, which varies with tree species and region. However, logs are considered in excess supply and can be exported free of charge if they were up for sale and not purchased\(^9\). Raw log exports have risen from an annual 2.68 million m\(^3\) in 2000 to 4.7 million cubic meters in 2006 (Parfitt 2007). Parfitt (2007) calculates 5872 jobs were lost in 2005 and 5756 in 2006, as a direct result of increasing log exports to the US (and not processing those logs into lumber in BC mills). However, Dumont and Wright (2006) emphasize a complex array of interconnected factors affecting the net employment from log exports. These include employment related to harvesting, processing and export preparation. Furthermore, the relationship between the lumber price, log prices, harvest levels and other macro-economic conditions affect net employment. Nevertheless, an argument exists the 2006 SLA promotes log exports as a strategy of avoiding the export tax.

Grafton, Lynch and Nelson (1998) claim, BC’s stumpage system does not affect softwood lumber exports. According to Grafton et al., firm behaviour is

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\(^9\) Logs are exempt from the scope of the 2006 SLA
unaffected as long as economic rent captured corresponds to a surplus over and above what is required for firms to remain in the industry\textsuperscript{10}. As a result, the failure of government to collect total economic rent should not affect the quantity of lumber exported to the US. However, the inability of the BC government to collect the full economic rent may have led to increased investment in capital and capacity in the industry. In the long run, labour and capital are (imperfect) substitutes, and improvements in technological efficiency may have triggered a reduction in total employment (Grafton et al 1998).

Nagubadi and Zhang (2006) examined relative prices, relative productivity levels\textsuperscript{11} and competitiveness in sawmills and the wood preservation industry in the US and Canada between 1958 and 2003. They found, initially, higher relative productivity levels in Canada. Relatively lower prices of materials, capital and energy inputs due to a low Canadian dollar enhanced the competitiveness of the Canadian industry. However, this comparative advantage is shrinking as the US industry becomes more productive. Nagubadi and Zhang claim that Canada’s relative productivity levels have been lower than those in the United States since 1994. They argue current productivity levels in the Canadian lumber industry are due to the low Canadian dollar and the development of long-term productivity growth is essential for the Canadian lumber industry to remain competitive.

\textsuperscript{10} With respect to the forest industry, the definition of economic rent is “the returns to harvesters over and above all their costs of production while allowing firms an acceptable rate of return on capital (Grafton et al. 1998: 42).”

\textsuperscript{11} Relative productivity levels measured in a bilateral translog production function using input quantities of labour, capital, energy and materials.
Many external variables have been shown to play an integral role in the profitability of BC sawmill firms and the lumber market. The Canadian dollar has appreciated from 0.63 US$ in 2003 to near parity in November 2010, a major factor in profitability for BC mills (Nagubadi and Zhang 2006, Bolkesjo and Buongiorno 2006). A low valued dollar benefits Canadian exporting firms, while a high value dollar is detrimental. Bolkesjo and Buongiorno (2006) found, in the short run, changes in exchange rates act similar to a price shock and substantially affect the quantity of lumber traded. Other factors influencing the lumber market include demand factors (housing starts (particularly US), lumber and log prices, interest rates, and disposable income (Baek and Yin 2006)) and supply factors (forest policy changes and quality of timber supply (Kukucha, 2005)).

Baek and Yin (2006) examined the trade impacts of both the 1986 MOU and the 1996 SLA. Their results show Canadian exports dropped by roughly 8.5% during the 1986-1991 agreement, and US production rose 3%. For the period 1996-2001 they discovered that the 1996 SLA “did not have any significant impacts on the lumber market” (Baek and Yin 2006:390). However, they ignored other important markets such as Japan and Europe. From a Canadian perspective, Gulati and Malhotra (2006) highlight significant regional trade-diverting effects associated with the 1996 SLA. During the five year agreement, total exports of softwood lumber from the named SLA provinces (BC, Alberta, Ontario, Quebec) declined by 5% while total exports from the non-
named provinces rose 75%. The dramatic rise in non-named province exports was a factor in the inclusion of all provinces in the 2006 SLA.

Many studies have examined overall welfare impacts of the dispute. Zhang (2001) found a redistribution of wealth from US consumers to US producers and Canadian producers due to the 1996 agreement. The net overall effect on the US was negative, as the costs to US consumers were higher than the gains received by US producers. For Canada, the net result was positive because, even though Canadian producers lost some of their export volume, they gained dramatically from higher lumber prices.


There is evidence, however, that duties protect US domestic production. A spatial equilibrium model examining changes in world trade flows due to the 1996 SLA showed tariffs successfully limited imports from Canada, while US production increased (Devadoss, Aguitar, Shook and Araji 2005). Still, US production did not completely replace lost Canadian imports, as other lumber exporting nations filled a portion of US demand. Devadoss et al. (2005) found
the volume of trade between Canada and the US is large enough to affect global softwood lumber market conditions. While US production increased, the US actually incurred an overall welfare loss, as US consumer surplus loss (higher prices for consumers) outweighed US producer surplus gain (higher revenues for US producers) and tariff revenues.

Hayter (1992) provides one of the few firm level analyses of the BC softwood lumber industry and firm responses associated with the trade dispute. He examined regional differences between the BC Coast and BC Interior with respect to location adjustments to export markets, products, costs and flexible technologies in response to the lumber dispute. Hayter found the restrictions placed on US market access led to expansion of other export markets (most notably Japan), and production increases of higher value products. Nevertheless, the BC lumber industry remains dependent on the US market, despite ongoing trade conflicts.

Parfitt (2008) and Nagubadi and Zhang (2006) call for new value-added products and the diversification of British Columbia’s forestry export base. This plea is not new. Hayter (1992) points out the 1982 downturn in the forest industry provided a stimulus to reduce the industry’s overwhelming dependence on US markets and develop new markets and new products, yet very little has changed in the intervening years, as new product development is limited and dependence on the US market remains.
2.6 Conclusion

The softwood lumber dispute is complex and the economics of the lumber industry have become lost in legal and political wrangling. The BC lumber industry’s overwhelming dependence on the US economy nevertheless makes the softwood lumber dispute of critical importance. The following chapter examines trends in the BC softwood lumber industry from 2001 to 2008.
3: INDUSTRIAL ADJUSTMENTS AND TRENDS IN THE BC LUMBER INDUSTRY

3.1 Introduction

This chapter examines the BC softwood lumber industry at three different levels. These levels include provincial, regional (Coast vs. Interior) and large publicly owned forest product firms. Its purpose is to assess the changes and trends that have emerged at all three levels because of trade restrictions, industry restructuring and recession in the period 2001-2008.

From 2001 to 2008, the BC softwood lumber industry experienced profound restructuring. From 2001 to 2006, the industry suffered through litigation and uncertainty as the US collected $5.5 billion in duties. In 2006, a new SLA was signed involving tariff restrictions but also securing US market access. The volume of lumber exports actually expanded from 2001 to 2005, buoyed by a low Canadian dollar and expanding US demand, but these halcyon days did not last. The period 2006-2008 saw the implementation of the SLA as well as negative macro economic factors, including a declining (and eventually bursting) US housing bubble, a dramatic rise in the value of the Canadian dollar, and a global financial crisis. The SLA brought some degree of certainty to the Canadian lumber industry, but access to the US market remains constrained by export taxes and quotas. Figure 3.1 shows the different price levels of lumber associated with the different levels of taxation.
The SLA ensures that during any contraction in US demand, imports (which are largely Canadian) absorb the reduction in US consumption so US domestic production can remain constant. The price of lumber was below $315 US for the period 2006-2008 and BC lumber producers have paid over 960 million dollars in export taxes between October 2006 and December 2008. This system, where export tax rises or quota falls as lumber prices fall, is protectionist to its core.

This chapter refers to two distinct periods: the period of litigation (2001-2006) and a period of managed trade under the SLA (2006-2008). Canada and the US agreed upon the SLA, in April 2006, but it did not become an official agreement until October 2006. As a result, 2006 included both litigious activities and managed trade. For this thesis, 2006 is the end of the period of litigation as well as the starting point for the period of managed trade.

This chapter contains four sections. The first section examines BC sawmill industry trends at the provincial level during the period of litigation from...
2001-2006 and after the signing of the 2006 SLA until 2008. The second section addresses investment trends in the two major lumber producing regions of BC, the Coast and the Interior. The third section addresses the changes in timber supply affecting the BC forest industry. The final section examines how the four largest publicly traded forest product firms in BC have adjusted during the period 2001 to 2008.

3.2 Industry Trends in Employment, Output and Exports (2001-2008)

3.2.1 Lumber IV (2001-2006)

Uncertainty filled Lumber IV (2001-2006), as the Canadian and American governments fought over access to the US lumber market. Even though this period exhibited ambiguity in duty charges and litigation measures, there was unprecedented growth in the US housing market.

From 2001 to 2006, BC lumber production increased 26%, from 32.6 million cubic meters (m³) to 41.05 million m³ (Figure 3.2). The regional distribution of lumber production exhibited change as Coastal production fell 26% and Interior production rose 41%. The percentage distribution of total BC production shifted from 77% Interior and 23% Coast in 2001 to 86.5% Interior and 13.5% Coast in 2006. Even as total lumber production continued to increase, employment in the wood product-manufacturing sector fell just over 8% from 48,900 in 2001 to 44,800 in 2006.
As figures 3.3 and 3.4 illustrate, there are differences between changes in the quantity of exports and the changes in the value of lumber shipments. From 2001 to 2006, lumber exports increased 25%, from 26.3 million m³ to 32.8 million m³. However, the value of lumber shipments (exports) decreased 11% over the same period from $6.6 billion in 2001 to $5.85 billion in 2006. The production of lower valued products associated with processing timber damaged by the mountain pine beetle helps explain the decrease in value.
Log exports increased from $340 million in export value or 3.5% of total wood exports in 2001 to $490 million in export value in 2006 or 5.6% of total wood exports (Figure 3.5 and 3.6). It is difficult to determine the precise reasons for increases in log exports; one possibility is the punitive duties on softwood lumber caused firms to shift production away from manufacturing and to export logs in order to circumvent duty charges. There was no significant industry movement towards the selected value added products segment, as its export value remained consistent at $1 billion and 10% of BC wood product exports (Figure 3.5 and 3.6). The selected value-added category includes prefabricated houses, doors, windows, furniture and mouldings. It does not include any panel products, shakes, shingles, or pulp and paper products (BC Stats).
The US is the largest consumer of softwood lumber in the world. In 2001, US domestic demand was 53.1 billion board feet (bbf), increasing to 60.8 bbf in 2006 (Risi 2009). The share of imports in US lumber consumption remained consistent at 37-38% during this time, but the regional composition of US softwood lumber imports changed as Canada lost market share, dropping from 91% in 2001 to 79% in 2006 (Figure 3.7). Countries responsible for eroding
Canada’s US market share were Chile, Germany, Brazil, New Zealand, Austria and Sweden (Figure 3.8).

**Figure 3-7** Percentage Distribution of US Imports of Softwood Lumber

*Value of Imports in $US (FAS)*

**Figure 3-8** Percentage Distribution of US Lumber Imports, Excluding Canada

*Value of Imports in $US (FAS)*

Even though Canada lost US market share, BC softwood lumber exports to the US grew slightly, from 72% to 73%. During this period of high US demand, other BC export markets stayed relatively constant, with the exception of Japan,
which dropped from 22% of all softwood lumber exports in 2001 to 17% in 2006. Canadian domestic demand grew 600 mmbf, an increase of 5.5% (Risi 2009).

Uncertainty filled the period of litigation with rising funds escrowed at the border and mounting legal fees. In spite of this difficult environment, in 2004, the BC lumber industry recorded its largest value of shipments for softwood lumber exports ever; while in 2006, the BC lumber industry was able to produce its
largest volume of lumber ever. The next section examines the period of 2006-2008 and trends in BC softwood lumber industry.

3.2.2 The SLA Period (2006-2008)

In 2006, the US housing market started to slow down and, in 2008; the US economy fell into recession. Within the parameters of the new SLA, the BC lumber industry had to adjust. Employment in the BC wood product-manufacturing sector declined 39%, a substantial reduction from 44,800 in 2006 to 27,200 in 2008. As employment fell, total lumber production decreased as well. From 2006 to 2008, BC lumber production fell 31%, from 41.05 million m³ to 28.2 million m³ (Figure 3.2). Coastal production fell 42% and Interior production fell 29%. The percentage distribution of total BC lumber production continued to shift towards the Interior as, in 2006, 86.5% of lumber production occurred in the Interior and 13.5% Coast while, in 2008, 89% was produced in the Interior and only 11% on the Coast.

