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## Essays on the economics of British Columbian timber policy

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### III. Revitalized? An event study of forest policy reform in British Columbia

This chapter is from Niquidet, K. 2007. Revitalized? An event study of forest policy reform in British Columbia. *Revise and resubmit Journal of Forest Economics*.

#### Abstract

In response to the restricted market access and declining global competitiveness facing its domestic forest industry, the British Columbian government has embarked on an ambitious plan of policy reform termed the Forestry Revitalization Plan (FRP). Regulations governing the structure of the industry have been relaxed and administered stumpage systems have been made more market based. Using daily returns data on thirteen publicly traded forest companies that operate in the province, the impact of the FRP was analyzed using event study techniques. Results show that the announcement of the FRP generated significant negative abnormal returns for several firms. These results may be explained by the new stumpage system and the loss of forest tenure. Over the longer term the benefit of the regulatory change will depend on its ability to open up access to U.S. markets and how the industry structures itself in face of increased market pressures.

#### Introduction

Forestry has traditionally been the staple of the economy in British Columbia (BC), particularly in rural areas. This reliance on forestry coupled with the fact that over 95% of the forest land is owned by the public has often made forest policy the focal point of provincial politics. This was particularly evident of late as the forest sector began the new millennium facing a host of challenges.

Increased protected areas and a new forest practices code in many ways made BC a leader in environmentally friendly forest practices (Cashore and McDermott 2004) but it also substantially increased the cost of extracting and processing timber (van Kooten and Wang 1998, Haley 1996). This was particularly critical for the coastal industry as the traditional marketplace for its products (Japan) was also shrinking due to increased competition from Europe and questions over the structural properties of its primary species, western hemlock (*Tsuga heterophylla*). Unable to switch into U.S. markets because of the quota-based softwood lumber agreement (SLA), and uncompetitive operating costs, several coastal sawmills shut down or ran at levels which were unable to recover the cost of capital.<sup>1</sup> Little investment was being made in new working capital and many

1 Quota was allocated on the basis of historical shipments. The Coast being historically oriented towards Japan consequently received little.

of the rural communities that depended on the forest sector began to decline.

Taking advantage of quota rents (van Kooten 2002), superior milling technology and lower cost logging, the interior industry was not nearly as distressed as their coastal counterparts. Nonetheless, with the expiration of the SLA on March 31<sup>st</sup> 2001 and the subsequent imposition of a 19.67 percent preliminary countervailing duty on Canadian lumber imports by the U.S. Department of Commerce (DOC) on August 10<sup>th</sup> 2001, fears of industry decline also swept through the interior.

Later in 2001, forest economist Peter Pearse was called upon to review the state of the coastal forest industry. His report documented an industry “in crisis”, operating at the margin as the highest cost lumber producer in the world and subject to fierce global competition and rapidly changing product markets. Pearse (2001) recommended that many of the regulatory restrictions governing the industry be relaxed to allow for more flexibility and that the softwood lumber dispute with the U.S. be urgently dealt with.

At about the same time Pearse was drafting his report, the BC Ministry of Forests (MoF) (2001) began to circulate proposed forest policy changes for softwood lumber trade discussions. The proposal entailed increasing the amount of timber sold by competitive auctions, a stumpage system based on auction results, the removal of appurtenancy and processing requirements, the elimination of cut control and utilization policies that may encourage the removal of uneconomic timber, and the freedom to subdivide and transfer tenure.

In early 2003 a draft framework authored by DOC undersecretary Grant Aldonas (hereafter the Aldonas proposal) which outlined how provinces could receive “changed circumstance” and be relieved of duties was released. This document gave hope that policy reforms could lead to a softwood lumber solution. Responding to the Aldonas proposal the BC government announced on March 26, 2003 the Forestry Revitalization Plan (FRP) (MoF 2003). The FRP can be loosely divided into four main parts, all connected to some degree.

