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Essays on the economics of British Columbian timber policy

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II. Historical and Institutional Background¹

The birth of regulation

Early in the development of BC's forests the concern over the ability of the market to meet the goals of the province was evident. Like that of its American neighbours, originally the crown colony alienated timber land in fee simple.² At the time, land and timber were seemingly an endless resource, supplying small local markets. Hence it was usually sold for nominal rates or simply granted in exchange for the development of infrastructure like railways. With the completion of the trans-national Canadian Pacific Railway in 1885 additional markets were opened up which had the effect of vastly increasing the demand for BC timber. At this time some notion of timber scarcity developed and its price consequently rose.

The province began to re-structure its policies with the goal of developing a domestic timber processing sector. The *Land Act* of 1888 set out an area specific leasing system to accomplish this task. Leases were issued on the condition that one construct and operate a manufacturing facility. The lease granted timber harvesting rights over a defined area of land for a specified term (originally 30 years but later dropped to 21 years). Once timber had been harvested, the area was removed from the lease and reverted back to the province. Leases were subject to a fixed rental (per acre) and royalty fee (per million board feet of timber removed) but these fees were generally set low to encourage milling capacity increases. The manufacturing condition was later dropped, but incentives for processing still existed by providing lower royalties to those who continued to operate a facility. Furthermore, in 1891 laws were passed which stipulated that timber derived from provincial lands must be processed within the province, a condition which remains in place today.

As the manufacturing sector developed, a new goal emerged: the collection of revenue for the provincial treasury. New leases began to be competitively bid in 1892; theoretically the bid would reflect the expected discounted value of any resource rents that would accrue throughout the life of the lease that were not collected by the pre-determined rental and royalty fees. Nevertheless, as summarized in the 1910 report of the Royal Commission of Inquiry on Timber and Forestry chaired by Fred Fulton (Hereafter called the Fulton Commission) there appeared to be a general disbelief in the ability of the market to do this.

“Because great changes might be at hand that would cause stumpage prices to rise beyond all normal expectation, it was felt that to part with timber at the low existing

1 Much of the information in this section is derived from the reports of the Public Commissions on Forestry led by Fulton (1910), Sloan (1945, 1957), Pearse (1976) and Peel (1991).

2 Fee simple ownership is often found in common law countries. It affords the title holder absolute ownership of real estate, although ownership is technically limited by basic government powers such as taxation and eminent domain.

prices and upon the fixed conditions of 21-year leases was a poor way of drawing immediate profit from the immense idle area of Crown forests.”

The share of revenue was not the province’s only concern either, they were also still mindful of the health of the forest sector and it was thought that the requirement for investors to pay large up front sums for standing timber would draw funds away from a firm, preventing it from investing in working capital and circulating high wages (Ross 1912). The above thinking led to the abolishment of the leasing system in 1905, it presumably was also part of the logic that led to the outright ban placed on the further privatization of timber land in fee simple in 1896.³ The province was left with a dilemma as to how to maintain a share in the expected rising values of timber without discouraging the growth of the forest industry.

A system of licenses was chosen as the method to meet these dual goals. “Special Licenses” were created also by the *Land Act* of 1888 but were primarily designed for independent loggers free from the condition to operate manufacturing facilities. Like leases they granted rights to timber over a defined geographical area and were subject to rental and royalty rates, but were for much shorter terms (typically a year) with options for renewal. For a short time, licenses had the same fees as leases; however, rental rates were increased successively in 1901 and 1903 reflecting the governments increasing desire to collect more revenue (Pearse 1974). In 1905, upon the abolishment of the leasing system, a new licensing system was implemented. The new licenses continued to be area specific but began to resemble leases as their terms were increased to 21 years. The key difference being that government could adjust royalty rates at will to reflect changing stumpage values. In spite of the uncertainty over royalty rates, these new licenses were highly sought after, increasing in number very rapidly (quite possibly out of speculation over the ability of government to collect the increasing value of the timber). The rapid increase in the number of licenses prompted fears of an ensuing timber famine. A reserve was placed on the issuance of new licenses and the Fulton commission was appointed to explore the new licensing system and to give direction to future policy.

Anticipating further rises in stumpage due to increasing demand and dwindling stocks in eastern North America, the Fulton commission thought that the new licensing system was “ingenious” and concluded that “heavy taxation need never fall upon the population of the province”. Yet, the commission also had several concerns over forest practices such as utilization, the rate of cut, and reforestation. The recommended solution to these problems – and that adopted by the province in the 1912 *Forest Act* – was regulation. Merchantability standards were put in place which would eliminate “waste” and promote natural regeneration, the reserve on the issuance of further licenses was maintained and future supplies would be regulated by the Forest Service through the auctioning of small volumes known as Timber Sale Licenses (TSLs).

3 Timber land was defined as lands carrying 8000 feet of timber west of the Cascades range (i.e. the Coastal Region) and 5000 feet east of the range (the Interior).