Since 2006, the quantity and value of lumber shipments have been in decline (Figures 3.3 and 3.4). From 2006 to 2008, lumber exports decreased 35%, from 32.8 million m³ to 21.2 million m³. The value of lumber exports fell dramatically as well from $5.85 billion in 2006 to $3.6 billion in 2008, a decrease of 38%. The most remarkable statistic may be the precipitous drop of BC softwood lumber exports as a percentage of total BC exports. In 2004, BC softwood lumber exports accounted for 22% of total BC exports and, by 2008; they were just under 11%, a 50% decrease in 4 years (BC Stats).
During this period of demand contraction, the composition of wood product output did not change significantly. These categories are general; nevertheless, lumber, selected value added products and logs all flat-lined through 2006-2008 at 66%, 10% and 5.5% respectively (Figure 3.6). This lack of adjustment to value added operations is surprising. It is also surprising log exports, as a percentage of total wood production, did not change. Rather, the total value of log exports declined similarly to all other wood exports during this period (Figure 3.5). Parfitt (2007) argues the SLA promotes log exports, as logs are exempt from the SLA. However, during the short period under the SLA, this has not proved to be the case.

The US lumber market is the catalyst for the BC lumber industry. When there is large, US demand, the BC lumber industry does well; when US demand falls, the BC lumber industry falters. The US housing sector started to weaken in 2007 and the World softwood lumber market became flooded, depressing the price of lumber. The appreciation of the Canadian dollar added to the industry’s woes as export transactions are in US dollars. Figure 3.11 illustrates the downward trend in the price of SPF (spruce-pine-fir) lumber and the upwards trend in the US-Canadian foreign exchange rate. These diverging trends produced a situation for BC lumber producers in which revenues are being lost due to macroeconomic factors.
From 2006 to 2008, US lumber demand contracted 31% from 60.8 bbf to 42.1 bbf (Risi 2009). As US lumber demand dropped, the protectionist measures embedded in the SLA became apparent as the import share of US lumber consumption fell from 38% in 2006 to 32% in 2008. Interestingly, the Canadian percentage of US lumber imports actually rose from 79% in 2006 to 84.5% in 2008 (Figure 3.7). This implies, when the US market contracts, Canadian lumber remains the best option for US lumber imports, as it appears other lumber exporting countries are unable to compete at lower lumber prices.

BC’s lumber export markets adjusted to the decline in US lumber demand and export taxes. The percentage of lumber exports going to the US dropped considerably from 73% in 2006 to 61% in 2008 with a further drop to 56% in 2009 (Figure 3.9). Since the 1980s, the U.S and Japanese markets have traditionally been the only two important lumber export markets for BC. The Japanese market is a distant second when compared to the US. However, it was the
growth of the Japanese market during the early 1980s that helped stabilize the BC lumber industry during a recessionary period. Exports to Japan have remained around 15-20% of total exports over the last decade. The drop in absolute numbers is more telling, as the value of exports to Japan has dropped from a high of $2.5 billion in 1995, to $1.5 billion in 2001, to just over $500 million in 2009.

It has become apparent, in order for the BC lumber industry to sustain itself, let alone prosper; it will have to incorporate a combination of developing markets and traditional markets. It is evident that dependence on the US market causes huge swings in demand, leading to exaggerated boom and bust cycles. Figures 3.9 and 3.10 illustrate growth in the ‘Other’ nation category, which includes South Korea, Taiwan, Southeast Asia and the Middle East. This category has grown from 4% of the total value of softwood lumber exports in 2006 to 7.5% in 2009. It is, however, the Chinese lumber market, which is proving to be the most important developing market for the BC lumber industry. Since the implementation of the 2006 SLA, the percentage of BC lumber exports to China has climbed from 1% in 2006 to 11.5% in 2009, while the value of BC lumber shipments to China has grown 1545% from 2001 to 2009 (Figure 3.10). There are obstacles and uncertainties associated with the Chinese market; however, it is a market possessing enormous potential for BC producers.

An analysis of aggregate data for the BC sawmill industry quickly reveals significant differences between the Coast and the Interior. The next section addresses recent investment trends in these two major regions.
3.2 Coast vs. Interior: Industry Investment

The success of the BC lumber industry in an increasingly competitive international environment is tied to continued investment. Unfortunately, one of the ongoing concerns with the softwood lumber dispute is that it creates an unpredictable economic environment and uncertainty affects investment decisions. Figure 3.12 shows investment in the wood product manufacturing sector through 2001-2008. The growth in investment from 2003-2006 was primarily due to firms in the Interior wanting: 1) to increase capacity to capitalize on the substantial growth in the US market and 2) to invest in machinery and equipment to process the (MPB) killed timber. The Coastal forestry industry requires investment to survive but investment spending has been primarily in the Interior.

Figure 3-12 Investment in BC Wood Product Manufacturing

(Statistics Canada)
Low profitability, low productivity and deteriorating plant and equipment characterize the Coastal forest industry (Pearse, 2001). In 2006, sawmilling costs were highest in the world (WM, 2007). Most mills have fourth quartile costs and suffer from lack of investment (BCCC, 2006). The depletion of the majority of the most valuable trees means logs currently processed are of less value and cost more to extract. Difficult terrain leads to increased road construction costs and, in some cases, expensive heli-logging (Pearse, 2001). The Coast’s labour costs are the highest in the world and, furthermore, labour productivity is low (BCCC, 2006). The Coast has an aging workforce and a shortage of skilled labour. Furthermore, management-labour conflicts in the collective bargaining process have contributed to the deterioration of the Coastal Forest industry (WM, 2007).

Despite historical success, Coastal firms have lost their ability to adapt to changing conditions and have been unable to attract new investment. Land use conflicts with Aboriginal Peoples and environmentalists have further exacerbated a hostile business climate (Pearse, 2001). For the last few decades, there have been concerns over logging of old-growth forests on the Coast. The nature of old-growth forests, with their majestic beauty, diminishing stands and unique ecosystems, have been given a higher valuation by the public when compared to lodge pole pine stands in the Interior. The battle or the ‘war in the woods’ between the forest industry, the public and First Nations has been well documented (Salazar and Alper, 2000; Cashore et al., 2001; Hayter, 2003). The
uncertainty over timber supply and tenure has also diminished investors’ perception of the region.

The key to the growth and productivity of the Interior region has been the ability to attract investment. Investment grew dramatically during the period of 2003 to 2006 in response to the booming housing construction market in the US. The construction of super-mills (300-500 mmbf per year) and mega-mills (over 500 mmbf per year) increased industry capacity to supply the surging US market. These mills have started to epitomize the industry as large companies are consolidating and investing in state of the art technology (BCCC 2006). The region helped innovate high-speed planer SPF stud mills that can process five studs per second (BCCC, 2006). However, as with all technological innovations, the substantive comparative advantage held by these mills may be short-lived as other regions and countries adopt similar technology. While the politics of the SLA and the economics of US demand place constraints on the region, the future supply of the resource base has become a priority.

3.3 Changes in Timber Supply - The Elephant in the Room

It is clear the SLA constrains BC access to the US market and effectively increases the cost of production for BC lumber. The SLA has hurt the financial viability of forest companies who may find it uneconomic to reinvest into forest-based industries, particularly when there are concerns for the future of the natural resource. Forests are a renewable resource; however, they are not exempt from exhaustion or depletion. The decade’s long treatment of timber supply in BC as a constant has led to a depletion in quality of the resource. An
historical analysis of forests illustrates, over the long term, societies utilize forests as a stock rather than a flow resource (Hayter, 2000). Natural resources extracted for commercial use follow a general trajectory of exploration and initial boom, overexpansion and exploitation, followed by ecological and economic disruption (Clapp 1998). On the Coast, the initial boom is long over, as logging costs have increased with the harvesting of the most valuable and easily accessible trees. Currently, in the Interior, the ecological disruption caused by the MPB epidemic has created a timber supply problem too large to ignore. The area attacked by the pine beetle now ranges from Mackenzie in the north, to Princeton in the south, to Smithers in the west and Cranbrook in the east (COFI, 2008). MPB has affected approximately one million hectares of lodgepole pine forests, reducing the long-run supply of timber.

The Timber Harvesting Land Base has 1.35 billion m³ of merchantable pine and it is estimated that 76% will be killed by 2015 (Walton et al. 2008). The MPB epidemic has eliminated billions of dollars from the industry. With the decreasing economic valuation of MPB killed trees, there is an economic incentive to harvest as much of the timber as soon as possible (Kurz et. al., 2008). There are, however, significant differences in the perceived shelf life of MPB killed timber. The BC Ministry of Forestry and Range created a BCMPB model, which assumes a very short shelf life. The model states in the 3rd year after infestation 50% of MPB logs are usable but 0% thereafter (BC Timber Supply, 2007). They conclude that MPB killed stands will be uneconomic to harvest about 4-8 years after the initial attack as remaining saw log volume in the
stand decreases below an economic threshold. However, research by Barrett and Lam (2007) reveal that it is in the first 1-2 years after tree death that rapid degradation occurs but decomposition rates slow after that. Results show standing trees in dry ecosystems will not suffer significant decay for 15-20 years (Lewis and Hartley, 2006 in Barrett and Lam, 2007).

The final decisions with respect to MPB killed timber shelf life will have significant impacts on future governments’ decisions on annual allowable cuts (AAC) in different regions (MPBAP, 2006; Barrett and Lam, 2007). Shelf life is not only determined by physical and biological factors, including the rate at which they dry out, crack and begin to rot, but also by economic factors (Wright, 2007). For instance, lower logging costs and manufacturing costs and higher lumber and by-product prices will increase the shelf life of beetle-killed pine (Wright, 2007). Projecting the appropriate, AAC’s for timber supply is essential to the maintenance of the industry and forest ecosystems.

The BC government introduced special salvage rates and raised AAC’s to promote the harvesting of beetle-killed pine (Nelson 2007). Some of the increases in AAC’s were 60% higher than previous levels (Timber Supply, 2007). The BC government recognizes the dilemma it faces: it must increase AAC’s because trees left standing will degrade, reducing their economic value. However, to cut them down creates the problem of storage as lumber markets are depressed and cannot absorb a huge increase in volume. The increases in AAC’s highlight one of the Interior’s biggest challenges, as the scope of future productivity gains is limited, as timber supply will inevitably fall in the future. The
large super and mega-mills in the Interior are built for continued production and as timber supply decreases, these mills may lose their efficiency and competitiveness.

The pine beetle epidemic created short-term positive effects for the forest industry as AAC’s rose and employment increased through harvesting, processing and reforesting (MPB plan, 2006). However, this increase in economic activity will be followed by an industry downturn as AAC’s are projected to be dramatically cut due to concerns about mid-range supply. In fact, when the harvesting of the MPB affected timber is complete, it is anticipated that the AAC will fall by 33% – 45% from 2006 levels (BC Timber Supply, 2007). While the AAC must be dramatically reduced in the future, the timing of the decrease is uncertain due to the complex number of factors involved.

3.4 Adjustments by Selected Large Lumber Producers

A few large companies dominate the BC lumber industry output. An analysis of the actions of these large firms can give important evidence of emerging trends in the lumber industry. For the purpose of this thesis, the ‘giants’ or dominant players in the BC lumber industry include Canfor, West Fraser, Tolko, Western Forest Products (WFP) and Interfor. In 2008, these five firms accounted for roughly 8490 mmbf of output, or 71% of BC’s total lumber production. The adjustments made by these firms with respect to production levels, production location, export markets, and mill acquisitions and closures, will be examined for the period 2001-2008.
3.4.1 Trends in Lumber Sales

When analyzing lumber sales it is apparent that the four large publically traded firms (Tolko is a private company) have all followed a similar trajectory of rising lumber sales through 2001-2006 and declining sales from 2006-2009. Lumber sales for the four firms increased 74.2% from $2.86 billion in 2001 to $4.98 billion in 2008. Canfor had the largest increase in lumber sales (102%) from $951.8 in 2001 to $1921.1 million in 2006. West Fraser and WFP increased sales by of 77% and 76%, respectively, during the same period. Interfor was definitely the laggard of the group as their sales increased by only 18.7% from $527 in 2001 to $625.6 million in 2006.