1. *Tenure re-allocation* – Major licensees, defined as those who have greater than 200,000 m<sup>3</sup> of replaceable annual allowable cut (AAC), will have 20% of their volume taken away, subject to fair compensation. A portion of this volume (approximately 50%) will be re-allocated to small scale tenures (woodlots, community forests and first nations) and the other half is to be auctioned to the highest bidder via the BC Timber Sales program (BCTS), formerly known as the Small Business Forest Enterprise Program (SBFEP).
2. *Timber auctions* – BCTS will eliminate the SBFEP practice of bid proposals - where timber was allocated on the basis of value-added and employment criteria - awarding timber solely on the basis of price.<sup>2</sup> The increased volume of timber auctioned through BCTS (approximately 20% of the total AAC) to be used to set administered prices on timber derived from long term volume based (Forest Licenses) and area based (Tree Farm Licenses) tenures. With the new administered stumpage system

2 Although for a short time (i.e. program to be phased out) bidding for some sales will be restricted to small primary manufacturers and value added manufacturers termed category 2 bidders.

being termed the Market Pricing System (MPS). In addition, any new long term tenures will be auctioned.

3. *Cut control and processing regulations* - Appurtenancy and timber processing clauses which tied volumes from tenures to specific manufacturing facilities are to be eliminated, allowing logs to flow to their highest valued use. Companies will also no longer be penalized for closing mills and when harvesting will not be required to remove all “merchantable” timber but have the option of leaving the timber standing or on the ground, subject to a stumpage fee and subject to silviculture objectives (this policy has been dubbed “take or pay”).<sup>3</sup> Cut control regulations which restricted harvesting to be within 50 to 150 percent of the AAC each year and plus or minus 10 percent over a five year period are now eliminated. However, a maximum harvest level over a five year period will still be retained for sustainability purposes.
4. *Tenure Transfers and Subdivisions* – Tenures can now be transferred without penalty (formerly all transfers subject to 5% loss of AAC) and no longer need consent from the Minister of Forests, just notification. With the only basis for holding up transfers being concerns over the effect the transfer may have on competition in the log market. Tenure holders will also be free to subdivide their tenures, as forest management concerns are the only basis for refusal.

As can be seen above, the FRP clearly decentralizes the regulatory regime governing the forest sector. The government would now have little say in determining where and how timber should be used and how the industry should be structured. The plan was also very similar to the MoF proposal for softwood lumber negotiations, the key difference being the reallocation of timber tenure away from major licensees.

The potential impacts of the FRP are numerous; this study does not pretend to capture all of the effects of the regulatory change but instead will focus on one of its key goals, namely the increased health of the forest industry. To assess the change in industry health, I do not rely on my own normative criteria but instead take a revealed preference approach, allowing the assessment of investors to be communicated via their actions on public security exchanges. To do so I employ event study methods on the daily returns of publicly traded forestry companies that operate in BC.

The outline of the rest of this article is as follows. The next section summarizes the event study methodology chosen. This is followed by a description of the data and the companies involved in the study. The results of the event study are then presented in the subsequent section. These results and their potential policy implications are then discussed. The last section concludes.

## Event Study Methodology

Event studies have widely been used by financial economists to study regulatory

3 The definition of a merchantable log varies according to species and contains measures of log quality. Loosely speaking however it is all logs with a top diameter greater than 10cm.

change, mergers and acquisitions, and earnings announcements. MacKinlay (1997) and Binder (1998) offer comprehensive overviews of the subject. This study employs standard “market model” asset pricing methodology which assumes the return of any given security is linearly related to the return of the market portfolio.<sup>4</sup> This process of return generation is more formally shown to be:

$$(1) R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where  $R_{it}$  is the return to security  $i$  on day  $t$ ,  $R_{mt}$  is the return to the market index on day  $t$ ,  $\alpha_i$  is a firm specific intercept term,  $\beta_i$  is a regression parameter that reflects the systematic risk of security  $i$  and  $\varepsilon_{it}$  is a random disturbance term that is assumed to be normally distributed with mean zero. Firms with  $\beta_i$  greater than 1 represent high risk firms relative to the broader market, and firms with  $\beta_i$  less than 1 thought of as being lower risk.