In hind sight, it is not clear why the timber processing sector could not have developed rapidly under a privatized forest landscape. Moreover, in maintaining public ownership appropriate market instruments, opposed to costly regulations, could have also offered solutions to the problems outlined by Fulton. A prime example is that of utilization. The mechanism used to collect rent from leases and licenses was a uniform fixed royalty per unit of timber removed. It is now commonly known that this method encourages high-grading leading to a deadweight loss of rent (see for example Nautiyal and Love 1971, Vincent 1990).⁴ Consequently, it is likely that the source of the wasteful “butchery of wood” described by Fulton and attributed to market failure caused by the carelessness of lumbermen, was, at least in part, due to the instrument chosen to collect the resource rent. There was also a genuine market failure at work, as there was an external benefit to the removal of timber to reduce the risk of fire and to promote the regeneration of the next crop. However, in principle these market failings could have also been addressed by assigning property rights to future crops and adjacent stands. The tendency to prescribe and address problems through the creation of new regulations was a trend that would continue.

The rise of sustained yield management

By the mid 1940s timber from existing area based licenses and leases were dwindling and the forest industry needed to rely increasingly on competitive bid short-term Timber Sale Licenses (TSLs) managed by the forest service. An emerging capital intensive pulp sector was requiring assurances of future supply. Another royal commission was convened chaired by chief justice Gordon Sloan (hereafter the Sloan commission).

Sloan recommended a system of sustained yield (SY) management where harvesting of existing mature timber supplies would be rationed in a planned manner over a rotation until second growth crops emerge. The objective of SY management was to produce a “normal forest” where balanced areas of each age class were to be spread across the landscape. In the long run this would produce a constant supply of timber in annual or periodic increments. The Hanzlik formula (see equation 1) was chosen as a means of setting Annual Allowable Cuts (AAC) for this purpose.

$$[1] \text{ AAC} = \frac{V_m}{t} + \text{MAI}_i$$

Where t is the rotation age that maximizes the Mean Annual Increment (MAI), V_m is the stock of mature timber whose age is greater than t and MAI_i is the growth of timber less than t .

4 The fixed royalty increases the marginal cost of the logger, making lower grade logs uneconomic. The logger therefore tends to only take the best logs in these circumstances (i.e. high-grading). While the government collects some rent with this royalty, the logger still receives a windfall on the better logs. Furthermore, rent is available on the lower grade logs but since there is no incentive to remove these logs because of the royalty, the rent is not collected by the government or the logger (i.e. deadweight loss).

If the land base consisted entirely of mature timber, which was often the case in remote undeveloped regions, the Hanzlik formula allowed for the harvesting of $1/t^{\text{th}}$ of the stock of mature timber. This meant that at the end of t years the entire stock would be liquidated just in time for the maturation of the first second growth crops. After that point, harvests would equal growth (MAI_t), which would correspond to a maximum sustained yield steady state. If the region initially contained some immature forests, the stock of old growth could be drawn down quicker according to the growth of that immature stock. Indeed, if one could increase the MAI_t , either by bringing more land into the forested land base (afforestation) or by silviculture activities in immature stands, this would allow the stock of mature timber to be depleted faster, a phenomenon known as the allowable cut effect (ACE). In forests regulated by SY, ACE drives the investment decisions in forest management activities. These decisions can appear perverse, as projects on individual tracts of timberland that would normally be deemed uneconomical would be worth it simply because they lessened the constraints put in place by SY on the rate at which the mature timber was liquidated. Another striking feature of the Hanzlik formula is its lack of economic variables. While the identification of the mature stock of timber took into consideration some economic conditions (this will be discussed later in chapter 6), the timing of t and the rate the mature stock was cut, was solely determined by physical criteria.

Sloan's rationale for recommending SY was certainly not entirely void of economics though. He thought that dividing the province into regional "working circles", with each region regulated via SY, would be an important driver of regional economic development, particularly in the undeveloped hinterlands of the province. It was thought that by providing a stable, perpetual supply of timber for a given region, investment and community stability would follow, preventing "ghost towns" from emerging as areas were liquidated and industry moved onto the next region.

The 1947 *Forest Act* implemented the recommendations of Sloan establishing two types of working circles across the province; one to be managed by the public and later termed Public Sustained Yield Units (PSYUs) and the other to be managed by private firms in perpetuity under an arrangement called a Forest Management License (FML).

Unfortunately, the allocation of FMLs was based on the discretion of the Minister of Forests. As one could image, this set the stage for rent seeking on the part of the forest industry. Although it was not a requirement that applicants own a mill prior to their application, government policy was that first consideration would be given to existing operators and those that proposed to build new plants or expand existing operations. Upon award, the FML was usually made appurtenant to this manufacturing facility such that the facility could not be sold separate from the license and the license would be revoked if the facility was shutdown.

Controversy over the procedure and allocation of FMLs led to the appointment of Chief Justice Sloan for a second inquiry in 1956 (Drushka 1999 p. 44). During the inquiry, the first Chief Forester of the province and then head of BC's largest forest company, H. R. MacMillan, appeared before the Commission to voice his concerns about the potential for concentration and consequent deleterious effects that could take

place under a forest management system that relied on large FMLs. Shortly thereafter, the Forest Minister at the time, Ray Sommers, was charged and convicted of taking bribes in the allocation of FML#22 to BC Forest Products. Sloan's report in 1957 attempted to clarify how licenses were to be awarded and also led to the conversion of FMLs to Tree Farm Licenses (TFLs).