The year 2006 marked a turning point with the enactment of the SLA and the beginning of a major downturn in the US economy and housing industry. All four firms dropped in sales from 2006-2008, with Canfor falling 36%, Interfor 52.5%, WFP 7.9% and West Fraser 6.3%. Declining sales continued and, in 2009, sales dropped in excess of 20% for all firms except Interfor, which fell only 3%. Even though the period of 2006-2008 has been devastating for lumber firms, it is important to point out that Canfor, West Fraser and WFP all had higher lumber sales in 2006, 2007 and 2008 compared to 2001. All four firms made a profit in 2006, helped along by the CVD and AD duty refunds, which were incorporated as revenue in financial reports. However, all four firms reported a net loss for 2007 and 2008. The combined losses equalled $465.9 million in 2007 and $623.3 million in 2008.
3.4.2 Adjustments in Total and Regional Lumber Production

Canfor, West Fraser, and WFP, all increased lumber production capacity and produced more in 2008 compared to 2001. From 2001 to 2006, lumber production expanded for all four companies: West Fraser 109%, Canfor 112%, WFP 78% and Interfor 77% (Table 3.1). However, there were important regional changes in production, especially away from BC Coast. Interfor decreased Coastal production by 13% and increased US Pacific North West (PNW) production from 0 mmbf in 2001 to 426 mmbf in 2006, or 36% of total production. Interfor also more than doubled its BC Interior production from 133mmbf in 2001 to 286 mmbf in 2008, an increase of 115%. West Fraser increased Alberta production by 190%, from 290 mmbf in 2001 to 845 mmbf in 2006. Canfor dramatically increased production from 2260 mmbf in 2001 to 4797 mmbf in 2006. Canfor’s production in the BC Interior grew 99% to 4124 mmbf, while in Quebec and the US, its production increased from zero in 2001 to 117 mmbf and 337 mmbf in 2006, respectively. It is clear, the BC Interior was the dominant region for total production, accounting for 66% in 2001 and 68% in 2006 (Table 3.2). The biggest regional change during this period was the decline of the Coast from 20% of total production for the four firms in 2001 to 13.5% in 2006. The decline in Coast production was a result of the expansion in production in the US and Alberta.
The shift in production away from BC became more marked from 2006-2008. During this period, Canfor and WFP decreased their production 24% and 23% respectively, while Interfor dramatically decreased its production by 57%.

West Fraser, through acquisitions of US based sawmills, was the only firm to increase their production. West Fraser’s total production increased 18.5%, while their US production increased by 300% from 389 mmbf in 2006 to 1570 mmbf in 2008, equalling 31.5% of total production. In contrast, Interfor continued its
consolidation of Coastal operation and decreased production by 54%. During this period, Interfor continued to expand into the US and the BC Interior.

The period of 2001-2009, highlights some of the trends in regional lumber production for these four major firms (Table 4.10).

Table 3-2  Combined regional lumber production for selected firms

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2006</th>
<th>2008</th>
<th>2009</th>
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</thead>
<tbody>
<tr>
<td>BC Coast</td>
<td>19.94%</td>
<td>13.13%</td>
<td>9.82%</td>
<td>9.76%</td>
</tr>
<tr>
<td>BC Interior</td>
<td>66.36%</td>
<td>65.97%</td>
<td>55.94%</td>
<td>56.96%</td>
</tr>
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<td>Alberta</td>
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<td>9.52%</td>
<td>10.57%</td>
<td>12.64%</td>
</tr>
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<td>Quebec</td>
<td>0%</td>
<td>1.06%</td>
<td>1.99%</td>
<td>2.01%</td>
</tr>
<tr>
<td>US</td>
<td>4.95%</td>
<td>10.33%</td>
<td>21.68%</td>
<td>18.63%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Sum of regions may not equal 100% due to rounding
** Includes Canfor, West Fraser, Interfor and WFP

Most importantly, Coastal production, which accounted for 20% of total lumber production in 2001, decreased to 9.5% in 2009. In contrast, US lumber production has increased 5% of total production in 2001 to 18.5% in 2009. The BC Interior dropped from 66% to 56% of total production, while Alberta increased from 8.7% to 12.6%. These trends reflect firm level adjustments associated with production through acquisitions in new regions. These adjustments are encouraged by low levels of competitiveness (the Coast), decreases in quality of timber (the Interior) and substantial duty costs associated with the SLA (movement of product to the US).
3.4.3 Acquisitions and Mill Closures

Canfor made significant operational adjustments from 2001-2008. In 2004, at a time when the industry was experiencing a peak with respect to production from the Interior, Canfor acquired Slocan Forest Products (10 operations, 7 sawmills). The Slocan acquisition, through a $455 million share exchange deal, increased Canfor’s lumber production capacity by 1.9 BBF per year. Since this acquisition, Canfor has sold two of the mills (Slocan and Vavenby) and shut down MacKenzie for over a year (it reopened in the second quarter of 2009). Canfor also purchased a Quebec sawmill in 2003. In March 2006, Canfor acquired three US sawmills for $181 million, and acquired another US sawmill in 2007. All of Canfor’s US production is in North and South Carolina. With the US acquisitions, Canfor’s US lumber production climbed from zero production in 2005 to 388 mmbf in 2008 or 13% of total production. From 2003 to 2009, Canfor closed six mills and sold another three, all nine were in the Interior of BC. Canfor received the largest CVD and AD duty refund with Canada’s signing of the 2006 SLA; this totalled $717 million and helped finance its acquisition of US operations. It is interesting to note that the cabinet minister responsible for the negotiations of the 2006 SLA was a former CEO of Canfor.

West Fraser also experienced a profound restructuring of their operations from 2001 to 2008. West Fraser acquired Weldwood in 2004, which included three sawmills in the Interior, and two in Alberta. This acquisition dramatically increased West Fraser’s Alberta operations as production climbed from 339 mmbf in 2004 to 855 mmbf in 2005. West Fraser subsequently sold two Interior mills in 2006 and closed operations at Terrace in 2008 and Quesnel-Northstar in
2009. West Fraser received $387 million in CVD and AD duty refunds in 2006 and, in 2007, they acquired 13 US sawmills for $391 million. This increased their US production from 389 mmbf in 2006 to 1516 mmbf in 2007.

In 2001, Interfor was primarily concentrated on the BC Coast but has since contracted Coastal operations and expanded into the US and the BC Interior. In 2001, Interfor had seven mills operating on the Coast but, by 2008, four are closed and one sold, leaving only two operational sawmills (Hammond and Acorn). In 2004, Interfor started to make a strategic play into the US PNW market as they acquired three mills in 2004, one in 2005 and another in 2008. Interfor also invested in the BC Interior, purchasing two mills from Pope and Talbot (Castlegar and Grand Forks) in 2008. They added further capacity in the Interior with the construction of a new larger mill at Adams Lake. The closures and acquisitions highlight Interfor’s strategy to exit the Coastal region and become more concentrated in the US PNW and BC Interior.

Western Forest Products, previously Doman Industries, was the only publically traded firm not to adjust their regional production from 2001-2008 and is still exclusively in the BC Coast region. WFP received $110 million from duty refunds and primarily used their escrow payments to consolidate and pay down debt while continuing to close mill operations along the Coast. The firm has suspended operations at several mills and consolidated their efforts to their most profitable mills. WFP had only six operating mills in 2009, down from 10 in 2007.

Tolko, a private company, utilized their SLA duty returns to adjust operations through investments in mills producing products exempt from the SLA
(OSB and structurally engineered wood such as I-joists). In 2006, Tolko did reinvest approximately $20 million at 4 BC operations; however, this was proportionately small as they invested over 400 million dollars in Alberta operations (Parfitt 2008).

### 3.4.4 Changes in Lumber Export Markets

Among the five major firms, there have been changes in lumber export markets. Changes from 2001-2006 primarily involved an increase in sales to US markets. On a percentage basis, the increase in sales to the US generally resulted in a decrease in percentage sales to the Canadian market. This does not indicate fewer sales to the Canadian market; it simply highlights the larger percentage growth in the US market. Tolko, Canfor, Interfor and West Fraser all increased their percentage sales to the US from 2001 to 2006. WFP was the only firm to reduce sales to the US. WFP US sales decreased from 36% in 2001 to 29.6% of total sales in 2006, while Canadian sales increased from 27.6% to 38.5%. Interfor had a dramatic change in sales markets as they increased from 36% to the US in 2001 to 63% in 2006 while their Japanese (and Pacific Rim) sales fell from 33% in 2001 to 12% in 2006.

From 2006-2008, all firms dropped in percentage sales to the US, except West Fraser, which remained consistent at 73% of total sales. Notable trends include the increase in sales to Asia as Canfor jumped 54%, WFP 19%, West Fraser 29% and Interfor 25%. Unfortunately, these firms did not differentiate between Asian countries, thus no conclusions can be determined about the emergence of China as a major destination for lumber and forest products. Tolko
did not exhibit significant changes in this period; however, data was limited to 2006 and 2007. An interesting component of Tolko’s company reports were that they only distinguished between US, Canada and Export (all other markets). During this period, Interfor also increased its total sales to Europe from 8% in 2006 to 19% in 2008.

The following year, 2009, illustrates the continued trend away from the struggling US market and towards Asian markets. In 2009, Canfor increased its sales percentage to Asia by 30%, WFP by 39%, West Fraser 15% and Interfor 60%. The trend is even clearer when considering changes from 2001 to 2009. Canfor increased its sales percentage to Asia by 117% (12% to 26% of total sales), while WFP increased Asian sales by 39% (27% to 37.5 %), and West Fraser increased Asian sales by 94% (5.2% to 10.1%). The only firm to reduce sales to Asia was Interfor, which shifted from 33% of total sales in 2001 to 24% in 2009. However, embedded in this shift was the change in sales distribution between Japan and the Pacific Rim. In 2006, 10% of total sales went to Japan and, 2% went to Pacific Rim nations while, in 2009, 12% went to Japan and 12% went to the Pacific Rim. This trend exhibited by Interfor reflects both stagnant lumber demand in Japan and growing demand of other Pacific Rim countries. This firm level data strengthens the industry level data and reveals growth in the new developing markets such as China, South Korea, Taiwan and other SE Asian countries.
3.5 Conclusion

In the context of an unforgiving softwood lumber agreement, it is clear the BC softwood lumber industry is going through major adjustments relating to changes in the demand for softwood lumber, capital investment, and the supply of timber. The industry analysis provides some compelling evidence of recent trends. First, employment has declined while production has not decreased to the same degree. This implies an increase in productivity as firms attempt to push down costs to remain competitive. Second, there is a general shift in production away from the Coast. Third, as the US lumber market weakens, a larger percentage of BC lumber sales have gone to expanding Asian markets, especially China.

An examination of the largest forest products firms in BC reveals three of them, Canfor, West Fraser and Interfor, have all made significant investments in the US following the signing of the SLA. This was an unanticipated impact of the agreement but from a business perspective, the acquisition and investment into US mill operations is a significant hedging exercise against the difficulties of operating in BC. Furthermore, there is evidence the four largest publicly traded forest product firms in BC are shifting production away from the Coast region while increasing production outside of the province, most notably in the US and Alberta. With respect to the 2006 SLA, a number of large public firms “voted with their feet” by significantly moving their operations to the US to avoid the punitive export tax and remove the uncertainty associated with the SLA.
The BC forest sector is currently not an attractive place to invest due to punitive export taxes, the high value of the Canadian dollar and the uncertainty of future timber supply within BC. The large firms are also consolidating operations through the closures of small and medium sized production plants, as there is a concerted effort to maximize production at facilities with large capacity. Ultimately, the decisions made with respect to industry adjustments take place at the firm and factory level. The following chapter will examine factory level adjustments of 22 BC sawmills.
4: FACTORY ADJUSTMENTS TO THE SOFTWOOD LUMBER DISPUTE (2001-2008)

4.1 Introduction

This chapter focuses on *in-situ* location adjustments made by sawmills in BC during 2001-2008 period, especially with respect to markets, products, investment, productivity and employment. The chapter also summarizes the perceptions of factory managers concerning the impacts of the 2006 SLA, their views on whether it is beneficial or harmful to the industry and whether it has provided ‘certainty’ in accessing the US market. The analysis incorporates results of an extended case study of 22 BC sawmills in 2009 (Table 4.1).