The primary endeavour of event studies is to investigate whether abnormal returns were generated as the result of some announcement or intervention (event). It is assumed that markets are efficient and the anticipated effects of an event on a firm’s future profitability are capitalized into its security price quickly, generating an abnormal return. Traditionally, estimating abnormal returns from a market model associated with an event has been done in two ways. First is a deviations approach which estimates equation (1) and uses this model to predict the normal return during the timeframe of the event (known as the “event window”), the difference between the actual and predicted returns being the abnormal return attributed to the event in question. A more straightforward approach however is to estimate the abnormal return for each event ( $\gamma_i$ ) in one step during the regression by the use of a dummy variable ( $D_i$ ) which takes the value of 1 during the “event window” and 0 otherwise.

The choice of an event window is a central step in the design of an event study. McWilliams and Siegel (1997) criticize the common practice of using long event windows, which in some cases were up to 181 trading days. Long event windows have been shown to severely reduce the power of testing (Brown and Warner 1985) and tend to increase the likelihood of including confounding effects. Further, empirical studies have shown that the market tends to react to new information quite rapidly. For example Mitchell and Netter (1989) found that the market responded to changes in federal tax legislation within 90 minutes. As a consequence, the shortest possible window using daily data was initially chosen as the default event window (i.e. the announcement day).

That being said, I was also aware that in some cases - particularly in instances of regulatory change where the government is consulting with industry - information may be leaked or the regulatory change is anticipated by the market prior to the announcement (Schipper and Thompson 1985). Furthermore, given the scope and potential ambiguity associated with the regulatory change, it may take the market some additional time

4 Other formulations include the Capital Asset Pricing Model (CAPM) and a multi-factor model based on the Arbitrage Pricing Theory (APT). Mackinlay (1997) in his review of event-study methodology points out that the CAPM imposes questionable restrictions and that a more complex APT model often provides little gain to the simpler market model.

to assess what the changes will mean for each firm. Indeed, Rucker et al. (2005) demonstrate that the type of information released impacts the speed and shape in which events are absorbed into prices. They develop and employ a generalized event study method which allows the market response to take different functional forms, showing that the traditional dummy variable method outlined above is akin to their uniform event response model (UERM) where the effect of the event is constant throughout the event window. The key difference between the two models is that unlike the dummy variable approach where the width of the event window is imposed on the model, the UERM endogenizes this decision. This study keeps with the traditional dummy variable approach, but to be consistent with the UERM, several regressions with varying window widths and locations will be run, with the window that minimizes the sum of squared errors chosen as the proper window.

The period after the event is also of interest as the FRP may have led to a structural change in the return generating process, causing firms to be viewed upon with more or less risk. To investigate this I employ a structural break test by creating another dummy variable ( $Z$ ) that equals 1 for the period after the event window and zero otherwise. This model is shown below as:

$$(2) R_{it} = \alpha_i + \beta_{1i}R_{mt} + \gamma_i D_t + \psi_i R_{mt} Z_t + \varepsilon_{it}$$

The regression parameter  $\psi$  represents the difference between the risk parameter in the post FRP time period ( $\beta_2$ ) and that in the pre FRP time period ( $\beta_1$ ). A positive  $\psi$  therefore indicates that risk has gone up after the event and the hypothesis  $\beta_2 = \beta_1$  is equivalent to  $\psi = 0$ . The change in risk is of interest because it indicates the effect the FRP has had on the long term expected returns of a company. If risk levels for a firm go up, the market will demand a risk premium and the firm's cost of capital will increase. In consequence, the structural break test provides a preliminary signal as to how future investment may have been influenced by the policy changes.

