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British Columbia Log Export Policy: Historical Review and Analysis

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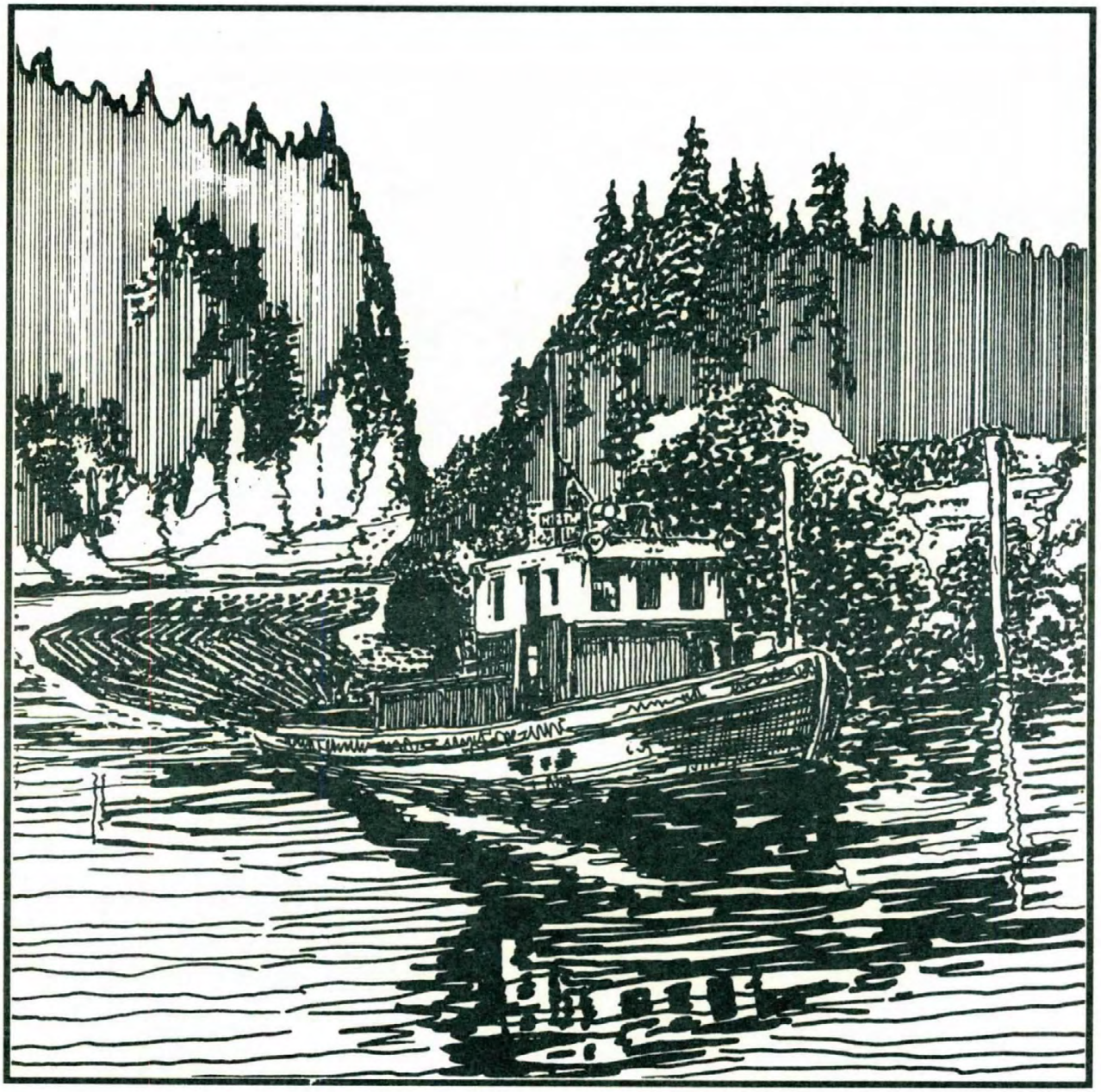

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Abstract

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Log exports have been restricted in British Columbia for over 100 years. The intent of the restriction is to use the timber in British Columbia to encourage development of forest industry, employment, and well-being in the Province. Logs have been exempted from the within-Province manufacturing rule at various times, in varying amounts, for different reasons, and by changing procedures. Although policy clearly restricts log exports, the effects are not simple. The timber industry benefits from both financial returns due to exporting and a restricted log market, while policy changes and implementation have worked to enhance the economic welfare of the Province. Realizing the intent to maintain Provincial well-being is perhaps the key to understanding the endurance of restrictive British Columbia forest policy over time and its dynamics.

Keywords: Log export policy, log exports, British Columbia, international trade, forest policy (British Columbia), forest history (British Columbia), economic development.