A TFL rather than being perpetual now carried with it a reduced term of 21 years but had provisions for renewal provided certain management conditions were satisfied. This reduced term was put in place largely to address public concerns over the degree of privatization the tenure offered. The management conditions associated with the TFL included forest inventory, growth and yield analysis, development planning and reforestation. Stumpage fees were set by an administered appraisal process which accounted for the costs of forest management borne by the TFL holder.

Within the public working circles, the PSYUs, the forest service initially continued a program of competitive auctions where volume from specific locations was awarded to high bidders via short term TSLs. In the interior a large number of small "bush mills" were established close to each license, cutting rough lumber which was then shipped to larger centers to be planed and distributed. Although competition was fierce, many of these mills were thought to be wasteful, producing large amounts of sawmill residues (due to large saw kerf) and as a result, low lumber recoveries per volume of roundwood. Furthermore, large tracts of lodgepole pine were viewed as "weed species" unsuitable for sawmilling because of their small size. Prospective investors were interested in developing an interior pulp industry, but, again due to large fixed capital costs, were requiring assurances of supply. The "wasted" volume was seen as a means of providing this supply.

Existing TSLs in the 1960s began to be renewed without competition and additional volume was granted provided that the license holder commit to higher utilization standards (termed close utilization or third band utilization) and with the provision that they offer wood chips to pulp mills. As a result, stumpage fees were no longer competitively determined but needed to be administered through an appraisal process. As an added security, the government also issued a new form of tenure – a pulpwood agreement (PA) – to those who constructed a pulp mill. The PA authorized the license holder to extract additional volume from the PSYU to make up for any shortfalls not provided by sawmills and other tenure holders.

This commitment to higher utilization resulted in an immediate increase in the stock of merchantable timber in inventory which as shown in equation 1 resulted in an increased AAC for the PSYU and the license holders. Most operators committed to this standard or sold their license to someone who would commit to the new utilization standard. Furthermore, the government encouraged licensees to consolidate their TSL volumes into a new longer term, volume-based licence called a Timber Sale Harvesting Licence (TSHL) which formalized for the operator a "quota" of AAC at an undefined location within the PSYU. The TSHL – similar to a TFL – was usually appurtenant to a timber processing facility and also brought with it increased forest management responsibilities such as basic silviculture (i.e. reforestation) and development planning.

The cost of these management duties however would be offset through stumpage allowances.

Additional volume in the PSYU not allocated to existing operators was placed up for auction in the form of TSLs and TSHLs. Still, bidding on these new volumes was often restricted to those who would either add or increase certain types of manufacturing capacity. The processing requirements became so important that at times licenses were awarded not solely on the basis of price but also on what the proposed new capacity would offer in the way of utilization, jobs and other socioeconomic benefits. Faced with both regulatory and market incentives to utilize more fibre, operators adopted new sawmilling technology which enhanced the lumber and chips recovered from each log and made the processing of small logs economical. Consequently, pulp mills rarely had to exercise their PA rights. Smaller bush mills became obsolete and the sawmill sector moved into towns, consolidating and integrating with planer mills, lumber distributors and pulp mills.

The SY system, judged according to the goals it was designed, appeared to be very successful. The guaranteed supplies of timber facilitated investment in the centres tributary to the working circles, promoting a world class modern processing sector with enhanced utilization that provided stable revenues to government in the form of stumpage fees and to communities in the form of high paying wages. Nevertheless, success came with a price. Competitive bidding for stumpage was virtually eliminated from the province and the full allocation of AAC created significant barriers to new market entrants. Accusations that administered stumpage fees failed to collect resource rents ensued and the tenure system with all its different forms and individual conditions became an escalating regulatory headache. The idea that community stability was primarily achieved through constant supplies of timber led to cut control regulations which placed both a ceiling and a floor on the amount of volume harvested in each year. Faced with the prospect of losing their tenures if minimum harvest targets weren't met, licensees potentially could act perversely, removing uneconomic timber simply to maintain the target. Moreover, old growth stands gradually became increasingly scarce as they were liquidated and converted to plantations. Subsequently, non-timber values associated with these stands rose steadily and demands for their sustainability were voiced.

The Pearse commission

To address the growing public apprehension over the direction of forest policy, a forest economist at the University of British Columbia, Peter Pearse, was appointed to lead another royal commission in 1976. Pearse issued a series of recommendations which attempted to address many of the concerns listed above. He confirmed that the ownership of forests should remain in public hands, giving the government the power to continue to shape economic development and provide public goods stemming from forests. The caveat however, was that policy was designed so that this power is “well

used”. In his opinion, the tenure system was encouraging a vertically integrated industrial structure which did not necessarily parallel that of an efficient market and that increasing consolidation of public harvesting rights was of “urgent public concern”. He therefore recommended that competitive markets for stumpage be re-introduced by auctioning off AAC in the PSYU not already allocated in the form of TSHLs. Furthermore, once TSHLs expired he suggested that the volume should be converted into longer termed Forest Licenses (FLs) whose award would no longer be determined by non-price criteria, but instead sold to the highest bidder.⁵ In addition, he questioned the wisdom of uniform close utilization standards across all stands regardless of the corresponding economics of extraction and noted the potential distortion current stumpage fees have on utilization decisions. Thus he recommended that standards be made more flexible and that stumpage fees be implemented in such a way that the proper economic margins be maintained.