*A priori*, it is expected that because of firm specific characteristics, risk levels ( $\beta$ ) will differ across firms and each firm could be impacted by the FRP in a substantially different way. For this reason a panel data approach was not taken. To accommodate these expectations, equation 2 can be estimated for each of the  $i$  firms individually using ordinary least squares. This approach however assumes that there are no contemporaneous correlations between the error terms of each firm; an assumption that is generally not valid in instances of regulatory change – such as the FRP - where there can be impacts on all firms in a given instance in time (Binder 1998). To overcome this correlation, the model is typically treated as a system of equations and estimated via Seemingly-Unrelated-Regression (SUR) (Zellner 1962).

A final estimation issue to be aware of is serial correlation. In his critique of event study methodology, Salinger (1992) points out that event studies frequently ignore serial correlation in the error term. If serial correlation is shown to exist, an AR(1) disturbance process can also be adopted into the SUR framework by transforming the data by either Prais-Winsten or Cochrane-Orcutt techniques (Greene 2000 p. 634-635).

## Data

The daily return index ( $RI$ ) for 13 publicly traded forest companies which operated in varying degrees within British Columbia was recovered from Datastream Advance 3.5 for the period June 24, 2002 to April 1, 2004 (448 trading days). These firms are: Weyerhaeuser (Weyerhaeuser), West Fraser Timber Co. Limited (West Fraser), Slocan Forest Products Limited (Slocan), International Forest Products Limited (Interfor), Riverside Forest Products Limited (Riverside), Canfor Corporation (Canfor), Doman Forest Products Limited (Doman), TimberWest Forest Corp. (Timberwest), Ainsworth Lumber Company Limited (Ainsworth), Tembec Inc. (Tembec), Abitibi Consolidated Inc. (Abitibi), Pope & Talbot and Norske Canada (Norske)<sup>5</sup>.

For the same period, the  $RI$  of the S&P TSX composite index was recovered to be used as the market index. Returns for each firm and the market index were then derived in the following manner:

$$(3) R_t = \frac{RI_t}{RI_{t-1}} - 1$$

Changes in the  $RI$  were used instead of changes in the security price ( $P$ ) as they depict the total return associated with holding the security more accurately, taking both capital gains (changes in  $P$ ) as well as dividend payments into account.<sup>6</sup>

**Table 1.** Manufacturing Capacity and Tenure Holdings in British Columbia

	Allowable Cut (m <sup>3</sup> /year)	Annual Lumber Capacity (millions of board feet)	Pulp Capacity (000's of metric tonnes)	Panel Capacity (million sq. ft, 3/8" basis)
Weyerhaeuser	6,886,642	1,179 (17%)	466 (16%)	-
West Fraser	5,139,521	1,712 (73%)	780 (79%)	148 (31%)
Timberwest	1,319,595	132 (100%)	-	-
Tembec	1,579,789	319 (21%)	393 (22%)	-
Slocan	4,345,121	1,484 (100%)	221 (100%)	684 (100%)
Riverside	2,491,812	544 (100%)	-	483 (100%)
Norske	-	-	1,406 (100%)	-
Interfor	3,099,358	1,017 (100%)	-	-
Doman	3,778,686	951 (100%)	439 (100%)	-
Canfor	8,305,465	2,502 (85%)	1,550 (100%)	127 (100%)
Ainsworth	623,534	-	-	430 (33%)
Abitibi	932,500	330 (17%)	162 (3%)	-
Pope & Talbot	1,205,417	560 (80%)	644 (76%)	-

5 Norske Canada has since been renamed Catalyst Paper.

6  $RI_t = R_{t-1} \frac{P_t}{P_{t-1}}$  except when  $t = \text{ex-date of the dividend payment}$  then:  $RI_t = R_{t-1} \frac{P_t + D_t}{P_{t-1}}$