The termination of the 1996 SLA in 2001 and the period of litigation and controversy that followed leading up to the 2006 SLA created uncertainty and costs accessing US lumber markets. Prior to 2006, the rapid expansion of US lumber demand diminished the problems facing BC firms accessing US markets. This study hypothesizes that the uncertainties and costs of accessing US markets, compounded by the rapid decline in lumber demand, encourages BC firms to adjust in a variety of ways. In particular, it hypothesizes BC sawmills adjust their operations to: geographically diversify markets away from the US; diversify product-mixes away from products constrained by American trade action; reduce costs by reducing size in terms of output and employment; and reduce costs by increasing productivity.
Table 4-1  Overview of Factories Interviewed (2008)

<table>
<thead>
<tr>
<th>Factory</th>
<th>Size</th>
<th>Title</th>
<th>Multi-Plant</th>
<th>Output (mmbf)</th>
<th>Jobs</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK 1</td>
<td>Large</td>
<td>Foreign</td>
<td>Yes</td>
<td>380</td>
<td>225</td>
<td>Dimensional</td>
</tr>
<tr>
<td>OK 2</td>
<td>Med</td>
<td>Local</td>
<td>Yes</td>
<td>146</td>
<td>350</td>
<td>Specialty</td>
</tr>
<tr>
<td>OK 3</td>
<td>Large</td>
<td>Local</td>
<td>Yes</td>
<td>200</td>
<td>150</td>
<td>Diversified</td>
</tr>
<tr>
<td>OK 4</td>
<td>Small</td>
<td>Local</td>
<td>No</td>
<td>14.4</td>
<td>65</td>
<td>Specialty</td>
</tr>
<tr>
<td>OK 5*</td>
<td>Med</td>
<td>Local</td>
<td>No</td>
<td>85</td>
<td>200</td>
<td>Dimensional</td>
</tr>
<tr>
<td>OK 6</td>
<td>Small</td>
<td>Local</td>
<td>Yes</td>
<td>4</td>
<td>15</td>
<td>Specialty</td>
</tr>
<tr>
<td>CI 1</td>
<td>Large</td>
<td>Local</td>
<td>Yes</td>
<td>340</td>
<td>320</td>
<td>Dimensional</td>
</tr>
<tr>
<td>CI 2</td>
<td>Small</td>
<td>Local</td>
<td>Yes</td>
<td>25</td>
<td>95</td>
<td>Specialty</td>
</tr>
<tr>
<td>CI 3</td>
<td>Large</td>
<td>Local</td>
<td>Yes</td>
<td>200</td>
<td>229</td>
<td>Dimensional</td>
</tr>
<tr>
<td>CI 4</td>
<td>Large</td>
<td>Local</td>
<td>Yes</td>
<td>250</td>
<td>190</td>
<td>Dimensional</td>
</tr>
<tr>
<td>CI 5</td>
<td>Small</td>
<td>Local</td>
<td>No</td>
<td>.06</td>
<td>22</td>
<td>Specialty</td>
</tr>
<tr>
<td>SE 1</td>
<td>Small</td>
<td>Local</td>
<td>Yes</td>
<td>35</td>
<td>165</td>
<td>Diversified</td>
</tr>
<tr>
<td>SE 2**</td>
<td>Med</td>
<td>Local</td>
<td>Yes</td>
<td>30</td>
<td>130</td>
<td>Dimensional</td>
</tr>
<tr>
<td>SE 3</td>
<td>Med</td>
<td>Local</td>
<td>No</td>
<td>55</td>
<td>130</td>
<td>Diversified</td>
</tr>
<tr>
<td>SE 4</td>
<td>Small</td>
<td>Local</td>
<td>No</td>
<td>50</td>
<td>200</td>
<td>Specialty</td>
</tr>
<tr>
<td>SE 5</td>
<td>Small</td>
<td>Local</td>
<td>No</td>
<td>.04</td>
<td>8</td>
<td>Custom Cut</td>
</tr>
<tr>
<td>CO 1</td>
<td>Med</td>
<td>Local</td>
<td>Yes</td>
<td>120</td>
<td>170</td>
<td>Specialty</td>
</tr>
<tr>
<td>CO 2</td>
<td>Med</td>
<td>Local</td>
<td>Yes</td>
<td>120</td>
<td>194</td>
<td>Specialty</td>
</tr>
<tr>
<td>CO 3</td>
<td>Med</td>
<td>Local</td>
<td>Yes</td>
<td>150</td>
<td>400</td>
<td>Custom Cut</td>
</tr>
<tr>
<td>CO 4</td>
<td>Small</td>
<td>Local</td>
<td>Yes</td>
<td>20</td>
<td>45</td>
<td>Diversified</td>
</tr>
<tr>
<td>CO 5</td>
<td>Med</td>
<td>Local</td>
<td>Yes</td>
<td>70</td>
<td>150</td>
<td>Specialty</td>
</tr>
<tr>
<td>CO 6</td>
<td>Small</td>
<td>Local</td>
<td>Yes</td>
<td>50</td>
<td>110</td>
<td>Custom Cut</td>
</tr>
</tbody>
</table>

Note: In text, factories denoted by their region and factory size. For example, OK1 appear as OK1_L, indicating Okanagan region and Large factory
* 2007 data, factory closed in 2008
** Factory under new ownership in August 2008, and had suspended operations at time of interview

This chapter is organized into three sections. The first section examines respondents’ perceptions of the 2006 SLA. The second section provides insight into factory level adjustments from 2001 to 2008 in terms of employment, productivity and technology, output, product mix and export markets. Finally, the third section examines factory size differences in factory adjustments.
4.2 Respondents’ Perceptions of the Softwood Dispute and the 2006 SLA

4.2.1 In favour of the 2006 SLA

Each respondent was asked if they were in favour of the 2006 SLA (Table 4.2). Out of 22 interviews, 10 respondents indicated that they were in favour of the agreement, 9 were not and 3 chose not to respond. The split between those for and against the 2006 SLA is characteristic of the industry and highlights the difficulty in creating and implementing a bi-national managed trade agreement of which all actors and participants approve. Some feel a bi-national managed trade agreement is the best option, while others feel free lumber trade is the only long term solution.

Table 4-2  Are you in Favour of the 2006 SLA?

<table>
<thead>
<tr>
<th>Region</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>C.I.</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>SE</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Co</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory Size</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Small</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

All 3 ‘no responses’ were in the Central Interior. The Central Interior is dominated by large production facilities owned by large public and private multi-plant firms and respondents associated with them generally preferred to sidestep the contentious SLA issue. Perhaps they did not wish to disagree with official corporate policy and interests. The larger firms such as Westfraser, Weyerhauser and Canfor are on record promoting the SLA (Mach and Shaw 2007).
Across all regions, 6 of 8 medium sized factories were not in favour of the agreement. These factories felt their ability to export to the US is hindered more than the industry ‘giants’ who have the resources to continue production and pay export taxes through difficult economic periods. The majors also have options to invest elsewhere. The mill manager from CI4 even suggested if the major players so wished, they could push BC exports over the surge threshold, making everyone pay an additional 50%, putting smaller firms out of business. This situation has not arisen, but it shows the discrepancy between the medium and the large firms’ power and ability to navigate through economic downturns. Somewhat surprisingly, five of the nine small factories were in favour of the agreement.

4.2.2 Withdraw from the 2006 SLA

Even though there was no consensus concerning whether the 2006 SLA was a good deal for BC lumber producers, the view that Canada should not withdraw from the agreement was nearly unanimous (Table 4.3). Of 22 interviewees, 19 responded that Canada should not withdraw, only one responded Canada should withdraw, and 2 did not respond. This reflects the industry's fear of renewed US litigation and disruption if the agreement were not in place. Despite half the factories opposing the agreement, they were predominantly willing to accept the constraints and manage the external costs associated with the agreement. These results are a testament to the litigiousness of Lumber IV, as CVD’s and AD’s changed multiple times and individual firms and the industry spent tens of millions of dollars on legal fees.
The owner of OK3L sums up industry perception: “If you ask anyone what they would replace it with, they’re not going to tell you ‘cause they don’t know. We’ve got something there that’s got some structure to it, so keep it.”

Table 4-3  Should Canada withdraw from the SLA?

<table>
<thead>
<tr>
<th>Region</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ok</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>C.I.</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>SE</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Co</td>
<td>0</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>19</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory Size</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Small</td>
<td>0</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>19</td>
<td>2</td>
</tr>
</tbody>
</table>

Many in the industry argue the SLA punishes BC sawmill producers; however, without a better substitute, the consensus is the agreement is acceptable until its expiration in 2013. Even if the SLA creates a difficult economic landscape for BC firms, the alternative would produce greater costs, constraints and uncertainties.

4.2.3  The 2006 SLA – Has it Instilled Certainty?

One of the expected benefits of the SLA was some certainty in the industry (Table 4.4). But what is meant by certainty? In the context of this study, certainty refers to the conditions of market access. Certainty is a key word for many producers, especially following the negative experiences associated with litigation, and implies that they at least know the conditions of accessing the US market, even if they do not like them.
Table 4-4  Has the 2006 SLA given your factory certainty?

<table>
<thead>
<tr>
<th>Region</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ok</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>C.I.</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>SE</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Co</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory Size</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Medium</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Small</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Fifteen respondents said the agreement gave the industry certainty, 3 replied it did not, and 4 chose not to answer. Every large firm felt the agreement had given them some certainty. The large firm consensus demonstrates the high dependence of these firms on the US.

While the majority of respondents found to a varying degree that the 2006 SLA has given their firm and the BC lumber industry some certainty, others were less sanguine. The mill manager of Co3M responds to the question of certainty with fatalism, “[The 2006 SLA] has taken the joy out of running a business on the Coast. It’s certainty, certain death.” This attitude has crept into mindset of managers, as ongoing curtailments and mill closures have grave consequences not only for the lumber industry but for rural communities and workers. Still, the consensus is the complicated years of Lumber IV have increased the industry’s appetite for US market assurance, even if it comes with a high cost.

Each respondent’s reaction to the softwood lumber dispute was qualitatively assessed as either passionate or accepting, based upon emotional reaction of respondents when discussing the softwood lumber dispute, through vocabulary, demeanor and tone of voice (Table 4.5).
Table 4-5 Emotional response to the Softwood Lumber Dispute

<table>
<thead>
<tr>
<th>Region</th>
<th>Passionate</th>
<th>Accepting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ok</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>C.I.</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>SE</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Co</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory Size</th>
<th>Passionate</th>
<th>Accepting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Small</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>

All large firms responded with accepting acknowledgement towards the softwood lumber dispute. Of the three respondents who felt passionately about the softwood lumber issue, two were medium sized and one was small, located in the OK and SE region respectively. Overall, the questionnaires showed 86% of the respondents had an accepting attitude towards the lumber dispute issue. This is surprisingly high when considering the industry’s vocal opposition to trade regulations and the five year legal battle of 2001 to 2006.

This high percentage suggests the BC softwood lumber industry has basically accepted the softwood lumber dispute as an ongoing issue that has only a small chance of being resolved. For the last 30 years it has blanketed the industry’s economic landscape. Even in periods of calm, there has always been fear of the next US attack. The dispute and SLAs have become part of the BC softwood lumber industry; it is ingrained in the politics of the province and the economics of the industry. There is an overwhelming expectation of continued US criticism of BC’s forest policies and softwood lumber industry.

Indeed, there is a distinct weariness and hopelessness in the industry when dealing with the US over lumber. The psyche of BC lumber producers has definitely been beaten, and it is apparent they feel the US will not forfeit their control of North American softwood lumber trade. This apprehension over
American influence also pervade at the federal level, as the Canadian government refused aid packages to the lumber industry during the deepest months of the financial crisis in 2008/09, as the government was concerned the US would claim Canada was circumventing the SLA. The agreement states “no public authority of Canada shall: modify the Provincial timber pricing or forest management system... or provide any grants or other benefits that offset [the agreement] (SLA 2006: Article XII, 2a).” This fear of US retaliation is now deeply embedded in the BC lumber industry.

4.3 Factory Adjustments

Sawmills are characterized by large sunk costs and relative immobility. They seek, whenever possible, to adjust in situ to remain viable. In situ adjustments can be input-oriented or output-oriented. Input adjustments examined in this study include employment, productivity and technology, while output adjustments concern product mix and export markets. Changes in demand and the protectionist nature of the SLA constrain BC sawmills access to US markets. It is hypothesized factories will make a strategic effort to diversify markets and product mix away from the US, and that factory cost reductions will result from reduced output and employment and increased productivity.


4.3.1 Adjustment to Inputs

Adjustments in Employment and Production

The SLA imposes additional costs on BC lumber producers. In order to stay competitive, firms must constantly reduce costs. In the short run, reducing employment is a quick way to lower variable costs and offset duties. I expected factories to attempt to reduce costs by reducing employment, and to decrease production in response to reduced employment and US demand.