Additional recommendations from Pearse’s report included:

- Further rationalization of the overabundance of tenure types and multiple terms and conditions associated with outstanding area based leases and licenses issued prior to 1907 (termed old temporary tenures). To accomplish this, old temporary tenures should be merged into a single Timber Licence (TL) with common terms and royalty rates.
- The amalgamation of PSYUs into larger Timber Supply Areas (TSAs) reflecting the economics of transportation.
- Opportunities should be made available for small scale forestry via an area based woodlot license (WL).
- TFLs should be made “evergreen”, meaning that they would be replaced every 5 years in conjunction with management planning, and given an extended term of 25 years.

He further suggested that in order to meet the demands of the public, management planning in both working circles had to formally recognise other non-timber values such as fish and wildlife, recreation, and water. Pearce rejected the traditional argument that sustained yield management would accomplish this by default. He also noted that SY was not a necessary or sufficient condition for achieving its primary objective of community stability, and warned of the “fall down” effect in AACs once the stock of mature timber was liquidated and supplies consisted of lower volume 2nd growth.⁶ Accordingly, timber supply should no longer simply be derived from Hanzlik’s formula but would need to take advantage of complex computer simulation which optimized a variety of multiple use goals.

5 Pearse did however suggest that the previous holder of the TSHL be given the right to match the high bid on the FL.

6 The fall down effect refers to the fact that at first the mature “old growth” timber being harvested would have a volume per hectare that was greater than second growth crops harvested at the maximum sustained yield rotation age. The fall down occurs when $\frac{V_t}{t}$ is harvested and removed from equation 1.

The concern over the lack of competitively driven stumpage rates and the critical view of existing yield regulation also found support in academic circles. Anthony Scott (1976) proposed that BC auction at least 20 % of the AAC as a means of setting administered stumpage fees on harvests from long term tenures and Nobel Laureate economist Paul Samuelson (1976) criticized SY for ignoring large opportunity costs and its creation of perverse land management decisions. Byron (1978) on the other hand, rather than investigating the costs of SY, questioned its ability to meet its primary goal. In his analysis he showed that SY in itself could not guarantee the permanence of forest dependent communities, demonstrating that the economics of transportation and processing as well as exogenous market conditions largely shaped forest dependent communities with or without SY. In consequence, he recommended that diversity was a more fruitful mechanism for achieving the community stability sought by SY.

Consistent with tradition, many of the recommendations flowing from Pearse's report were subsequently adopted into an amended *Forest Act* in 1978. The plethora of conditions associated with the various old temporary tenures was rationalized into a common TL and PSYUs were amalgamated into larger TSAs whose delineations remain relatively unchanged to this day.⁷ In the hopes of providing incentives for long term forest management "evergreen" provisions were made on both the new FLs and TFLs, and the forest service was mandated to consider a host of other forest values.

Nonetheless, the legislation largely failed to address Pearse's concerns over consolidation and did little to promote increased competition and economic efficiency in future timber disposal and use. Within TSAs allowable cuts were almost completely allocated in the form of FLs, as TSHLs were rolled over largely without competition and without loss of volume. Furthermore, when a new FL was issued it continued to be based on utilization and employment criteria. In 1980, a Small Business Forest Enterprise Program (SBFEP) was created to auction TSL volume to smaller independent market loggers (category 1) and manufacturers who had no tenure (category 2), however the volumes made up a very small percentage of the AAC. With the lack of a competitive stumpage market, complex residual value appraisal methods continued to be used to assess stumpage fees. Lastly, while additional non-timber constraints were put in place, SY which imposed cut control and utilization restrictions that were insensitive to economic conditions continued to underlie the management philosophy.

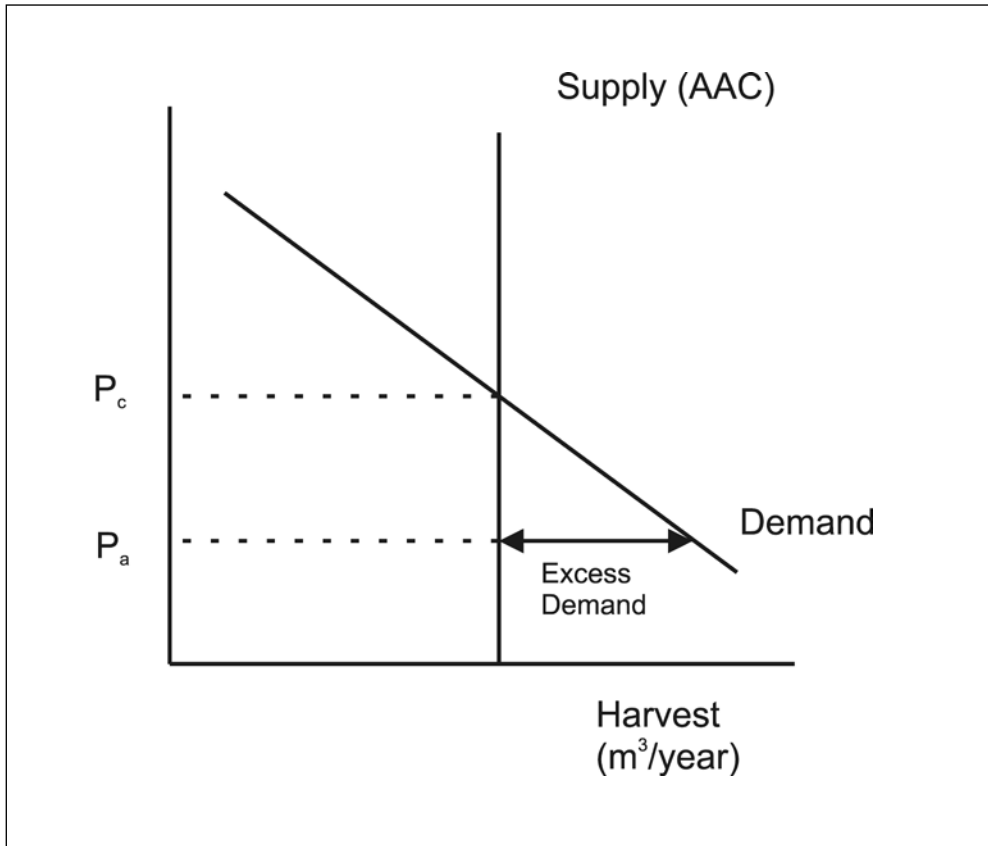
Lumber, labour and environmental disputes