Summary

The intent of British Columbia log export policy endures and remains clear—British Columbia logs are for Provincial use to generate Provincial well-being. Change will continue to mark log export policy because of the economic importance of forest industry to British Columbia. The interests of forest industry continue to change. Industry benefits from both log exports and a restricted log market. Exporting logs is an important business in British Columbia, and logging without direct support of manufacturing has local employment benefits. As the harvest shifts north and inland from the southwest coast, and then back toward the coast, changes in land tenure and the relative importance of manufacturing to log production occur. Major forest manufacturers play key roles in both log supply and log use. Changes in policy restrictiveness and implementation up to the present have worked to benefit manufacturers, labor, and the Province overall in maintaining Provincial economic well-being. Through these changes, policy makers attempt to chart a course that realizes the intent of the policy.

The forestry policy for the past 100 years has been primarily to ban most log exports to encourage domestic manufacturing. Exemption from this rule, requiring within-Province manufacturing to obtain an export permit, involves Provincial agencies, advisory committees, and Federal departments. Exemptions currently can be granted when logs are surplus to domestic needs, when the logs cannot be processed economically near the harvest area, or when the exemption will prevent the waste or improve the use of timber cut from crown lands. Definitions of surplus have changed from strict physical surplus measures to include economic aspects. The fee in lieu of manufacturing accruing to the Province for exported logs increased from a nominal flat fee in 1985 to 100 percent of the difference between domestic and export log prices in 1989. Although policy clearly restricts log exports, the effect on log exports and on industrial well-being is not simple. Policy changes like market logger exemptions, standing green exemptions, and the changes in fee in lieu of manufacture can be seen as public-spirited attempts to improve Provincial forest industry development, employment, and well-being.

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Introduction

From the time of first European settlement, British Columbia (B.C.) has exported forest products: masts and poles, lumber and ties, chips and logs. The foundation for log export policy was in place by 1887, more than 100 years ago. The general intent of the policy was and still is to restrict the export of unmanufactured logs; its purpose is to promote the well-being of British Columbians by creating and stabilizing industrial capacity, employment, and Provincial revenues.

British Columbia has contributed to the offshore supply of logs since its earliest days; however, the volume and mix of export logs has been limited, in part, by policy. Repeated challenges and reviews of the log export policy have occurred, and each time, the restrictive policy has been affirmed—by Ministers of Forests and Lands in 1912, 1918, and periodically to 1987; and through provincially commissioned policy reviews in 1909, 1945, 1956, 1976, and 1983. Modifications in procedures have been recommended and approved, but the intent of keeping logs at home endures.

Corporate executives, labor representatives, and Provincial foresters seem to agree that restricting logs to within-Province use is wise. The importance of log exports to log producers and log users becomes clear with each major downturn in the forest industry. In 1908, during World War I, after the Great Depression, and in 1985, relaxed B.C. log export policy kept loggers working and balanced the books for major industrial forest firms. As forest industry rebounded from each economic downturn, log export policy became increasingly restrictive. In 1988, the Minister of Forests and Lands reaffirmed the position by limiting exemptions for unharvested timber opened up during the lean years of the early 1980s.

What has been the policy? How has it been implemented? What is the history of log exporting in British Columbia? Do popular notions of the restrictiveness of the log export policy ("never more than 4 percent of total harvest," "acts as a safety valve for surplus logs in bad times," "runs inverse to United States (U.S.) housing demand") hold up?

This report reviews B.C. log export policy and changes in the policy in a historical context. This is not a policy evaluation. The question about whether the policy promotes well-being within the Province is not addressed; and the study was not designed to predict export volumes in the past or future, although the historical log export data may be useful in carrying out other studies with that purpose. The purpose of this report is to describe the history of the log export policy and the administrative procedures associated with implementation, record the volume of logs exported historically from British Columbia, and discuss several propositions about log exporting in British Columbia.

Log export data and policy information were gathered from British Columbia Forest Service (BCFS) annual reports, major forest resource reviews, trade journals, news accounts, interviews, and secondary accounts. Personal interviews with individuals close to log exporting in British Columbia provided particular insight to the process and issues.

This study focuses narrowly on export policy. The history of forest use in British Columbia is long and broad, and painting the broad picture is beyond the scope of this paper. The broader history of B.C. forests is included only where necessary to understand log export policy. The history of forest use in British Columbia is treated extensively by several authors: Lamb (1938), Hardwick (1963), Bergren (1967), Lower (1968), Nagle (1970), Taylor (1975), Marchak (1983), and Gillis and Roach (1986). Forest policy regarding log exports has not been well summarized in the literature, however.

Policy Chronology

This section includes a review of the history of log export restrictions in British Columbia and describes policy changes during four periods when significant changes occurred: 1906-18, World War II, the 1960s and early 1970s, and the 1980s. (See appendix 1 for a chronological policy listing.)

Introduction

The history of Provincial policy in British Columbia restricting the export of logs starts in 1891, when British Columbia restricted the export of logs cut from crown lands to within-Province use as an amendment to the Lands Act (British Columbia Land Act Amendment 1891: c 15). In 1901, conditional exemption to within-Province use was added to the language of the Lands Act (British Columbia Land Act Amendment 1901). In 1906, the restriction of log exports was recast in the Timber Manufacture Act (British Columbia Timber Manufacture Act 1906: c 42). No provision for conditional exemption was included in the recast legislation, and none was added until 1909. The restriction included all crown lands granted after March 12, 1906, as well as timber cut on crown lands. The effective date of this legislation, 1906, recurs throughout the records and is treated in policy discussion as the initial restrictive policy measure regarding log exports. Lands granted by the crown before March 12, 1906, continue to be unrestricted by the Province, and until parallel restrictions at the Federal level were established after World War II, logs from these lands were freely exportable, subject only to Provincial tax and fees.