Almost all firms in all regions made adjustments in employment and output from 2001 to 2008. There was a 16.5% combined decrease in employment from the 22 factories interviewed, from 4294 jobs in 2001 to 3584 in 2008. Adjustments in employment do not necessarily lead to changes in output. In fact, the combined output of the 22 factories actually grew 0.5%, from 2.25 bbf in 2001 to 2.26 bbf in 2008, and some increased either employment or production. However, the majority showed decreases.

From a regional perspective, all four regions lost employment from 2001 to 2008: Coast -22.5%, SE -21.5%, OK -11% and CI -10% (Table 4.8). There were also regional differences in output as OK and CI increased by 30% and 19%, respectively, while SE and Co decreased by 53% and 15%, respectively. There are a number of interesting relationships with the combination of employment and output from these regions (Table 4.8).
Table 4-6  Regional Factory Output and Employment changes from 2001 to 2008

<table>
<thead>
<tr>
<th></th>
<th>Output</th>
<th>%</th>
<th>Emp.</th>
<th>%</th>
<th></th>
<th>Output</th>
<th>%</th>
<th>Emp.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK1</td>
<td>250</td>
<td>192%</td>
<td>40</td>
<td>22%</td>
<td>Co1</td>
<td>0</td>
<td>0%</td>
<td>-20</td>
<td>-11%</td>
</tr>
<tr>
<td>OK2</td>
<td>57</td>
<td>64%</td>
<td>70</td>
<td>25%</td>
<td>Co2</td>
<td>-60</td>
<td>-33%</td>
<td>-196</td>
<td>-50%</td>
</tr>
<tr>
<td>OK3</td>
<td>-50</td>
<td>-20%</td>
<td>-30</td>
<td>-15%</td>
<td>Co3</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OK4</td>
<td>-10.6</td>
<td>-42%</td>
<td>-40</td>
<td>-38%</td>
<td>Co4</td>
<td>0</td>
<td>0%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OK5</td>
<td>-70</td>
<td>-100%</td>
<td>-172</td>
<td>-46%</td>
<td>Co5</td>
<td>-50</td>
<td>-42%</td>
<td>-150</td>
<td>-50%</td>
</tr>
<tr>
<td>OK6</td>
<td>-6</td>
<td>-60%</td>
<td>0</td>
<td>0%</td>
<td>Co6</td>
<td>15</td>
<td>43%</td>
<td>55</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>170.4</td>
<td>-132</td>
<td>Total</td>
<td>-95</td>
<td>-311</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

First, the Coast region lost 22.5% employment, or 311 jobs, which accounted for 54% of the employment loss in the study. The OK region increased production by 30% while decreasing employment by 11%. The production increase was attributed to OK1\textsubscript{L}, a foreign owned factory, who consolidated their BC operations into the one factory site. Production at OK1\textsubscript{L} increased three fold from 130 mmbf in 2001 to 390 mmbf in 2008. The CI region displayed a similar trend to OK, as production increased by 19% and employment decreased by 10%. The SE had a dramatic drop in production, down 53%, which was largely a result of two factories (SE2\textsubscript{M} and SE4\textsubscript{M}) curtailing operations in 2008. SE2\textsubscript{M}, in particular, dropped its production from 150 mmbf in 2001 to 30 mmbf in 2008. It should be mentioned that both these struggling factories have had multiple owners during the study period.
There were prominent differences across factory sizes in their adjustments to employment and output. Production from large factories increased 32% from 2001-2008, while employment fell 15.5%. Medium sized factories’ output fell 21% from 2001-2008, while employment decreased 30%. In total, 688 jobs were lost from 8 medium sized factories equating to roughly 96% of total employment lost in the study. Small sized factories increased production by 10% and increased employment by 9%, from 664 to 723 jobs. The small production factories are often overlooked in industry surveys, but these operations often have more labour input per 1000bf, resulting in more employment.

Even though some factories increased output, their revenues can decline or become stagnant, as the price of lumber has dropped significantly in the past 3 years. Many dimensional lumber producers are low cost producers, and reduce per unit cost by increasing output. There are some unintended consequences to this strategy. First, when demand drops, if output continues at a steady rate or even increases, it puts downward pressure on prices. In discussions in the CI region, there was mention of several mills temporarily shutting down as the cost of lumber fell to $160 per mmbf near the end of 2008. When lumber prices started to rise a couple months later, hitting $180 per mmbf, several mills simultaneously ramped up production; this supply increase caused prices to fall again. The large dimensional mills depend on continued productivity improvements to maintain their competitiveness, but sufficient demand is of course necessary for survival. In general, employment has declined, while production has remained constant, implying increased productivity.
Adjustments through Technology and Productivity Improvements

Productivity is defined differently by different firms. For example, some firms utilize output per 8hr shift or output per worker hour. Productivity here is measured by the cost to produce 1000 bf ($/1000bf). The composition of costs with respect to, labour, procurement, logs and energy, vary according to factory setting and product. It is important to analyze how these factories view their productivity changes over time and what factors contribute to productivity changes. It is hypothesized factories will increase productivity in response to the additional costs associated with the SLA.

Respondents were asked about productivity trends, and 13 of 22 (59%) factories stated they had experienced a strong increase in productivity since 2001. The major reason behind this increase was improvements in technology and machinery through capital expenditures. The respondent for OK1M summed up the BC softwood lumber industry’s drive to become more productive and efficient:

“Well, we call it $/1000 bf and basically that has been going down. It’s gone down through productivity improvements, using better technology. It hasn’t really been driven down as a result of wages decreasing, they have actually gone up. But through all the other improvements in the mill, mostly technology, we have dragged down our costs to produce a 1000 bf of lumber (OK1M).”

This highlights the need for capital expenditures to improve productivity, keep labour costs under control and drive down per unit costs to stay profitable. The manager of OK3L emphasizes the concerted effort to keep labour costs from escalating, “Well, your labour costs, you need to keep driving them down, down,
down, less people more productivity per hour. Different machinery will do that (OK3L).” This accentuates an important aspect of examining productivity in manufacturing, as there is often an inverse relationship between number of employees and productivity. As new costs saving technologies continue to be introduced, more jobs will be lost.

In total, 11 of the 13 factories achieving a strong increase in productivity emphasized technological and machinery improvements. The remaining two factories achieved strong increases in productivity through decreased labour costs and organizational changes. These responses are quite significant as they both allude to the same results: better technology, fewer people working and greater production. It is apparent most of the industry’s improvements in productivity are at the expense of employment.

Three factories had a decrease in productivity. OK4S lost productivity as a result of decreasing sales and subsequently decreasing production. The factory incurred loss of employment, but a critical number of skilled employees had to be kept as the risk of losing them was too large. As a result, overall productivity dropped. OK5M, which has closed its sawmilling operation since 2007 (plywood operation continues at the same site), revealed increases in technology were not matching increases in labour costs. Furthermore, the installation of new product lines degraded productivity prior to suspending operations. CI4L instituted improvements in technology and machinery specifically engineered to deal with MPB killed timber, however, net productivity declined.
There are regional differences in productivity changes. In the Central Interior, as a result of the MPB epidemic, salvage logging started in the region around 2003 and logging crews have had to go farther out into the bush to retrieve logs of less value, creating a smaller margin of profitability. Major investments have occurred at the three large factories equaling roughly $100 million dollars since 2001. It should be noted that most of this investment (~90%) occurred prior to 2006 and the signing of the SLA. The large factories and their firms understand the necessity of improving technology and machinery to deal with the lower quality of logs that are being processed.

In the SE region, three out of the five factories reported a strong increase in productivity trends. They mentioned new technology as a contributor to increased productivity, however, all three also mentioned labour use and experience as an important factor to increased efficiency. This is noteworthy, as the SE region was the only region to mention labour as a major aspect of increased productivity. There is more value-added production in this region and, as a result, productivity is more dependent on skilled labour.

For the Coast region, four of six factories indicated a strong increase in productivity from 2001-2008, one had moderate increases and one had no change. The major reasons for increased productivity were decreased labour costs and improved labour organization. There were also some minor improvements due to machinery. The Coast has had difficulties attracting new investment needed to efficiently mill second growth logs as Coastal forests enter a new forestry cycle (Pearse 2001). General responses regarding new
investment into Coastal factories included: Co1M: nothing significant, Co2M: very little and Co3M: the value of the depreciation in machinery.

The impact of the softwood lumber dispute on factory productivity was also raised. The respondent for OK2M stated that the dispute improved the efficiency of their mill, “the whole dispute actually helped us, because we needed to become very, very efficient. We didn’t have that 15% extra to give away. At a time it was almost 23%. We had to become so efficient, it pushed us to make changes.” The changes at OK2M were related to new technologies and the expansion of production facilities, as well as greater initiatives in expanding marketing and sales.

The dimension mils tend to operate as low cost producers with large production facilities, while smaller sized factories tend to produce a variety of products with higher value. Smaller sized factories produce higher valued products but produce only a fraction of the quantity of ‘spaghetti mills’. However, small factories’ products generally incorporate more labour per unit production. Examples of this type of production (diversified and high value) are found in the SE region: SE1S and SE4S produce only 35 mmbf and 50 mmbf a year but employ 165 and 200 individuals, respectively.

4.3.2 Adjustments to Outputs

Adjustments in Product Mix

The SLA defines which products are covered by the agreement. Some such as I-joist beams, trusses, and pallets, are exempt from the scope of the agreement and free of duty. It is hypothesized, to avoid tariff duties, there would
be a shift in product mix towards products exempt from the agreement. The study, however, found there were very few large scale changes to product mix from 2001-2008. The lack of adjustment in product mix reflects the difficulties associated with creating new products or altering product lines, which require capital investment and market development. There was evidence of some minor adaptations, but only one factory shifted production towards products exempt from the SLA. Five factories made notable product line adjustments during the study period.

OK3_L evolved from a dimension mill into a diversified lumber producer, cutting dimension lumber and structural lumber for Japan, as well as custom cut large timbers for individual home builders. The reason for the product change was a strategic attempt to carve out a niche in custom cut operations. These are made possible by a new head rig, which can cut timbers, beams, and metric products for Japan, Europe and Australia. OK3_L still produced about 50% dimension (commodity) lumber in 2008, down from 80% in 2001.

SE3_M evolved similarly, moving from dimension milling to more diversified products along with Japanese grade and metric products from multiple species for different markets. This change in products has allowed SE3_M to reduce dependence on the US market, from 85% in 2001 to around 10% in 2008. This factory has undergone significant ownership changes, having three different owners since 2001.

CI5_S shifted operations from a custom sawmill in 2001 to a windows and door manufacturer. The product shift occurred when the CVD and AD duty tax
was established in 2002. The softwood lumber dispute was acknowledged as a key inhibitor to profitability, so a switch to a more value added product was deemed essential.

On the Coast, two factories, Co2M and Co6S, changed product lines since 2001. In 2001, Co2M produced green squares (not dried) and lumber for the Japanese market. The factory reconfigured with the decline in the Japanese market. They now produce dried hemlock squares for Japan, as well as new product lines: railway ties and timbers for the US. The railway ties became an important product as they are exempt from the SLA. Co6S was a cedar sawmill in 2001. However, a lack of firm level timber supply and market conditions forced it to become a custom cut sawmill. Co6S is unique as they do not have their own timber supply but built close ties with two large forest product firms on the Coast and mill timber for them. Co6S is essentially a milling subcontractor; it is still a cedar producer.

There are regional differences in the product mix of sawmill operations. The Central Interior is largely defined by large dimension mills, and confined to MPB timber. The Northern Interior region was not examined in this study, but they also have many large and some super mills (500 mmbf/year) producing dimension lumber for the US. The Coastal region is characterized by custom cut and specialty mills and no dimensional mills were interviewed. Mills in the OK and SE regions have a variety of production facilities and, of the 11 mills interviewed, 3 were dimension, 5 specialty, 2 diversified and one custom cut. However, two dimension mills, OK5M and SE2M, have severely reduced
production. Indeed, OK5\textsubscript{M} stopped lumber production entirely in 2007 and only runs its plywood operation, while SE2\textsubscript{M} dramatically reduced production and closed indefinitely in the summer of 2009 (when the interviews were conducted). OK5\textsubscript{M} stressed export duties as the primary reason for the shutdown, while SE2\textsubscript{M} cited low lumber prices and low US demand as the reasons for their curtailment.

**Adjustment in Sales and Geographic Markets**

The SLA puts restrictions on BC lumber exports to the US through export duties and a soft cap on volume (see Chapter 2, Section 2.3.2). These restrictions are designed to limit BC and Canadian lumber exports to the US when lumber prices are low. The export tariffs provide incentives for BC lumber producers to pursue alternative markets and avoid additional costs. It is hypothesized, the additional costs associated with exporting to the US would induce BC exporters to diversify their exporting patterns and decrease their emphasis on the US.