Much of the newly added environmental constraints were relaxed as a prolonged recession hit the North American economy in the early 1980s. Deep staff cuts in the BC forest service took place and a smaller "sympathetic administration" turned a blind eye to deleterious forest practices. Utilization standards were not strictly enforced and several large, unsightly clearcuts appeared on the landscape.

⁷ For the most part, the boundaries of the TSAs are the same as the forest districts outlined in Appendix 1.

The recession led to many shutdowns in the United States (US) sawmilling sector. Americans placed the blame on an increasing Canadian (particularly BC) share of the US domestic softwood lumber market. American producers attributed this rising market share not to natural competitive advantage resulting from access to an abundant high quality resource and an efficient processing sector, but to subsidies derived from the characteristics of BC's tenure system, particularly its administration of stumpage fees.⁸ The American producers petitioned the Department of Commerce (DOC) for countervailing action in 1982. Initially the DOC rejected their claims but this was overturned in 1986 resulting in a 15 per cent tariff on Canadian lumber destined to the US. Uhler (1991) analysed this "great subsidy debate" and the DOC findings, arguing that Canadian administered stumpage fees (p_a) that were lower than a competitive market (p_c) would not raise Canada's share in the North American lumber market. With his argument (summarized in figure 1) hinging on the fact that timber supplies in Canada are fixed as a result of the regulated AAC calculated by the SY paradigm.

Figure 1 Competitive and administered prices in a timber market



8 A study by Haley (1980) showed that there were substantial differences between competitively derived stumpage fees in Washington State compared to those administered in British Columbia.

Although, lower stumpage fees would create an excess demand for timber, ultimately whether fees are set administratively or through a competitive market, production levels will remain unchanged at the AAC. Uhler, therefore concluded that countervailing duties were not justified as Canadian stumpage systems could not be linked to higher production and hence injury to US producers. However, he made little mention as to what an appropriate supply level was, as supply in Canada under SY, unlike that of a market, did not reference price.

To thwart the imposition of countervailing duties (CVD), the Canadian government agreed to impose a 15% export tax on softwood lumber shipments, thus keeping the revenue within Canada. In 1987, the residual value stumpage system was replaced by the Comparative Value Pricing system (CVP), a target rate system tied to lumber and chip value indexes. Although the CVP resulted in stumpage fee increases which replaced the 15% export tax and significantly increased revenues to the provincial government, it contained no mechanism to recognize changing costs throughout time.

Additional criticisms of the tenure system ensued from Haley (1985) noting that there was little incentive for tenure holders to invest back into the land base, particularly on volume-based licenses such as FLs, due to a lack of property rights. He also concluded that bureaucracy and political motivation often made government ineffective land managers, thus private property rights would need to be strengthened to achieve efficient forest management.

Concerned about the political ramifications of outright privatization yet recognizing the need to strengthen the incentives for silviculture and forest management, the BC government proposed “rolling over” FLs into area-based TFLs which conveyed stronger property rights. While a few new TFLs in the interior were created, this roll over policy was quickly deemed politically unfeasible as there was severe backlash from members of the public.

This public disdain seemed to come from prior provincial policy choices. Environmental groups, recalling the large clearcuts on coastal TFLs during the “sympathetic administration” days, rejected the notion that the forest should be managed like a crop, stressing the value of BC’s unique ecosystems. First Nations residents claimed their title over the land and resources had not been ceded and that their aboriginal rights were being infringed by resource extraction. They called upon the government and tenure holders to consult them further with regard to land use activities and decisions. The general public also viewed the roll over proposal as another backroom deal between industry and government where valuable resources were given over to a restricted few in a less than transparent manner. Finally, continued productivity gains associated with industrial style logging operations and technically efficient conversion facilities created fewer and fewer jobs per cubic meter harvested (Nixon 1991) prompting labour groups to cry foul demanding that the forest sector become more value added.