The general policy of enhancing Provincial development, specifically industrial development and job creation, through restrictions in forest-related legislation is long-standing. Broad support was voiced for the restriction of logs to within-Province manufacturing in 1906. This support carried into the Forest Act of 1912 (British Columbia Forest Act 1912: c 17, s 100), where the restriction is expressed as follows:

> All timber cut on Crown lands or Crown lands granted since the twelfth day of March, 1906, or on Crown lands which shall hereafter be granted, or on lands held under pre-emption record, shall be used in this Province, or be manufactured in this Province into boards, deal, joists, lath, shingles, or other sawn lumber, except as hereinafter provided.

A more recent rewriting of the Forest Act states three exceptions to the within-Province manufacture rule (British Columbia Forest Act 1978: c 23):

1. The logs are surplus to domestic need.
2. The logs cannot economically be utilized within the Province.
3. The export of logs would prevent waste.

Language restricting log exports has endured for nearly 100 years, but the interpretation and implementation of log export restrictions have changed over time. In all but the 1956 Provincially commissioned forestry reviews (Fulton 1910; Pearse 1976; Sloan 1945, 1957), log exports, log export policy, and implementation procedures have been an issue. Strong feelings expressed in favor of restricting log exports stem from a generally held belief that forest wealth in the form of timber is the basis of Provincial development for all people in British Columbia. When MacMillan Bloedel was exporting logs at high levels, and exports were providing the profit in an otherwise bleak portfolio, the chairman expressed support of the general restriction of log exports to maintain within-Province manufacturing.

The exceptions to the no-export rule are seen as a relief or safety valve[1] (Trebett and others 1983, Whitford and Craig 1918). When the log demand by domestic mills does not meet the level of timber harvested, then the export of surplus logs is seen as a way to maintain the logging sector of the timber economy. The clear intent of the policy is to influence industrial development and maintain Provincial employment by restricting logs to within-Province use or manufacture.

The Chronology of Log Export Policy

During the late 1800s, British Columbia and the U.S. Pacific Northwest were in the heyday of the first forest cutting. Exports of lumber and logs fueled B.C. logging. The chronology of events in log export history is summarized in table 1. The 1865 date was chosen for the historical starting point because the Land Ordinance of 1865 provided the basis for timber cutting rights separate from land ownership conveyance in British Columbia and direction for subsequent forest policy (Sloan 1945). Part of the confusion in the early legislation impacting log exports resulted from the fact that land could be filed for or otherwise acquired before and without crown grant. Crown grants often followed. The 1865 Provincial legislation suggests concern not only with land dispersal but also with industrial development within the Province.

In 1866, the colonies of Vancouver Island and British Columbia were united. In 1867, the British North America Act[2] created the Dominion of Canada. British Columbia formally became a member of the Canadian confederacy in 1871. At the Federal level, the British North America Act gave the Provinces the right to manage unsettled forest lands in Canada (Reed 1986). The same legislation retained for the Federal government the right to regulate foreign trade.

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[1] Personal communication. 1988. George S. Nagle, Nawitka Resource Consultant, Nawitka Resource Consultants, Victoria, BC.

[2] Constitution Act, 1867. 30 & 31. Victoria, c 3 (U.K.).

The Land Act of 1888 required the establishment of mills in proportion to granted lands (Sloan 1945). It provided an early basis for enhancing local manufacturing through Provincial forest policy. In 1888, a tax on logs exported from British Columbia was established (Davies 1977). Davies (1977) and Sloan (1945) suggest that amendments to the Land Act in 1891 restricted all timber cut on crown lands to use and manufacture in British Columbia. Although restrictions like requiring mill establishment in proportion to leased timber and remuneration to the crown exerted pressure to manufacture within the Province, statutory language restricting timber to within-Province manufacture first occurred in 1901. The 1901 rewriting of the Lands Act clearly restricts exports of unmanufactured timber from pulp and timber leases (British Columbia Land Act Amendment Act 1901: c 30, s 6, 7). In 1903, the Land Act was amended to impose a tax on nonroyalty lands (those granted before 1887) that was refundable with local use and manufacturing (British Columbia Land Act Amendment Act 1903). This tax persisted until it was declared unconstitutional in 1929.

The Timber Manufacture Act, effective in 1906, unified and broadened the intent of the within-Province restriction on manufacturing. The 1901 restrictions were broadened to include lands granted by the crown after 1906 (Sloan 1945). Also in this period, lands acquired before 1887 and granted before March 12, 1906, were relatively free from export restrictions. The Sloan commission report (1957) discussed the technical difference between the 1887 lands and the 1906 lands, though later reviews of log export policy do not. For the purposes of log export policy, Provincial lands can be reduced to two classes: pre-1906 and post-1906. Logs from pre-1906 granted lands were freely exportable except for a minor tax. Unmanufactured logs harvested from Provincial lands and Provincial lands granted after 1906 could not be exported. No restriction on export applied to logs from Federal land at this point.