There is some support for the hypothesis. Table 4.6 reveals that 14 of the factories interviewed had decreased their exports to the US since 2001, while four factories shifted their main sales market from the US to Canada. There is also evidence of regional differences. All factories in the SE and OK regions decreased their percentage of output destined to the US from 2001 to 2008. Conversely, the Coast displayed minimal changes to their US exports.
Table 4-7 Factory change in percent of output to the US from 2001-2008

<table>
<thead>
<tr>
<th>Factory</th>
<th>Main Market 2001</th>
<th>Main Market 2008</th>
<th>Change in US%</th>
<th>Factory</th>
<th>Main Market 2001</th>
<th>Main Market 2008</th>
<th>Change in US%</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK 1</td>
<td>US</td>
<td>US</td>
<td>-12</td>
<td>SE 1</td>
<td>Can</td>
<td>Can</td>
<td>-10</td>
</tr>
<tr>
<td>OK 3</td>
<td>US</td>
<td>US</td>
<td>-8</td>
<td>SE 3</td>
<td>US</td>
<td>Can</td>
<td>-75</td>
</tr>
<tr>
<td>OK 4</td>
<td>US</td>
<td>Can</td>
<td>-60</td>
<td>SE 4</td>
<td>US</td>
<td>Can</td>
<td>-20</td>
</tr>
<tr>
<td>OK 5*</td>
<td>US</td>
<td>Can</td>
<td>-75</td>
<td>SE 5</td>
<td>Can</td>
<td>Can</td>
<td>-4</td>
</tr>
<tr>
<td>OK 6</td>
<td>Can</td>
<td>Can</td>
<td>-15</td>
<td>CO 1</td>
<td>Japan</td>
<td>Japan</td>
<td>0</td>
</tr>
<tr>
<td>CI 1</td>
<td>US</td>
<td>US</td>
<td>+15</td>
<td>CO 2</td>
<td>Japan</td>
<td>Japan</td>
<td>-8</td>
</tr>
<tr>
<td>CI 2</td>
<td>US/Can</td>
<td>US</td>
<td>+15</td>
<td>CO 3</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>CI 3</td>
<td>US</td>
<td>US</td>
<td>-30</td>
<td>CO 4</td>
<td>N/A</td>
<td>EU</td>
<td>0</td>
</tr>
<tr>
<td>CI 4</td>
<td>US</td>
<td>US</td>
<td>-60</td>
<td>CO 5</td>
<td>US</td>
<td>US</td>
<td>0</td>
</tr>
<tr>
<td>CI 5</td>
<td>Can</td>
<td>Can</td>
<td>0</td>
<td>CO 6</td>
<td>Japan</td>
<td>US</td>
<td>+15</td>
</tr>
</tbody>
</table>

*2007 data as factory was shut down in 2008
** Change in US% is in absolute terms. For instance, OK1 exported 97% of their output to the US in 2001 and 85% in 2008. An absolute decrease of 12%. This was done to avoid smaller exporting factories skewing the data, such as SE5 which dropped from 5% US exports in 2001 to 1% in 2008.

Respondents were asked if their factories' trading patterns with the US had shifted as a result of the 2006 SLA. The interviews revealed 13 out of 20 respondents (65%) indicated their trading patterns with the US had shifted as a result of the agreement (Table 4.7). All of these factories indicated a drop in percentage sales to the US as sales to other markets, primarily Japan and Canada expanded.

The remaining six factories (one no answer), indicated that their trading patterns with the US had not significantly altered from 2001 to 2008. The primary reason was the US is the largest market for their products. Furthermore, dimensional lumber producers felt they were lowest cost producers and could out-compete other factories and firms.
Table 4-8 Has the SL dispute affected your factory’s trading patterns since 2001?

<table>
<thead>
<tr>
<th>Region</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ok</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>C.I.</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>SE</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Co</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory Size</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Medium</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Small</td>
<td>7</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>

An examination of the data reveals two poles in the impact of the 2006 SLA on factory trading patterns. First, the Okanagan and the SE Kootenays’ factories changed their trading patterns. Out of 11 interviews from these two regions, 9 responded ‘yes’, 1 responded ‘no’ and 1 had no reply. These two regions have a more diversified fiber basket as well as more diversified product base. They also have more intrinsic flexibility in the distribution of their products and are not as focused and dependent on exporting to the US. With respect to the trade dispute changing export markets, the response of SE1’s owner reflects OK and SE regional views:

We have shifted. But again we are a different type of company. We do specialty products, we don’t live and die by 2x4s, so we are not a Canfor, Westfraser, or Interfor, those guys just do dimension. They live by the sword and die by the sword, they have to have the American market, and we don’t. So we will move [our products] wherever.

The US is still a primary exporting location, but products are of a diversified nature and in general have more value added. Newer markets identified and explored after the signing of the agreement include China, Korea, Saudi Arabia, Vietnam and Mexico, as well as a pronounced emphasis on expanding into the Canadian market, especially eastern Canada.
In the SE region, four out of the five factories indicated that they had changed their trading patterns since 2001. One factory (SE2_M) did not change their trading pattern and responded by closing down. Three of the four factories directly related their changing trading patterns to disruptions in the American market associated with Lumber IV and SLA. One of the factories, SE4_S, stated they dramatically altered their trading regime, including a reduction from 85% US exports in 2001, to 10% in 2008. During this transition SE4_S expanded the Canadian and Japanese markets. The lumber dispute was not considered a component of this trading adjustment; however, it is difficult not to associate such a dramatic shift with the economic and political barriers associated with the dispute. The other three factories clearly stated the economic disincentives associated with the US market were a major factor in exploring new export markets. SE1_S has shifted its US exports from 90% in 2001 to 15% in 2008. They made a concerted effort to expand all other potential markets and elaborated upon the softwood lumber issue as an impetus to change, “it made us more aware and probably pushed us into that direction quicker.” Only two factories replied they were heavily reliant on the US market: SE2_M, the dimensional lumber producer, and SE4_S, a diverse mill with 60% of output US exports. The other three factories had less than 15% output exported to the US in 2008. These factories had significantly opened up a variety of foreign markets since 2001. These markets include Australia, Belgium, Europe, China, Japan, South Korea, the United Kingdom, Pakistan and the Middle East. Figure 4.1 illustrates the changes in export markets for the SE region from 2001 to 2008.
The US percentage share has declined, while the Canadian and Japanese percentage shares have increased.

**Figure 4-1  SE Kootenay Region Output and Export Markets**

![Production Chart](image)

*SE 5 produced .4mmbf in 2008 and does appear in the figure*

This study shows, even though the SE region is positioned in close proximity to the US border, the presence of the US market did not dictate dependence. Indeed, all five factories decreased their percentage output to the US. The region’s diverse fiber basket and product mix frees factories from US market dependence.

In the Okanagan region, all six factories had altered their trading patterns since 2001 (Table 4.5). Furthermore, all six had decreased their percentage of production entering the US market. All the respondents felt the lumber dispute and the export tax associated with the 2006 SLA had an impact on their decisions to explore other markets. The expanded markets include the domestic market, BC and Eastern Canada, as well as Japan. OK2L was the only factory in the region to indicate any trading with China. Their trading with China has increased substantially from negligible sales in 2007 to 4% of sales in 2008. It was noted, however, the lumber being shipped to China was all low grade.
Figure 4.2 illustrates the variety of differences between the export markets of individual factories within the Okanagan.

**Figure 4-2  Okanagan Region Output and Export Markets**

*OK 5 stopped producing in 2007*

The other two regions, the Central Interior and the Coast, had a higher percentage (6 out of 11 firms) responding the SLA did not affect their trading patterns. The Central Interior’s production of softwood lumber is concentrated on dimensional lumber. The region has been restricted by the beetle epidemic and has been forced to salvage harvest timber before it loses all economic value. The operations in the Central Interior are designed to meet US demand for lumber and some respondents even mentioned they continued to export to the US when the combined AD and CVD rates were around 27%. When interviewed, the respondents associated with these operations generally replied that the demand for their products is in the US and this will not be changing, “the dispute didn’t affect our trade with the US because we can outcompete competitors anytime, we are so efficient (CI1_L)”.

91
Figure 4.3 highlights the importance of the three main lumber markets: the US, Canada and Japan to the Central Interior.

Nevertheless, even in this region dominated by dimensional lumber production, two factories did alter their trading patterns as a result of the 2006 SLA and the decrease in US housing starts. One factory, CI4L, kept exporting to the US when the CVD was 27% in 2002 but has since reduced the percentage of their exports flowing to the US from 95% in 2001 to 35% in 2008.

When questioned, three of five CI factories stated they had not changed their trading patterns in response to the dispute or any other factors. CI3L had altered their trading patterns but still had 55% of their output heading to the US in 2008; however, this was down from 85% in 2001. The changes in allocation were filled by domestic and Japanese markets. It was mentioned the SLA encouraged them to export to non-US markets; however, these factories also stated they would have entered those markets regardless of the dispute and agreement.

*CI5 produced less than .12mmbf and does not appear in the figure
A typical response to questions relating to altered trade patterns in association with CVD’s, specifically the 27% combined duty in 2002, was:

At that time, the dollar was fairly weak, and everything gets paid with US dollars, but, they are still our largest customers by far and it’s very difficult to avoid that. It took some dollars out of our pocket but it didn’t impact where we were going to supply our lumber (CI4L).

Even so, the continued constraints placed on the US market have had their impacts on CI4L. As in 2001, they exported 95% of their output to the US but, in 2008, US exports dropped to 30%. Canada as a market expanded from 3% to 35% of their sales, while Japan and China became more prominent. Since 2001, two factories in the CI region, one a specialized panelling factory (CI2S) and one specializing in beetle killed dimensional lumber (CI1L), increased their exports to the US.

Factories in the Coast region also responded the SLA did not affect their trading patterns and, in fact, 4 out of 6 stated their trading patterns are quite similar or have no substantial change from 2001 to 2008. Historically, the Coast industry has had a much higher connection with Japan. Two of the six firms interviewed on the Coast were custom cut operations. One custom cut operation, Co3m, indicated they did not pay attention to the final destination of their products, while the other, Co6S actually saw their product distribution increase to the US from 30 to 50% since 2001. They both have no responsibility for acquisition of logs or distribution of final products, as a result, the SLA did not affect their operations in terms of trading partners.

Three of the six firms in the Coast region indicated they had a significant percentage of their exports going to Europe in 2008 (50%, 25%, 20%). The
Coast, in fact, is the only region that had significant exports being sent to Europe. On a percentage basis, the Co region is not as dependent on the US and only one factory interviewed had more than 50% of their output heading to the US. This factory, Co5M, is a diversified cedar producer and 85% of their output was exported to the US market in 2001 and 2008. They stated the US is the market for their product and, regardless of the softwood lumber dispute and punitive export charges; they made no efforts to change their market dependency. Figure 4.4 shows the relative importance of the Japanese and European markets as well as less dependence on the US market.

Figure 4-4 The Coast Region Output and Export Markets

![Diagram showing production and export markets for different regions over time]

*Co 4 did not give indication to their sales markets for 2001
**Co 3 is custom cut and did not give percentage distribution of their sales

There is, indeed, a polarization of regions with respect to trading patterns as the OK and SE regions showed more willingness and ability to alter their trading partners compared to the Coast and Central Interior. There may be some inability or reluctance for older, more stabilized Coast and Central Interior
factories to adapt to changing economic and political factors when compared to “newer” lumber producing regions, such as OK and SE.

4.4 Factory Size Related Adjustments

It is difficult to define expectations on how the softwood lumber dispute has affected different mill sizes in the BC lumber industry. On one hand, small factories can be flexible and responsive to changes; on the other hand, large factories can have persuasive market power and possess significant resources to develop new markets, new products and improve productivity through capital expenditures.

The results were interesting as there was evidence of adjustment trends for all three categories. Table 4.9 presents cumulative data for employment and output for small, medium and large sawmills.