If the FRP was to have an impact on the above firms, one might expect that the effect could depend on the type of assets the firm holds in the province as well as to what degree its BC operations are important in its overall business. Using MoF data based on the year 2002, table 1 reports some descriptive statistics for each of the firm's BC holdings. Using information from each of the company's annual reports, I was also able to derive some measure of how important this BC capacity is to the company's overall operation; this fraction is reported in brackets within the table. Given that the holdings for the firms Weyerhaeuser, Tembec, Abitibi, and Ainsworth are primarily located outside of BC my prior expectation was that if the FRP was to have an impact (negative or positive) it would be lessened for these firms due to their diversification. Furthermore, seeing that the regulatory change pertained to crown (public) lands only, I had similar feelings about the firm Timberwest, as this firm predominately operates on private land, with timber production from its crown holdings making up approximately one third of its annual harvest.

## Results

After starting with an event window which included the day of the announcement only, the event window was slowly expanded. These expansions did not prove to reduce the sum of squared errors of the regression, with the exception of two firms: Abitibi and Norske. For these firms, including the day of the announcement as well as the following trading day improved model statistics. The results associated with this formulation are listed in table 2.

**Table 2.** Event Study Results

Equation	$\beta_1$	$\psi$	$\gamma$	$\alpha$	R <sup>2</sup>	F-stat	Durbin Watson
Weyerhaeuser	1.218***	-0.203	0.003	-0.0005	0.239	46.8***	2.361
West Fraser	0.452***	-0.329*	-0.026*	0.0004	0.042	6.58***	2.183
Canfor	0.812***	0.245	-0.0002	0.0002	0.106	17.61***	1.968
Riverside	0.202	0.124	-0.046***	0.0012	0.018	2.84***	2.089
Slocan	0.483***	-0.054	-0.029	0.0019	0.023	3.55***	1.991
Tembec	0.737***	0.016	-0.018	-0.0008	0.080	13.11***	1.648
Interfor	0.867***	-0.625**	-0.048**	0.0014	0.055	8.72***	2.158
Pope & Talbot	1.425***	-0.129	-0.040	0.0002	0.125	21.54***	2.204
Ainsworth	0.189	0.265	-0.004	0.0049	0.003	0.480	1.966
Abitibi	1.365***	-0.214	-0.021*	-0.0010	0.271	55.35***	2.013
Timberwest	0.024	0.223*	0.008	0.0001	0.010	1.500	1.964
Norske	0.973***	0.500**	-0.037***	-0.0014	0.145	25.56***	2.161
Doman	0.559	0.990	-0.228**	0.0068	0.012	1.750	1.990

Note: \*, significant at 15% level; \*\*, significant at 10% level; \*\*\*, significant at 5% level

Breusch-Pagan test of independence:  $\chi^2(78) = 431.73$ , Pr = 0.0000



The market model had significant explanatory power for 10 of the 13 firms in question. The Breusch-Pagan test indicates that the contemporaneous correlation between the error terms of each equation is highly significant. Therefore, the SUR method significantly improves the efficiency of the model. The Durbin Watson statistic for each equation suggests that serial correlation is not a concern, making Prais-Winsten or Cochrane-Orcutt transformations unnecessary.

The announcement of the FRP appears to have brought about significant negative abnormal returns for several of the firms. These firms are West Fraser, Riverside, Interfor, Abitibi, Norske and Doman. With the exception of Abitibi, all of these firms are heavily based in BC, operating almost exclusively from fibre derived from public land. In fact,  $\gamma$  is negative for all firms whose main source of operations are in BC, except for Timberwest, which as mentioned earlier may be attributed to their holdings of private forestland.

A significant change in systematic risk also occurred for four of the firms; returns for the companies Norske and Timberwest reacting more to movements in the broader market since the FRP and the firms West Fraser and Interfor becoming less sensitive to market movements since the regulatory change.

## **Discussion**

### ***Negative Impacts***

So what was it about the FRP that it was viewed so negatively by the market? Perhaps some of the industry dialogue on the announcement day will help answer this question. Some industry sources were quoted as saying the 20% figure was a “big number” (Central Interior Logging Association 2003) and another industry representative expressed concern about lost tenure, stating “with respect to the taking away of timber assets and cutting rights, we need much more information about how our members will be compensated” (Council of Forest Industries 2003). It therefore appears that the taking of tenure, and the subsequent compensation for this taking, was foremost on the minds of industry and presumably the market at the time of the announcement.