The Early Years: The Decades After 1906

All British Columbia, at the start of the 20th century, was well aware of the timber endowment along the coastal shores. For years, starting with the export in 1788 by Captain John Meares of masts and other spars from Vancouver Island, British Columbia had been exporting logs. In the late 1800s, this trade included shipment of logs to Puget Sound sawmills. The language of the Timber Manufacture Act of 1906 stresses the local, within-Province manufacture of British Columbia logs. Within-Province manufacturing restrictions were seen as a parallel to the tenure requirements of establishing a mill. (Early tenures required the establishment of mills as a condition of the tenure.) British Columbia logs for B.C. used to provide B.C. jobs: this early commitment is evidenced by the expansion of the 1901 export restriction on crown lands to include privately granted lands after 1906.

In the years after the enactment of the Timber Manufacturing Act of 1906, concern developed over administration of forest activity in British Columbia. The San Francisco earthquake in April 1906 created high demand for B.C. lumber. Enhanced demand led to robust activity by firms to acquire licenses and other forms of tenure for Provincial forest lands (Marchak 1983, Sloan 1945). Helter-skelter land and cutting right

acquisitions led to an Order in Council passed on December 24, 1907, prohibiting all forms of temporary alienation. "Alienation" is the term used for the granting of property rights from the Province to private individuals or firms.

In 1909, the possibility of exemption from log export restrictions was added to the Timber Manufacture Act in response to the financial difficulty experienced by the forest industry in 1908 (British Columbia Timber Manufacture Act Amendment Act 1909). In 1909, a Royal Commission of Inquiry on Timber and Forestry was established to review forest practices, legislation, and administration. The commission's report in 1910 recommended the establishment of the B.C. forestry branch (Fulton 1910). This and other forest policy recommendations were enacted as the Province's first Forest Act of 1912 (British Columbia Forest Act 1912: c 17). Forestry provisions of the Lands Act (British Columbia Land Act Amendment Act 1903) and the export restrictions of the Timber Manufacture Act (British Columbia Timber Manufacture Act Amendment Act 1910) were incorporated in this first Forest Act.

The economic crisis surrounding World War I provided the stimulus for the Timber Royalty Act of 1914 (Sloan 1945). The Royalty Act did not directly restrict the quantity of exports, but it represented another pressure on the timber resource in British Columbia: revenue support for the Provincial government. In this period, in response to the economic difficulties of World War I, the Lieutenant-Governor in Council approved relief in the form of a blanket exemption from export restriction for all logs cut within the Province. The exemption was conditional on a timber tax being enacted in addition to royalties due. This blanket permit to export is restated in the Forest Act as amended in 1916 (British Columbia Forest Act Amendment Act 1916) as follows:

> Notwithstanding anything in this Act contained, the Lieutenant-Governor in Council may, during the continuance of the present War, permit the export from the province of unmanufactured timber upon such terms and conditions as he sees fit.

At the close of World War I in 1918, the Lieutenant-Governor, on the advice of the Minister of Lands, issued an order prohibiting the export of logs from British Columbia except for no. 3 cedar (*Chamaecyparis* spp.) (Pacific Coast Lumberman 1918).

During the World War I period of log exportation, the Log Export Advisory Committee (LEAC) was formed by the British Columbia government to advise on log export exemption permits. The minutes of the first meeting were recorded on March 26, 1918 (Trebett and others 1983). Nine members sat on LEAC to represent equally lumber mills, loggers, and the British Columbia Forest Service. In its early years, LEAC left no doubt about its criteria: log exports were to be permitted only if the harvested logs were considered surplus to the domestic economy. In 1927, T.D. Pattullo, Minister of Lands, stated, "There is no intention of permitting even a semblance of logging for export" (Sloan 1945). Surplus was interpreted conservatively to mean physical surplus at the time of permit application. These actions set the tone for a remarkably durable policy.

The means to determine surplus has changed. Early LEAC members depended on their own knowledge of the log market to determine surplus (Trebett and others 1983). By the 1930s, LEAC had adopted a policy of three refusals: to receive an export exemption, the permittee had to show proof that the logs cut and boomed in the water had been offered for sale and rejected by three mills. In 1932, the Minister of Lands directed LEAC via a Ministerial Interpretation that "physical surplus only was to be the criteria and that LEAC should disregard any difference in price between domestic and export price" (Davies 1977). The wording of the mandate in the Forest Act in 1929 is identical to the 1916 act (British Columbia Forest Act Amendment Act 1916: c 23) with one exception: the phrase "during the continuance of the present War" had been dropped from the paragraph empowering the Lieutenant-Governor in Council to permit export of unmanufactured products. (See appendix 2 for relevant sections of the 1916 and 1929 Forest Acts.)