Table 4.9 Changes in Total Employment and Total Output by Factory size

<table>
<thead>
<tr>
<th>Factory Size</th>
<th>Employ 2001</th>
<th>Employ 2008</th>
<th>% Employ Change</th>
<th>Output (mmbf) 2001</th>
<th>Output (mmbf) 2008</th>
<th>% Output Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (9)</td>
<td>664</td>
<td>723</td>
<td>8.9%</td>
<td>181.4</td>
<td>194.4</td>
<td>9.9%</td>
</tr>
<tr>
<td>Med (8)</td>
<td>2395</td>
<td>1727</td>
<td>-27.9%</td>
<td>989</td>
<td>691</td>
<td>-30.1%</td>
</tr>
<tr>
<td>Large (5)</td>
<td>1235</td>
<td>1134</td>
<td>-8.2%</td>
<td>1040</td>
<td>1370</td>
<td>31.7%</td>
</tr>
</tbody>
</table>

Table 4.9 illustrates the decline of medium sized factories both in absolute employment and output. Small mills were the only category to increase in total employment over the time period. Large mills significantly increased their output, however, employment fell. The following sections will examine the adjustments for small, medium and large factories.
4.4.1 Small Size Factories - Adjustments

For this study, small factories were defined as mills with output of less than 60 mmbf. They accounted for 20% of aggregate output. Small operations, while not remarkable in terms of production numbers, tend to be labour intensive and as such they are important to provincial employment and individual communities. The most striking adjustments associated with small factories are the increases in aggregate employment and output. The increase in employment is particularly surprising given the downturn in the BC wood products industry, with over 17,000 jobs lost in 2007 and 2008.

While it is only a sample of 9 factories, it is a reminder of their flexibility to adjust and the employment potential of small factories. One possible explanation of the growth for small factories is that their product composition is comprised almost exclusively of value added products. Of the nine small factories interviewed, six produced specialty products such as decking, paneling, siding and high end beams while another had become a window and door manufacturer. Two other factories were custom cut operations, while the final small factory SE1L was a diversified producer, producing some dimensional products but focusing predominantly on specialty lumber from high-grade logs. There is correlation between specialty production and increased production from 2001 to 2008 (only one decreased).

Small firms are not only labour intensive they also tend to be non-unionized, in fact, 8 of the 9 factories were non-unionized. The one unionized small plant, Co4S, operates on the Coast where sawmilling was first established in BC. The supposed benefit of a non-unionized workforce is the ability to be
more flexible in production including changes in production, changes in the product mix, and changes in labour organization or job rotation. All the small factories reinvested in their operations each year, however, capital investments were minimal. Two factories who invested significantly were SE4S, $16 million since 2004, and SE1S, $1 million per year since 2001.

Small factories have flexibility in production but their trading patterns primarily concentrate on Canada and the U.S (Figure 4.5). The smallest of the small factories (<30 mmbf) almost exclusively focused on Canadian and US markets. One of the exceptions was Co4S which exported half its production to Europe; this was the only small firm to export to Europe. Two factories, SE1S and SE4S, were the only small firms that sent products to Japan. In 2008, 6 of 9 firms sold 98% of their production to the Canadian and US markets, while only Co5S sold less than 50% production to Canada and the US

**Figure 4-5  Small Factories Output and Export Markets**

![Small Factories Output and Export Markets](image)

*Cl5 and SE5 both produced under 1mmbf/year and do not appear in the figure
*Co4 is a custom cut sawmill and did not know market destination in 2001

Small factories are primarily dependent on the Canadian and US markets while many Medium and Large factories have developed more options.
4.4.2 Medium Factories - Adjustments

Medium size factories in the study were defined as mills with output of 60 mmbf to 199 mmbf per year in 2008. There are 8 medium size factories in the study; three of the mills, OK5\(_M\), SE2\(_M\) and SE3\(_M\), produced less than 60 mmbf but had mill capacity and previous production levels within the medium range. OK5\(_M\) did not produce any lumber in 2008, as they shut down in 2007, and there is no timetable to reopen. SE2\(_M\) has curtailed operations and only produced 30 mmbf in 2008, down from 150 mmbf in 2007. SE3\(_M\) produced only 55 mmbf in 2008 as a result of curtailing production shifts; they had produced 110 mmbf in 2001 and have changed ownership three times.

Medium size factories have suffered the most when compared to small and large factories. In 2008, medium sized factories accounted for 29% of output and 44% of employment in the study. In aggregate, medium size factories lost 30% of their employment and 21% of their output, furthermore, they accounted for 96% of all the employment lost in the study. Only one medium sized factory increased both employment and output: OK2\(_M\), a specialty board manufacturer increased production from 89 to 146 mmbf from 2001 to 2008 and increased employment from 280 to 350 employees during the same period. This factory is an anomaly, as 5 of the remaining 8 factories had decreased both employment and output when comparing data from 2001 to 2008.

Four of the medium sized factories are located on the Coast region. With respect to adjustments, 2 of the 8 medium sized factories incorporated some product mix changes: Co2\(_M\) started cutting railway ties (25% of total output), and SE3\(_M\) shifted from being a dimension lumber producer to a more diversified
producer in an attempt to lessen factory dependence on the US market. There were two specialized producers among the medium sized factories, OK2_M and Co5_M, the former being the only medium sized factory to increase both employment and output. Of the remaining six, five are diversified producers, producing a variety of dimensional and Metric products as well as timbers and squares for the Japanese market, while the remaining factory is a custom cut operation. The two medium sized dimensional lumber factories have either ceased operation (OK5_M) or indefinitely closed (SE2_M).

The medium sized factories experienced some productivity growth from 2001 to 2008. Four of the 8 medium sized firms reported that they had a strong increase in productivity: two of the four (Co1_M and Co2_M) directly related increases in productivity to decreases in labour costs while the remaining two (Ok2_M and Co3_M) indicated productivity gains came from technology and machinery.

A few interesting trends appeared between 2001 and 2008 with respect to the trading patterns of medium sized firms (Figure 4.6). Co3_M will be ignored as it simply cuts timber for customers and gave no indication of products final destination.
There has been an overall decrease in the percent of sales to the US, as five factories decreased sales, one increased sales and one remained consistent. The reduction in the share of output flowing to the US has lead to increases in the percent of sales going to Canada. The Japanese market is prominent for some factories on the Coast. With respect to China, Co2\textsubscript{M} and Co6\textsubscript{M} reported exports to the Chinese market. Many factories talked about opening up the Chinese market but very few reported it in their percentage distribution of sales. Some exports went to Europe, and Co1\textsubscript{M} and Co6\textsubscript{M} reported that their exports to Europe were increasing.

Medium sized factories appear to be getting pushed out of the lumber manufacturing business in British Columbia. This is a result of dimensional lumber production being increasingly dominated by large and mega-sized mills that have the capacity to drive down per unit costs. On the other hand, specialized value added production is being dominated by small factories that are non-unionized and flexible. The overall numbers for employment and output
indicate that medium sized sawmills are struggling to remain competitive. The mill closures and suspended operations associated with the medium sized factories in this study give evidence that an industrial shift in the lumber manufacturing sector is underway. Medium sized factories have not demonstrated the ability to adapt through the production of specialized products or decrease per unit costs to a level to compete in the production of dimension lumber.

4.4.3 Large Sized Factories – Adjustments

For purposes of this study, large factories are characterized as producing 200 mmbf or more in 2008. There are sawmill factories in BC that can produce 500-600 mmbf/year, but the majority of these mills are in the Northern Interior, which was not examined in this study. All 5 large factories interviewed were dimension mills in 2001 and only one (OK3) shifted operations to add structural products as it became a more diversified producer. The five large factories in the study account for 70% of the output but only 35% of the employment in 2008 for all the factories interviewed. In aggregate, large factories output increased 32%, while employment fell 8% from 2001 to 2008. Four of the 5 factories decreased employment while only one (OK1L) increased its employment.

From a productivity perspective, large factories are becoming more productive as they produce more output with less labour. Four of the 5 factories exhibited strong increases in productivity, attributed to new machinery and updated technology. One factory, CI4L, had a decrease in productivity despite
the implementation of new technologies, as there was a drop in the quality of their timber supply.

Figure 4-7 Large Factories Output and Export Markets

The US is the predominant export market for large factories (Figure 4.7). However, four of the 5 factories decreased their percentage of sales to the US from 2001 to 2008. CI1L was the only factory to increase the percent of sales flowing to the US as it climbed for 60% in 2001 to 75% in 2008. Four of five large factories increased the percent of sales flowing to Canada while 3 of the 5 increased the share of their exports flowing to Japan, while 2 reduced Japanese exports. In 2008, OK3L and CI4L both started exporting to China but the percentage numbers are small.

The large factories highlight an important constraining feature of the BC lumber industry: the lack of diversity of export markets. The US, Canada and Japan still dominate lumber markets, and the rest are considered minor. It is interesting two large factories started exporting to China in 2008. Furthermore, provincial statistics for lumber exports indicate more factories and firms have realized the potential of the Chinese lumber market, as the percent of BC lumber
exports have climbed from 5% in 2008 to 11% in 2009. This dramatic increase is less of a reflection of the increase in actual quantity of lumber exports to China, and more of a reflection of the dramatic fall in lumber demand elsewhere in the World. The Chinese market does possess an enormous opportunity for lumber exports and could become a prominent export market in the near future.

4.5 Summary

It was anticipated the lumber dispute and 2006 SLA would impact all the firms in the BC softwood lumber industry on an equal basis but the range of responses was unexpected. There was a regional and factory size dimension to factory adjustments over the study period. The study revealed noteworthy evidence to support the hypothesis of factories adjusting their trading patterns as a result of the SLA. Regionally, results indicated the OK and SE decreased their percentage exports to the US, while the Coast hardly altered US exports. There was, however, a general lack of evidence supporting the premise that factories would adjust product lines to circumvent the agreement.

It was hypothesized factories would reduce employment and output and increase productivity in order to lower costs. There was evidence of factories increasing productivity to reduce costs. These improvements were generally achieved through technology, as well as, through labour force reduction. There were interesting trends in factory size adjustments with respect to employment and output changes. Most notably, medium sized factories struggled significantly. In addition, small factories increased both employment and output
during the study period, while large factories increased output while decreasing employment.

It was clear, while many factories do not approve of the SLA, they do not want Canada to withdraw from the agreement. The study revealed an overarching industry sentiment of weariness and defeatism associated with the lumber dispute and US relations. This fear of US retaliation weakens the BC and Canadian lumber industry's position and strengthens the US into a position of dominance.
5: CONCLUDING COMMENTS

The BC softwood lumber industry has been under siege for 30 years, as the US has attacked the industry in a number of different forums and through a number of different mechanisms. This study has analyzed the softwood lumber industry in an attempt to determine to what extent the softwood lumber dispute caused firms and factories to adjust their operations during Lumber IV, from 2001-2006 and managed trade, from 2006-2008. During Lumber IV, NAFTA and the WTO rendered 26 decisions over the implementation of CVD and AD duties. The BC lumber industry was able to overcome the duties and cope with uncertainty as the US demand for lumber rose, lumber prices rose and a low Canadian dollar prevailed. However, the period of managed trade developed into a perfect storm of negative factors starting with the signing of the SLA. The 15% SLA export tax, a decrease in US demand, a high valued Canadian dollar, and a global financial crisis, all negatively affected the BC lumber industry.

An analysis of the adjustments made by five of the largest lumber producing firms in BC revealed some interesting trends associated with these two periods. From 2001-2006, all firms expanded lumber capacity and lumber production, while several made key sawmill acquisitions. The 2006-2008 period was characterized by a reduction in production but, more importantly, investments led to a substantial increase in production in regions outside of BC,
specifically, the US and Alberta. In fact, three of the five firms invested escrow funds received from the SLA into the United States.

The factory level analyses of 22 sawmill operations from four different regions in BC revealed different perspectives on the SLA and interesting trends in factory adjustments. The extended case study revealed, while half the respondents did not agree with the implementation of the SLA, practically all agreed Canada should not withdraw from the agreement and 75% agreed that the SLA gave the BC lumber industry some certainty. The most striking result was the passive and defeatist attitudes of the respondents when discussing the SLA. There appears to be industry recognition and acceptance that the US will inevitably attack Canadian forest policies and implement new tariffs in the future.

The interviews revealed many factories adjusting their trading patterns and diversified their export markets away from the US in a response to the SLA. Some factories even switched to products exempt from the SLA, or to other products that were destined for other lumber markets around the world. There were also significant differences in adjustments to the SLA from a regional and factory size perspective. Different regions produced a range of products reflecting regional timber supply, while different factory sizes often correlated with different types of production and different adjustments.