The issue of compensation for tenure has historically been controversial in British Columbia as past resource takings proved to be complex. Schwindt and Globerman (1996) explain that a lack of market transactions and the possibility that the market values of forest tenures reflect uncollected resource rents which are rightfully owned by the crown, make finding appropriate compensation values difficult. While the FRP stated that firms would be fairly compensated, there could have been a large divide between the marketplace and the government on the definition of “fair”. Indeed, included in the FRP was a predetermined cap on the funds available for compensation, this could have been seen as being insufficient.

In spite of the possibility that tenure values reflect uncollected rents, unquestionably integrated forest companies also value tenure for the stable, secure, supplies that they provide. As discussed by Globerman & Schwindt (1986) and Yin et al. (2000) forest

product manufacturing facilities, having little value in alternate uses, can be considered specific assets, requiring very large sunk costs and once located are virtually immobile. Once investment is made in these assets, returns over and above that required to keep them operating in their specific use in the short run (quasi-rents) are generated which potentially can be appropriated by opportunistic suppliers. This causes firms to move away from anonymous spot markets and vertically integrate or enter into long term contractual relationships (Klein et al. 1978, Joscow 1988). The reallocation of tenure away from major integrated firms will diminish their control and security over supply. It is now necessary to source increased amounts of fibre derived from short term tenures auctioned by BCTS or from small independent tenure holders who as a result of relaxed cut control rules could not be guaranteed to harvest stable even flows of timber per annum. The reduced supply security and stability therefore could have contributed to the negative abnormal returns observed above.

The new stumpage system could have also played a role. Binkley and Zhang (1998) show that stumpage increases in 1994 significantly reduced security prices for BC forestry firms in direct proportion to the amount of tenure they held. While the specifics of the new market pricing system was not unveiled in the FRP, a similar process may have occurred as there could have been an expectation that fees derived from stumpage auctions would be higher than previous pricing formula. Unlike the stumpage change in 1994, which effectively increased stumpage across the board for all timber, movement to market based stumpage would probably have varying impacts depending on the species, location and quality of timber in question.

But what about the firm Norske? Table 1 reveals that it had no tenure and hence it would not be subject to the stumpage changes nor should its supplies be impacted, yet it was one of the most significantly impacted firms. Although Norske did not hold tenure directly, being a large coastal pulp producer it did have supply agreements with the major coastal tenure holders and these agreements were probably impacted by the FRP. The supply agreements were often tied to the amount of AAC held by the major tenure holders. Due to tenure being taken away, less volume would be party to these long term agreements and more fibre would have to be sourced from spot markets.

Norske's supplies, as well as the rest of the industry, will probably be impacted by the new utilization policy as well. One study of a coastal timber stand showed that harvesting to the government's merchantability standard reduced the return on the stand from about \$2000/ha to a loss of \$1200/ha (Uhler and Morrison 1986). Under the new take or pay policy one can expect that utilization decisions will be based on the proper economic margins (Paarsch 1993).<sup>7</sup> This significantly improves efficiency with the government cashing in on the increased rents made available. However, in cases where the marginal cost of extraction is high - as coastal logging typically is - this will probably mean substantial decreases in the supply of lower quality logs. A recent article (Larose, 2005) tends to support this hypothesis, describing a crisis in the market for pulp

7 Although, Paarsch shows that if loggers anticipate that they will not be charged for the material they leave behind they may utilize less logs than the efficient level.

logs on the coast as extraction costs make the harvesting of pulp logs uneconomic. The indirect impacts on Norske's supplies may explain why reaction to the announcement for this firm was somewhat prolonged (recall it had a longer event window).