World War II: Prohibition and Parallel Forms

During the 1930s, there were no procedural or legislative changes in log export policy. Some evidence indicates that log exporting was allowed for purposes beyond strict surplus during the depression years (Trebett 1983). This was to create employment in the logging sector during the period of low lumber demand. The passage of the War Measures Act,[3] July 10, 1940, brought to a halt whatever export activity prevailed in the late 1930s (Davies 1977.)

The War Measures Act, a Federal act, prohibited export of unmanufactured Douglas-fir (*Pseudostuga menziesii* (Mirb.) Franco) and other listed items. By December, the list was expanded to include all true firs (*Abies* spp.). By 1942, all unmanufactured wood products were prohibited from export unless specifically exempted. The law, enacted for reasons of national security, marked the entry of the Canadian Federal government into log export restriction. Before 1940, logs originating on Federal lands and Provincial lands not subject to Provincial restriction (granted by the crown before 1906) were freely exported. These Federal restrictions applied to all B.C. log exports.

In 1945, the War Measures Act was incorporated into the National Emergency Transition Power Act (NETPA). This act continued the restricted listing language of the War Measures Act (Davies 1977). Implementation of Federal control was through the Federal Timber Control Authority (BCFS Reports 1914-87: 1947-49). In 1947, the provisions for controlling export through listing were transferred to the Export and Import Permits Act[4] (Davies 1977). This act gave the Minister of Industry, Trade, and Commerce authority to issue export permits for items on the control list. The Export and Import Act remains the statutory basis for Federal control of log exports (Pearse 1976).

Though the Federal statutory basis remained in place after World War II, logs from lands within British Columbia not restricted by the Province continued to provide most export logs. Federal export permits were not subject to restrictive review except for total volume quotas. Quotas were increased after World War II (BCFS 1948).

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[3] War Measures Act, 1914, Revised. Victoria, July 1940.

[4] Export and Import Permits Act, s.c. 1947: c 17.

A major change in implementation of the Federal permit process came in 1969 when the Federal Ministry of Industry, Trade, and Commerce added restrictions to its permit process. Logs from lands subject to Provincial restriction were granted export permits by the Federal government on the basis of the outcome of the Provincial process. Logs cut from early crown-granted lands (therefore, not subject to Provincial restriction) were granted Federal export permits only on recommendation of LEAC. This effectively harmonized the restrictions on log exports in British Columbia. The exception was timber from Indian lands, which remained unrestricted (Davies 1977).

The LEAC interpretation of surplus changed procedurally in the late 1950s. By 1950, the committee was using three letters of refusal as proof of surplus. This was modified in 1960 to require that the refusal be from mills actually using the type of log receiving the permit and that the logs be available to mills for 60 days before application. This exposure period was reduced to 30 days in 1969 (Trebett and others 1983). There were insinuations of "fiddle" (blocking, substitution, or collusion) regarding the three refusals throughout the period when three refusals served as criteria for surplus (Davies 1977). The extent of fiddle is not clear; however, discussions of fiddle are a constant part of the log export policy debate[5] (Davies 1977, Trebett and others 1983).

The 1960s and Early 1970s: New Pressures on Exports

Restrictions on log exports from lands granted before 1906 increased through Federal policy after World War II. By 1969, Federal and Provincial restrictions were congruent. The postwar years also were generally good for lumber production in British Columbia. The U.S. economy prospered, and demand for lumber for U.S. housing created high demand for B.C. lumber and high within-Province demand for logs. During the late 1960s, several changes in implementation of log export policy occurred. In 1968, the Federal Government took a seat on LEAC, mainly in a monitoring role. In 1969, the Federal Ministry of Industry, Trade, and Commerce restricted the permit process on lands granted before 1906 to parallel the Provincial restrictions (Lindell 1978).

Also in 1969, the Chip Export Advisory Committee (CEAC) was created to review applications for chip exports (Trebett and others 1983). It was established in a form much like LEAC, and membership came from a similar mix of groups: Members included chip producers (sawmills), chip consumers (pulp companies), and Provincial and Federal observers. The committee was chaired by a representative from the Council of Forest Industries (Pearse 1976). The CEAC recommended explicit procedures for dealing with interior surplus chip production and recommended 1-year evergreen exemptions, which allowed applicants to export chips continuously. If a domestic chip consumer had trouble meeting supply needs, the consumer could petition the CEAC via a notice of need, which provided the basis for canceling an evergreen permit.

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[5] Personal communications. 1988. Nagle (see footnote 1); D.W. Ruhl, Export Policy Forester, British Columbia Ministry of Forests, Victoria, BC; and former Log Export Advisory Committee (LEAC) members and others.

Incremental changes occurred in the early 1970s in the timber tax, or levy on logs permitted for export (Davies 1977). This levy had been a part of export policy from the beginning of the 20th century. The levy remained at nominal levels until the 1970s. In the mid 1950s, the tax was a flat C$0.50/cubic foot (CUNIT). The tax rose to C$2.00/CUNIT in 1973. In 1974, the tax increased to a flat C$10/CUNIT for most species, regardless of the differing value premium for export logs for each species and grade; for example, grade 1 Douglas-fir and hemlock (*Tsuga* spp.) had a differential between export and import price of over C$100/CUNIT, whereas grade 3 of the same species had a differential of C$15-20/CUNIT (Davies 1977).