In 1988, the SBFEP was expanded by taking away 5% of the AAC held by existing tenure holders. However, in an attempt to increase jobs via value added manufacturing much of the timber was awarded on the basis of a “bid proposal” which was judged according to a combination of revenue, employment and value added criteria. This

added volume did little to curb complaints from the value added sector, who continued to claim that their expansion was being thwarted by a lack of access to additional volume and appurtenance clauses which required logs to be processed through existing facilities geared for high output low valued commodity production. Yet another public forestry commission was called to address the future direction of forest policy in the province.

Seeking sustainability

In 1991, the Forest Resources Commission (FRC) chaired by Sandy Peel issued a series of reports and recommendations regarding forest policy in the province, these are summarized below:

- A multi-layered planning process should be created rising from the local to provincial level. Regional land use planning groups would be mandated to zone land into various management categories with defined targets for particular resource activities with the goal of allocating land to its “highest value use”.
- A more transparent timber supply process with updated inventory data needs to be tabled.
- A single all encompassing code of forest practices should be developed.
- The continued roll over of volume based licenses into area based licenses ought to be instituted once land use planning is complete.
- The further consolidation of tenure rights should be negated and competitive log markets which allocate timber to their highest valued use should be established. To do this AAC should be progressively taken back from the hands of large integrated manufacturers such that no more than 50% of manufacturing capacity is held in AAC. This would free up volume to flow through log markets managed by a new government entity, and reallocate timber to first nations groups and small scale tenures.
- The administration of stumpage fees ought to be based on the newly established competitive markets.

A left-leaning New Democratic Party (NDP), largely supported by labour and environmental groups, came to power shortly after the FRC released its report. Not surprisingly the new government devoted much of its policy resources to addressing the environmental impacts of BC forest practices, all the while trying to maintain high employment in the forest sector. The government set out an aggressive plan to achieve the first three FRC recommendations listed above. Planning became ubiquitous as a multi-layered bureaucracy increased protected areas, established regional land use plans and developed a stringent prescriptive based Forest Practices Code (FPC). The focus on environmental issues was also greatly influenced by the environmental protests over the logging of old growth coastal watersheds which drew national and international attention, threatening to result in the boycott of BC wood products in some marketplaces.

Increased environmental restrictions and land use decisions resulted in significant reductions in AACs, particularly in areas which had high non-timber values such as the

coast and the Southern interior “wet belt”. This reduction in cut levels threatened to result in significant job losses and would leave a portion of the forest industry overcapacity and hungry for wood. The reduction also meant that timber security was a premium, so any suggestion of implementing the FRC recommendation of taking away further volume for the creation of a competitive log market was met with severe disapproval from industry.

To curb the job losses and avoid political difficulties associated with strengthening tenure rights in order to induce silviculture investment, the government set out to create replacement jobs for unemployed loggers and sawmill workers in enhanced silviculture and value added activities. A new layer of bureaucracy was created in 1994 called Forest Renewal British Columbia (FRBC) to manage these activities. FRBC was to be funded by increased stumpage fees, not established by competitive markets as the FRC suggested, but instead by a modified CVP system that raised target rates for given levels of lumber values, particularly high ones (Cashore et al. 2001). These higher stumpage fees did little to curb American subsidy allegations however. As a result of lengthy negotiation, the dispute was settled in 1996 with a 5 year quota-tariff softwood lumber agreement (SLA). With quota being allocated based on past lumber shipments to the U.S., thus the coastal industry, which was largely focused on the Japanese market, received little.

Economic realities

While the environmental movement still asked for further improvements, the planning initiatives were relatively successful at quelling the concerns domestically and internationally over BC forest practices. In fact, a study conducted by Cashore and McDermott (2004) showed that BC’s increased protected areas and a new FPC made it, in many ways, a global leader in environmentally friendly forest practices. Nonetheless, many of the planning initiatives would prove to be detrimental for the forest industry and dependent communities. In 1998, the provincial government announced a jobs and timber accord that promised the creation of over 20,000 new direct jobs from forestry activities through more silviculture activities funded by FRBC, the expansion of “bid proposals” and the introduction of a new Community Forest (CF) tenure. At first, these initiatives showed some fruit but there were growing signs that they could not be sustained.

FRBC was implemented at a time when lumber prices were at record levels, due to reductions in supply coming from U.S. national forest lands, along with heightened demand from a red hot North American and Japanese economy (dubbed the “great price spike” by Sohngen and Haynes 1994). These prices were thought to last forever and at the start the program was awash in revenues. Unfortunately, much of the initial funds were spent on administration and silviculture projects which were rarely justified from an economic perspective.

Economists naturally questioned whether these policy initiatives could be sustained. Binkley (1997_a, 1997_b) predicted that prices for old growth would hit a “choke price”

inducing cheaper substitute products from other parts of the world, causing remaining high cost stands to become “economic wilderness”.⁹ He proposed that BC needed to take a road “less travelled by”. This would involve moving away from the traditional paradigm of SY where multiple-uses were managed over a land base with loosely defined property rights, to one where the land-base was increasingly specialized with timber zones managed intensively under a stronger property rights regime, which would in turn free up more areas to be managed exclusively for non-timber forest values.