The period 2001-2008 saw two important changes for the BC lumber industry: on the demand side – the emergence of China as an important export market, and on the supply side – the decrease in timber supply from the MPB epidemic. On the demand side, the US market is still essential to the BC lumber
industry. However, under current economic conditions and the short and medium term uncertainty in US housing market, the development of new markets is crucial. The development and expansion of the Chinese lumber market is particularly relevant in this context. Just as the Japanese housing market helped ‘save’ the Coast forest industry during the 1982 recession, the Chinese housing market may well be the Province’s ‘saviour’ this time. On the supply side, the MPB epidemic has created short-term opportunity for a bio-fuel industry but, in the longer term, securities of timber supply will increasingly become an industry wide concern.

All the provincial actors view the BC forest endowment from different perspectives. The actors include industry, workers, communities, provincial government, and environmentalists. The industry views the endowment as an industrial commodity, the workers and resource communities depend upon the forests as their economic base, the provincial government views the forests as a revenue source, the environmentalists view forests as valuable ecosystems and First Nations view the forests as their land. Finally, the US primarily views the BC forests as a stock supplier of raw materials, utilized only when necessary. Firms’ operate in a market where costs of production are affected by natural constraints, energy costs, labour costs and government policy. Demand is determined in global markets and prices are impacted by the foreign exchange rate. Furthermore, there is increased competition from other provinces and countries. It is clear that forest based companies operate in a complex economic, social, political and environmental context.
The SLA has become a constant theme for these firms and these factory operations. It is the cost of doing business in the US. Fair or unfair, it is not even a question anymore because it is a reality; it is the political and economic landscape that has been created over the last 30 years. Higher lumber prices may return and rescue the BC sawmill industry, but the industry is cyclical by nature and currently provides less benefit in employment and income than could be generated by more value added production. Some, but unfortunately not the majority of firms, have embraced the concept of producing more value added products exempt from the SLA. It is time to move beyond the softwood lumber dispute by shifting production from low value added sawmills to wood products with high value.

The value-added recommendation originated during the 1982 recession (Hayter 1992) and it is still heard today. Parfitt (2008) recommends the BC government work within the structure of the SLA to improve the value added sector in BC as a way to circumvent the agreement, strengthen the BC economy through diversification, and help BC’s rural communities. Unfortunately, through the decades, a variety of BC governments have failed to provide the necessary incentives to create more jobs out of the forest resource and expand activities along the value chain. The legacy of this failure is the hollowing out of many small towns in BC. With increased mill closures and further layoffs due to the multiplier effect, resource communities become shells of what once were vibrant hubs of activity.
Forest resources should be managed to the benefit of society and take into consideration the different players. In some circumstances it may make sense to tie logging and wood processing to specific communities and in other instances, it may not. Hayter (2003) emphasized and documented a shift in the BC forest industry from fordist principles to flexible specialization. There is a need to expand this flexibility shift via government and policy. It is becoming essential to manage the forest resource to meet the diverse needs of various regions and different actors, and forest policies must reflect local needs. It is important to have clear policy statements concerning the overarching goals for BC forests and industry, but implementation should reflect specific regional and industry interests. A return to appurtenancy is not an option, but forest policy must be adaptable to communities, industries, regions and firms. Policy cannot be a barrier to invest in BC forests. Government must encourage investment if the BC forest industry is to rebound and generate value for the residents of the province. Recent example of bold government action is the provincial government of Newfoundland expropriating AbitibiBowater Inc’s, North America's largest newsprint maker, timber rights and hydroelectric assets in response to Abitibi’s plan to close operations of a pulp and paper mill (Dowd, 2008). While this may negatively affect the business climate in the short term, it makes a statement regarding government valuation of provincial resources.

One of the primary issues relating to the Canada-US softwood lumber agreement is it ties the hands of Canadian governments at a time when governments most need to collaborate with industry to combat the downturn and
attempt to slow secular decline in the industry. Governments, industries, communities and environmentalists must be able to work together cooperatively to enable forest based companies to adapt to changes in both timber supply conditions and global markets, while still adhering to environmental protocols and sustaining local communities.
REFERENCE LIST


APPENDIX

Questionnaire for Sawmills

A. General Information
Respondent ______________ Status __________________
Name of plant_____________ Location of plant __________________________
Company (if different)____________ Location of head office:____________
Age of plant :_____________ Age of equipment: __________________
Is the firm owner-managed? Yes ☐ No ☐ Single plant firm? Yes ☐ No ☐
Domestic ☐ foreign owned ☐

B. Products, Employment and Sales

1a. Indicate major product lines at this plant

<table>
<thead>
<tr>
<th>2001</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. _____ (%)</td>
<td>1. ______ (%)</td>
</tr>
<tr>
<td>2. ______ (%)</td>
<td>2. ______ (%)</td>
</tr>
<tr>
<td>3. ______ (%)</td>
<td>3. ______ (%)</td>
</tr>
<tr>
<td>4. ______ (%)</td>
<td>4. ______ (%)</td>
</tr>
</tbody>
</table>

Comment on the changes___________________________________________

2. Indicate annual capacity and production in terms of mmbf

Capacity: 2001______ 2005_______ 2008_________ now_________
Production: 2001_______ 2005_______ 2008_________

3. Estimate the value of goods distributed?

<table>
<thead>
<tr>
<th>2001</th>
<th>2005</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>total sales</td>
<td>2001________</td>
<td>2005_______</td>
</tr>
<tr>
<td>export sales</td>
<td>2001_______</td>
<td>2005_______</td>
</tr>
</tbody>
</table>

4a. Estimate total employment numbers at this factory?(annual average)

<table>
<thead>
<tr>
<th>2001</th>
<th>2005</th>
<th>2008</th>
<th>now</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>Administrative staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secretarial staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part time workers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. Indicate the extent of workforce fluctuations?

<table>
<thead>
<tr>
<th>2001</th>
<th>2005</th>
<th>2008</th>
</tr>
</thead>
</table>

c. Estimate the average age of employees?

<table>
<thead>
<tr>
<th>2001</th>
<th>2005</th>
<th>2008</th>
</tr>
</thead>
</table>
5. What percentage of your production workers were skilled?

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2005</th>
<th>2008</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6a. Is this plant unionized?
Yes □  No □

b. If yes, are there local variations in collective bargaining agreement?

6c. If no, what is your approach to organizing workers?
Informal □  formal collective agreement □  individual negotiation □

Comment ______________________________________________________

7a. What is the entry level hourly wage rate at this factory?

2001 2008

b. What is the average hourly wage rate at this factory?

2001 2008

8. Indicate work organization features in terms of...

<table>
<thead>
<tr>
<th>Feature</th>
<th>2001</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. seniority principle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. job demarcation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. job rotation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. self-supervision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. shift-work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. bonuses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. profit sharing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. non-wage benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. apprentices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. in-house training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. external training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m. part-time workers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comment on trends:

9. Can you estimate per unit labour costs? (C$ per mbf)

2001 2005 2008

10a. Can you estimate productivity? (cubic m per hour)

2001 2005 2008

b. Is there another way you use to measure labour productivity?
Yes □  No □

10b. If yes, how?

11a. Indicate trends in labour productivity 2001-2008

Strong increase □  moderate increase □  no increase □  decrease □

b. What are the main sources of productivity increase/decrease?

12. Can you estimate lumber recovery factor? (mbf per cubic metre)

2001 2005 2008

13a. Indicate trends in lumber recovery 2001-2008

Strong increase □  moderate increase □  no increase □  decrease □

b. Please comment ____________________________________________
14. How do you make use of your waste wood?__________________________
15. Since 2001, have there been changes in the functions and services done within the factory? Fewer functions or services today □
More functions or services today □ No changes since 2001 □
Please indicate_______________________________________________
16. How would you describe your relationship with the union/workers in general? 2001 compared to 2008
17. Indicate the percentage (%) distribution of sales by major markets

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2005</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest of Canada</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.U.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
18. Are you planning to expand or diversify your market areas?
Yes □ No □ If yes, why?________________________________________________________
To which regions or countries?____________________________________________________
If no, why not?____________________________________________________________________
19. Since 2001, did you take initiatives to...
  a. develop new products Yes □ No □
  b. add value to products Yes □ No □
  c. Please indicate:
Nature of development______________________________________________________________
Source of development______________________________________________________________
Do you use Forintek? Yes □ No □
20. Compared to the industry average, how would you rank your...
  a. process engineering capability? ________________________
  b. product development capability? ________________________
  c. marketing capability? ________________________________
  d. Any change since 2001? _________________________________________
21. How do you distribute your products?
  a. Domestic Sales (in %) 2001 2005 2008
     Via a broker _______ _______ _______
     Via direct sale _______ _______ _______
     Other (please specify) _______ _______ _______
  b. Export Sales (in %) 2001 2005 2008
     Via a broker _______ _______ _______
     Via direct sale _______ _______ _______
     Other (please specify) _______ _______ _______
22. Indicate how you ship your products
  a. Domestic______________________________________________
  b. Exports________________________________________________
c. Have there be any changes since 2001? _____________________________

C. Input/Raw Materials

23. What mix of species do you use?

2001                      2008                      
1. __________________(%)________  1. __________________(%)________ 
2. __________________(%)________  2. __________________(%)________ 
3. __________________(%)________  3. __________________(%)________ 
4. __________________(%)________  4. __________________(%)________ 

24. What are your sources of log supply? (in %)

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2005</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own logging</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Contract logging</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Market purchases</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Other sources (______)</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

25. Do you hold renewable tenure?

Yes □        No □   If yes, please specify ________________________________

26. What changes in timber supply do you anticipate...

a. next year? ________________________________  b. over the next five years? ________________________________

27a. Indicate your cost structure (in %)

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2005</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood supply</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Labour and benefits</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Interest on capital</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Plant depreciation</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Fuel &amp; Energy</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Taxes</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Transportation (distribution)</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>Other costs</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

b. Indicate your main efforts to control/reduce costs? ________________________________

28. What was the total new investment at this factory?

a. 2001-2006 purpose ________________________________

b. Since 2006 purpose ________________________________

29. How has the MPB affected your current operations and what do you anticipate will be its future impact?

D. The Softwood Lumber Agreement

30. Did you agree with Canada letting the 1996 SLA expire in 2001?

Yes □        No □   Explain ________________________________

31. In hindsight, what should your firm have done in 2001 at the expiration of the 1996 SLA?

a. Search for new markets? Yes □        No □

b. New products? Yes □        No □

c. Consolidated? Yes □        No □
d. Increased capacity □ Yes □ No □
e. Cost cutting technology? □ Yes □ No □
f. Other (please specify) ______________________

32. In April 2002, the US DoC announced a combined subsidy and antidumping rates of 27.22%

a. Did this affect your trade with the US? □ Yes □ No □
   Explain ______________________

b. Did it initiate closer looks into other foreign markets? □ Yes □ No □
c. Any other changes? ______________________

33. Do you feel your firm has been hurt more or less by the SL dispute compared to most sawmills? □ Yes □ No □
   Explain ______________________

34. What were your factory’s responses to the period of litigation from 2001-2006? Explain ______________________

35a. Are you in favour of the 2006 SLA? □ Yes □ No □
   Explain ______________________

b. Would you like Canada to withdraw? □ Yes □ No □
   Explain ______________________

36. How did your factory respond to the 2006 Agreement?

37. How did your firm utilize the escrow from litigation?

38a. Has the 2006 SLA affected your trading patterns and/or marketing? □ Yes □ No □
   Explain ______________________

b. Has it given your firm certainty? □ Yes □ No □
   Explain ______________________

c. How is it affecting future planning? ______________________

39. At what C$ price for lumber would your plant have to stop producing under prevailing conditions?

40. What C$ price for lumber is required for long term economic viability?

41. Was your firm involved in the discussion about the creation of the 2006 SLA? □ Yes □ No □
   Explain ______________________

42. If No, Would you like to have been included? □ Yes □ No □
   Explain ______________________

43. Which factors had the most impact on the profitability of your plant? (please rank)

   2001  2008
   strong moderate weak strong moderate weak

SL dispute
Energy costs
Value of C$
US housing market
Labour cost
Other factors (please indicate)______________________________

E. Summary

44a. Please list the industry associations you are a member of...
1. _____________________________ since when?__________
2. _____________________________ since when?__________
3. _____________________________ since when?__________
4. _____________________________ since when?__________
b. What are the benefits and challenges of membership?
   Benefits: _____________________________________________
   Challenges: ___________________________________________

45. Can you comment on recent government policy measures, such as...
   a. appurtenancy_____________________________________
   b. biofuel__________________________________________
   c. the roundtable____________________________________
   d. market auctions___________________________________
   e. community forests_________________________________

46. The industry has lost many firms, so many plants have gone under and you have been able to survive. How have you done it?__________________________

*Questionnaire condensed in order to reduce its size for thesis production