In 1974 and 1975, significant changes in implementation of the log export policy occurred. The 1974 revision of the Federal Export and Import Act (Davies 1977) included the long-held Provincial goal of promoting domestic manufacture. Before this, the basis of Federal control had been in the national security language of World War II. In 1975, LEAC changed the basis of proof of surplus from three refusals to advertisement in appropriate newspapers for 2 weeks. Federal procedures followed this change. By 1975, LEAC was meeting essentially for two separate hearings when they did meet—once with the Provincial representative as chair to hear post-1906 land applications and then later with a Federal representative to hear applications restricted only by Federal policy (Davies 1977). These changes in procedure and the above-mentioned changes of fee in lieu of manufacture (timber tax) remained in place until 1978 legislation replaced the old Forest Act (British Columbia Forest Act 1978: c 23).

The 1980s: New Ways of Doing Old Business

In 1976, the report of the Royal Commission on Forest Resources was published (Pearse 1976). Recommendations included revision of log export control through the permit process to the control by levy on the difference between export and domestic prices for timber. Pearse recommended maintaining the structure of a permitting process but reducing the role of advisory committees so that the committees would advise more generally rather than make a recommendation for each application. The review by the Royal Commission resulted in two pieces of legislation: the British Columbia Forest Act of 1978 and the British Columbia Forest Act of 1979 (c 140).

The analysis of the log export control, as reported by Pearse (1976), once again stirred debate about log export policy. The late 1970s were boom years for the British Columbia forest industry. Little support was formed for the removal of export restrictions in the legislation of 1978; however, the wording of the section on within-Province manufacture in the revised Forest Act was changed substantially (British Columbia Forest Act 1979: c 140; see appendix 1 for relevant sections of this act). Key changes included the authority for the Lieutenant-Governor in Council to delegate responsibility for certain categories of export permits to the Minister of Forests. In the revised Forest Act of 1979, the provision to write permits for export of unharvested logs is included. Further, the three criteria for exports were explicitly enumerated in a slightly revised form as a part of the language of the revised act (British Columbia Forest Act 1979: c 140):

1) The timber or wood residues will be surplus to requirements of timber processing facilities in the province.

2) The timber or wood residue cannot be processed economically in the vicinity of the land from which it is cut or produced and cannot be transported economically to a processing facility located elsewhere in the province.

3) The exemption would prevent the waste of or improve the utilization of timber cut from Crown land.

The first two conditions, surplus and vicinity, are consistent with log export policy since World War I. Surplus to domestic needs remains the major criterion of export.[6] The third criterion allows for harvest of interior B.C. forest stands damaged by insect or fire for silvicultural reasons or decadent uneconomical stands removed to rehabilitate areas.

The inclinations of the Province remain unwavering on the restriction of logs for exports. In 1982, Tom Waterland, Minister of Forests, stated in denying a 400 000-cubic-meter export application:

> It is the intent of our legislation to encourage a vigorous wood processing industry here in B.C. This will not be achieved by permitting...export of large volumes of unmanufactured logs. The Forest Act provides for export of timber that is in excess of our own industrial needs, but this can't be determined for coastal logs until the timber has been cut, sorted, boomed, and offered for sale on the Vancouver log market....

The Log Export Advisory Committee recommended unanimously against granting the permit approval.[7]

On March 23, 1983, the Minister of Forests appointed a special log export policy committee to assess (1) implications of current log export restrictions on the health and vigor of the domestic timber-processing industry and (2) procedures for implementing the policy (Trebett and others 1983). Four months later, the committee reported the major finding that "the log export provisions of the British Columbia Forest Act are generally sound."[8] Trebett and others (1983) made 47 specific recommendations for improving the implementation procedures and administration of the policy.

In November 1984, the Minister of Forests announced a change in policy restricting log exports. The change involved more specific interpretation of the three permittable criteria.

1. Green-standing exemptions would be issued for a percentage of hemlock-balsam (*Tsuga* spp.-*Abies balsamea* (L.) Mill.) stands only upon demonstration that the stands cannot be harvested economically without the premium price of export logs.

2. The logs must come from remote, decadent, and uneconomically harvestable predesignated areas.

3. Logs must be harvested as part of other operations and have no within-Province use.

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[6] Personal communication. 1988. D.W. Ruhl (see footnote 5).

[7] News release 28-82. British Columbia Ministry of Forests. Log export permits denied, September 23, 1982. On file with: Craig W. Shinn, Portland State University, School of Urban and Public Affairs, P.O. Box 751, Portland, OR 97207.

[8] News release 12-83. British Columbia Ministry of Forests. Log exports studied, March 30, 1983. British Columbia Ministry of Forests. Log export committee reports, July 25, 1983. On file with: Craig W. Shinn, Portland State University, School of Urban and Public Affairs, P.O. Box 751, Portland, OR 97207.