An event study of the stumpage increase and subsequent creation of FRBC was conducted by Binkley and Zhang (1998). Their results indicated that no new capital was created by the policies, only transferred from private to public hands, concluding that the marketplace gave the BC government no credit for the investment activities associated with FRBC. Furthermore, van Kooten and Wang (1998) and Haley (1996) argued that the enormous costs of the FPC would significantly undermine the competitive position of the forest industry. It was not long before these warnings came to be realized.

Time for change?

Following the reduction in the value of tenure brought about by the stumpage fee increase and the collapse of the Japanese market, the coastal industry now became open to giving up tenure rights in order to establish a stumpage system based on competitive markets which would be more flexible and could be used to open up access to American markets.¹⁰ Recognizing the changes in the marketplace and the costs of the FPC, the CVP system was adjusted downward in both the coast and interior regions in 1998. Unable to deliver on promises outlined in the jobs and timber accord, members within the NDP began questioning their “soviet style” of governance and became more open to privatization (Vancouver Sun 1999). As a result of the market down turn, FRBC revenues plunged and its size and scope was significantly reduced and the FPC was streamlined. Additionally, alternative timber pricing mechanisms began to be experimented with, as a Market Pricing System (MPS) was developed which used hedonic techniques to value timber based on bidding results in previous SBFEP auctions.

An MPS model was created for both the coast and interior regions and was used to set minimum acceptable bids (upset prices) on future auctions in the SBFEP. The coastal MPS model was then extended on a trial basis to price timber containing greater than 60 percent hemlock and balsam stemming from major tenure holders. This provided the coastal industry with some short term stumpage relief and set off a sequence of market-based timber policy developments.

9 Choke price is the price where quantity demanded reaches zero. In the case of old growth timber this demand is choked out by the availability of substitute products (second growth timber, engineered forest products, non-wood building materials etc.)

10 The largest coastal company at the time, MacMillan Bloedel, kick started this discussion in 1998 with the release of “A White Paper for Discussion: Stumpage and Tenure Reform in BC”.

The Forestry Revitalization Plan

Partly as the result of the previous government's failure to uplift the rural economy via central planning, a free market oriented Liberal party overwhelmingly won the provincial election (77 out of 79 seats in the legislature) in May 2001. At about the same time, the SLA with the US expired, only to be replaced with steep countervailing duties. The softwood dispute with the US became a top priority with the new government resulting in significant discussion about potential policy changes that could eliminate the appearance of subsidies and put the softwood dispute to rest. Following a report issued by DOC undersecretary Grant Aldonas, which signalled that policy changes could form the basis of a long term agreement, the government announced the Forestry Revitalization Plan (FRP) (MoF 2003). The FRP entailed the following changes to forest policy in the province, each of which is discussed in further detail in the next chapter.

- The reallocation of 20% of the AAC away from major tenure holders to the SBFEP, small scale tenures (WLs and CFs) and First Nations.
- All new short-term (TSLs) and long-term tenures (FLs and TFLs) will be auctioned solely based on price. The auction results to be used to generate a new administered stumpage system.
- The elimination of cut control, timber processing and appurtenancy restrictions
- The increased freedom to transfer and subdivide tenure

The tenure reallocation was perhaps the central component of the plan; this was done to meet many objectives, all in a *quid pro quo* manner. Firstly, the major licensees in receiving greater flexibility and less regulatory burden had to give up tenure to increase the volume at auction which improved the sample size of the MPS model, reduced their market power, and made the system more saleable to American on lookers. Second, appurtenancy, mill closure regulations, cut control and bid proposals were viewed by the public as part of an informal "social contract". The elimination of these regulations would be viewed by some - whether rightly or wrongly - as a breach of contract, putting communities at risk in favour of relaxed regulations for large corporations. Allocating volume to small tenures such as woodlots and community forests, as well as increasing the volume available to independent loggers and small manufacturers at auction, made the policy changes more palatable to rural communities. Lastly, legislative provisions giving government the ability to directly allocate licenses and share revenue with First Nations was hoped to be an important bargaining chip in the ongoing treaty negotiation process.

The striking similarities of the plan to the Aldonas proposal showed that the softwood lumber dispute with the US was no doubt a key driver of the policy changes. This was a fact that was played down by provincial politicians to diffuse growing public sentiments that BC had lost its sovereignty over forest policy, allowing outsiders to dictate how things were done in the woods. Although, it could be argued that the dispute with the US provided the incentives and conditions for the government to revisit the long over-due agenda of reforms highlighted by the two previous royal commissions (Pearse

1976, Peel 1991). The combination of the pressure from US, the state of the coastal industry, and a market oriented government with an enormous majority, finally made the implementation of the reform agenda politically feasible.

That being said, the changes to tenure still failed to address one outstanding suggestion from the FRC report; the roll over of volume based tenures to area based tenures with lengthened durations. Calls for change in this area of forest policy have been repeated by others (Zhang & Pearse 1996). Nonetheless, an important hurdle came from court decisions upholding the existence of aboriginal rights and title to the land (*Delgamuuk'w v. BC*) and the need for government to consult extensively with first nations in the transfer of tenure (*Haida Nation v. B.C. and Weyerhaeuser*). Furthermore, lumping area-based tenure reform into the revitalization strategy could have jeopardized the entire suite of policies. Area-based tenures with longer durations (particularly in the hands of large companies) could fuel public concern that the forest was being increasingly privatized, a word that fuels many emotions in a society which deems public control of forests as part of their “national soul” (Hurtig 2002, Reed 2001). Indeed, a working forest initiative set in motion prior to the FRP which tried to strengthen the certainty of the timber harvesting land base for industry as a whole prompted public protests. The words of deputy minister of forests Doug Konkin reveals the limited appetite for additional policy reform, “people can only take so much change” (Konkin 2005).