### ***Potential Positive Impacts***

One could expect the FRP was not all bad news either. The improved flexibility it provides firms in structuring their operations was probably welcomed by the marketplace. Such benefits may be showing up in the significantly reduced risk levels associated with the firms West Fraser and Interfor. While being negatively impacted by the FRP for the reasons mentioned above, over the longer term perhaps the market sees these firms emerging from restructuring being more resilient to fluctuations in the global marketplace. In fact, several mergers and acquisitions have occurred in BC of late. Whether these transactions and the synergies that they bring can be attributed to the FRP is open to debate.

Some of the reforms that can be expected to improve the industry's performance could have already been 'priced in' by financial markets prior to the announcement as well. This stems from the signals put in place by the MoF softwood lumber discussion paper which was widely circulated (recall it mirrored the FRP with the exception of the tenure reallocation), and the fact that mill closure and timber processing regulations were not strictly enforced for quite some time prior to the announcement.

Seeing that the policy changes were, in whole or in part, designed to open up market access to the U.S., perhaps the greatest potential benefit of the FRP for the industry is the effect it may have on the softwood lumber trade between the province and the U.S. Certainly, the changes address a good portion of the Aldonas proposal; the elimination of processing requirements, a stumpage system based on timber auctions, the removal of exit barriers and economically consistent utilization standards. Nonetheless, they failed to win unfettered access to the U.S., as a recent agreement was put in place which aims to limit Canadian market share.

On the one hand, this seems to reinforce Canadian sentiments that policy reforms that did not have the effect of capping or reducing Canadian market share would fail to appease U.S. lumber lobbyists who appear to exert their will on U.S. administrations. Nordhaus (1992) has shown that stumpage fees, whether administered or market determined, will have no impact on the harvest levels in Canada which are set under a sustained yield (SY) paradigm.<sup>8</sup> As described earlier, the take or pay policy could reduce harvest volume at the intensive margin.<sup>9</sup> Nonetheless, it is not likely to have much of an effect on sawlog production in the interior where extraction costs are lower and the vast majority of softwood lumber production destined to the U.S. originates. Also, the Uhler and Morrison study suggests that reductions at the intensive margin could be offset by

8 Except in the case of an excessive fee

9 Here I use the term intensive margin in the traditional forestry sense being the point at the stand level the marginal revenue of extracting logs equals its marginal cost. This definition differs from that used in a land use sense where the intensive margin refers to the point where the rent of land is equal to zero if the opportunity cost of alternative land use is considered. See van Kooten and Folmer (2004 p. 41) for further details.

the fact that more stands are now economically viable, that is the extensive margin could expand.

On the other hand, it could be argued that outstanding issues still remain. Sedjo (2006) questions how timber supply set in a top down manner by the province (i.e. SY) compares to that of a market. Niquidet and van Kooten (2006) show that lower competition levels in northern BC reduce bids for stumpage, potentially tainting administered prices based on transaction evidence. Finally, log export restrictions, which traditionally have been at the heart of the dispute along with administered stumpage systems, still remain in place.<sup>10</sup> These issues are likely to be at the center of future negotiations and probably will need to be addressed in one form or another before unfettered access to the U.S. is given.

## **Conclusion**

This paper outlined and analyzed some aspects of what has arguably been the most substantial change in Canadian forest policy in over fifty years. As shown by event study methods, the reaction conveyed by the market suggests that these policy reforms were, over the near term, detrimental to the existing industry's health. Perhaps this explains why such reforms, while being recommended in varying degrees by prior royal commissions (Pearse 1976, Peel 1991), have taken so long to be implemented. It may also explain why other provinces have been hesitant about implementing similar reforms. Over the longer term, the emergence of a revitalized industry in BC will depend on the industry's own ability to adapt to increased market pressures and on how successful the above and other market based policy reforms are at gaining free right of entry to its largest marketplace.

10 Although a recent report suggests that the province may be prepared to bargain on this issue provided access to lumber markets is provided (Dumont and Wright 2006).

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