This policy was not effective until December 31, 1985, to give industry time to adjust.[9] The former criteria for harvested surplus were extended beyond the original date of December 31, 1985, to March 31, 1986. From March 31 to September 1986, the only criteria for within-Province manufacture exemption were those for standing green exemptions, or exemptions from the export restrictions to sell precut stands that generally were uneconomical for use within the Province. In September 1986, the harvested-surplus criteria were reestablished.

As a part of this policy change, the Timber Export Advisory Committee (TEAC) was formed. Initially, TEAC was intended to be representative not just of timber interests, but of B.C. interests more generally. For a time, TEAC reviewed applications for the criterion of economic need, and LEAC continued to review applications under the old surplus criteria. During this period of transition in log export policy, several different Ministers of Forests served in a relatively short time. Each Minister modified the review process. Finally, TEAC was reformed to combine representation from the old LEAC. The reformed TEAC, which remains to date, handles all timber-export applications for both harvested and standing timber. Recommendations for standing timber exemptions (granting export permits for stands not yet harvested) are reviewed by the Minister of Forests and the Executive Council. Also, TEAC now adjudicates offers on logs under export consideration to ensure the fairness of offers and that perspective buyers are not currently exporting logs.[10]

In the period of dynamic change from 1984 to 1986, blanket exemption from within-Province manufacturing was approved for logs from regions claiming uneconomic harvest of wood. In June 1987, Dave Parker (then Minister of Forests) extended blanket standing green exemptions to March 31, 1988. As a part of an Order in Council, Parker increased the fee in lieu of manufacture to 30 percent of the difference between domestic and export prices or as commonly termed, "the lift."[11] In 1988, Order in Council 1274/88[12] provided a blanket exemption for market loggers under specific circumstances. (Market loggers are licensees who do not directly or indirectly own a timber manufacturing facility and must rely on the sale of their harvested timber as a main source of income.)

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[9] News release. [Title unknown]. November 16, 1984. British Columbia Ministry of Forests. On file with: Craig W. Shinn, Portland State University, School of Urban and Public Affiars, P.O. Box 751, Portland, OR 97207.

[10] This step-by-step description relies heavily on Trebett and others (1983), export-permit procedure circulars by the British Columbia Forest Service (1985, 1986), and personal communications (1988) with D.W. Ruhl, Export Policy Forester, British Columbia Ministry of Forests, Victoria, BC.

[11] Order in Council, No. 1252. Minister of British Columbia. Approved June 25, 1987. Victoria, BC.

[12] Order in Council, No. 1288. Minister of British Columbia. Approved 1974. Victoria, BC.

The change in fee in lieu of manufacture within the Province has been broadened as various Ministers have realigned policy. Export timber was subject to 30 percent of the lift or a minimum export fee of $1 per cubic meter. This was calculated as 30 percent of the difference between domestic and export prices. The rate was increased to 40 percent in July 1988. On March 20, 1989, the fee in lieu of manufacturing was increased to 100 percent of the difference between domestic and export price.

In fall 1987, the Minister of Forests announced major changes in forest policy for the Province (Reed 1988). These changes, following legislative scrutiny, were enacted in June 1988. Changes in the legislation restricting the export of logs were minimal. Minor word changes enhanced the authority of the Minister to delegate responsibility. Other changes significantly affected forestry but not export policy. The fee in lieu of manufacture, strict interpretation of surplus, and homogeneous administrative process reinforced the Provincial commitment to the use of timber resources to promote industrial development and local employment.

Lack of changes in legislation may or may not mean changes in log export policy implementation. The recent reliance on the fee in lieu of manufacturing to reduce log exports may represent a shift from the physical surplus criterion. The nominal changes in the wording of the within-Province log use or manufacture legislation and the recent change in fee-in-lieu rates are hard to evaluate at present. As O'Brien (1988) said in an article to B.C. loggers:

> As the new forest policy comes into play, with characteristic confusion, few can predict what effect it will have on the future of the log market. There is one safe bet, however. The controversy over the single most important product to the British Columbia economy—raw logs—will continue.

Log Export Volumes for British Columbia

Exports of wood products are central to British Columbia. Although 70 percent of timber cut in British Columbia goes to foreign countries as manufactured products (Aspey 1986), a small but important fraction (2 to 10 percent historically, about 3 percent in recent years) is exported as logs. As noted above, British Columbia has a 100-year history of restricting log exports to stimulate domestic manufacturing industries. Within-Province manufacturing is seen as a way to stimulate Provincial capital investment, employment, and social well-being. A critical element of understanding B.C. log export policy is understanding the flow of export logs over time.

Below, data from Provincial reports (BCFS Reports 1914-87) are presented and interpreted for actual flows of export logs. In the report of the Royal Commission on Forest Resources, Pearse (1976) points out that the history of log export volumes is not the real measure of restrictive export policy. He correctly indicates that it is the volume not exported as a result of the policy that is the measure of the policy's influence. Though the truth in this statement is apparent, it also is apparent that historical records exist only of logs exported. It is from these that the implications of the restrictive policy must be understood.