Summary and thesis outlook

In reviewing the evolution of timber policy in the province one can see that exogenous factors (changing market conditions, global environmental demands, trade barriers etc.) which affected the scarcity level of the forest resource often shaped the development of institutions. However, it also seems that policy maker’s responses to changing demands were constrained by prior choices and institutions. For example, past assignment of rights (formal and informal) to the benefit stream (timber and non-timber) flowing from the forest often meant that change, however necessary, could not be done easily. Some who hold, or claim to hold these rights could have vested interests in the status quo. As a consequence, some form of compensation is required (or demanded) when reforms take place and any change can be path dependent. Therefore, in concert, changing demands and history have served to produce the complex set of tenure arrangements and policies seen in the province today. The current tenure system and its origins are summarized in the Appendix.

The research in the rest of this thesis explores both aspects of change for an assortment of forest policies in the province. They highlight the underlying economic conditions which place pressure on existing arrangements and draw attention to the agents which were, or potentially could be, impacted by reform. The next chapter reveals some of the effects the FRP has had on the large industrial players in the province; this is followed by an assessment of BC’s plan to rely increasingly on its timber market and the challenges that may come given the historical lack of competition within it; chapter 5 shows how

the distribution of timber rents has changed as aspects of the social contract have been eroded; and lastly chapter 6 uncovers the potential rents available from timberland in the province across a broad range of geographical conditions. These rents are used to assess exiting timber institutions and the potential demand for further change.

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List of abbreviations used in chapter 2:

AAC	Annual Allowable Cut
ACE	Allowable Cut Effect
CVD	Countervailing Duties
CVP	Comparative Value Pricing (administered stumpage system)
DOC	Department of Commerce
FL	Forest License
FML	Forest Management License
FPC	Forest Practices Code
FRBC	Forest Renewal British Columbia
MAI	Mean Annual Increment
MPS	Market Pricing System
PA	Pulpwood Agreement
PSYU	Public Sustained Yield Unit
SBFEP	Small Business Forest Enterprise Program
SLA	Softwood Lumber Agreement
SY	Sustained Yield
TFL	Tree Farm License
TL	Timber License
TSA	Timber Supply Area
TSHL	Timber Sale Harvesting License
TSL	Timber Sale License
WL	Woodlot License

Appendix. Summary of current tenure arrangement in British Columbia

Tenure	Duration	Structure and Size	Management Responsibilities	Fees	Origins
Tree Farm License (TFL)	25 years (evergreen)	area - based (typically exceeding 100,000 ha in size)	Timber supply analysis and management planning according to SY principles. Monitoring forest health and forest inventory. Pre-harvest operational planning and reforestation following harvesting. Until recently timber processing requirement.	Administered Stumpage fee at the time of harvest (allowances for management responsibilities)	“private working circle” developed after the 1st Sloan Commission. Began as a FML with a perpetual term.
Forest License (FL)	Up to 20 years (evergreen) although non-replaceable forest licenses (NRFLLs) can also be issued.	volume-based quota (AAC) in TSA	Pre-harvest operational planning and reforestation following harvesting. Until recently timber processing requirement.	Administered Stumpage fee at the time of harvest (allowances for management responsibilities)	Converted from TSHL following Pearce Commission. Operations are within a TSA also known as the “public working circle” which was originally termed PSYU following the Sloan Commission.
Timber Sale License (TSL)	Up to 4 years (typically 1 year)	area - based (typically 10 to 100 ha in size)	None, however in the past award was based on employment and manufacturing conditions (i.e. bid proposal)	Stumpage fee determined by auction bid	Began to be auctioned by the Forest Service following the Fulton Commission. Fell out of favour after the Sloan Commission, increased in number after the SBFEP to be allocated more volume after the FRP.
Timber License (TL)	Variable (renewed until mature timber is harvested)	area-based (variable in size)	Pre-harvest operational planning and reforestation following harvesting.	Royalty rate and annual rental fee.	Award ceased following the Fulton Commission.
Woodlot License (WL)	Up to 20 years (evergreen)	area-based (up to 600 ha in size)	Timber supply analysis and management planning according to SY principles. Monitoring forest health and forest inventory. Pre-harvest operational planning and reforestation following harvesting.	Administered Stumpage fee at the time of harvest (allowances for management responsibilities)	Put in place following advice of Pearce (1976)
Community Forest (CF)	5 year pilot program and then 25 - 99 years	area-based (20,000 ha on average)	Timber supply analysis and management planning according to SY principles. Monitoring forest health and forest inventory. Pre-harvest operational planning and reforestation following harvesting.	Administered Stumpage fee at the time of harvest (allowances for management responsibilities)	Pilot program developed in 1998. Institute full program with additional areas following the FRP.