In this section, the BCFS data series will be described. Next, log export volumes will be reported by several categories useful in later analysis. The log export volumes will be divided by the 1906 land-grant date and by log grade and percentage of total log harvest. The accumulation and summarization of log export data provide the basis for later analysis.

Data Series Summary

The log export data used as the basis for the tables, (see appendix 4) were gathered from a report issued annually by the BCFS starting in about 1912. The data in these tables were generated from the permit application process. Volumes, species, and grades are reported on the exporting permit itself. These data were then summarized to generate tables such as those in the appendix. The series is not recorded in any one source location and has changed in form over the years. The tables represent, however, the single best historical record of log export activity in British Columbia.

Permitted volumes may differ from shipped volumes for several reasons: for instance, the time limit of the permit may result in shut outs, which may then be repermitted and thereby result in duplications. Although not necessarily representative of shipload records, the volumes recorded on permits were assumed representative of total annual exported volume.

Land Grants and Log Flows

As discussed in the chronological review above, land grants interact with log export policy to create a category of lands from which logs can be exported freely per Provincial policy. Figure 1 shows the volumes of logs exported from lands not under Provincial restriction (exportable without permit [that is, lands granted before 1906, Indian and Federal lands]), log volume exported from lands subject to Provincial restriction (lands granted after 1906), and the total log export volumes. Before 1937, the division between permit lands and lands without a permit was not reported in the BCFS annual report. Summary tables in Sloan (1945) and a review in the BCFS annual report (1939) provide some early data to 1929. Policy discussions suggest that before 1929 most export logs were from lands not subject to Provincial restriction. Figure 1 displays the volume of exports over time.

The interesting part of figure 1 is the obvious success of the restrictive policy at various times; in particular, exports were stopped at the onset of World War II (BCFS 1940, Sloan 1945). During World War II, log export volumes came from lands not restricted by Provincial regulation and without procedures for enforcing restriction. The pattern of export volume began to change as Provincial and Federal log export policy was homogenized after World War II.

Figure 1 shows that before 1957, the shape of the log export curve was determined by the level of exports from lands granted before 1906. After 1957, the curve is determined by lands granted after 1906, which are subject to full Provincial restriction. After World War II, when Federal policy began to parallel Provincial policy in practice, the impact of land grant status via restrictive policy seems to have less effect on export volumes than do other factors, such as the condition of standing timber by land grant status.

Log Grades

When log exports are separated by grade (fig. 2), the data show that B.C. log export policy has been successful in keeping the manufacture of higher quality logs within the Province. When exported logs are mostly from lands without restriction at either the Provincial or Federal levels, the distribution among grades is less apparent. But once log export volumes began to come from lands with either Provincial restrictions or homogenized Federal restriction (1940), export-log volumes are inverse to log quality or grade. Few grade 1 logs have been exported since World War II. Grade 3 logs account for much of the volume exported. Although grading rules have changed over the years, the grading system is comparable, with grade 1 logs always of better quality than those of grades 2 and 3. For log quality, the restrictive permitting process affects exports so that higher quality logs are manufactured within the Province.

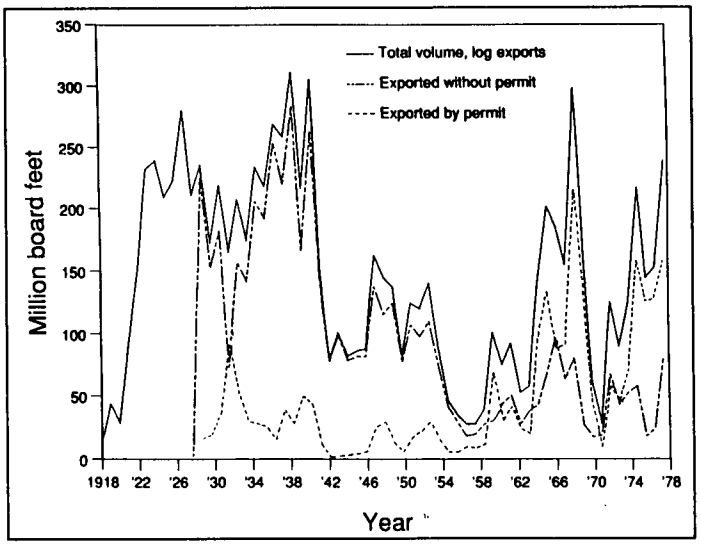


Figure 1—B.C. log export volumes: total, exported without, and exported by permit.

Log Export Volumes and Total Log Harvest

Total log export volumes are a small portion of total harvest in British Columbia (fig. 3). In recent history, log export volumes rarely have reached 5 percent of total harvest. Between 1920 and 1940, log exports approached 7-8 percent of total harvest. These figures are small relative to total log harvests in the Province.

Sawn Wood Export Volumes

The proportion or volume of logs exported also is small relative to sawn wood exported (fig. 4). British Columbia exports more than half of its manufactured forest products (Haley 1984). The emphasis on export markets for manufactured products is central to the history of British Columbia. The rationale for restricting export of unmanufactured products (raw logs) is to encourage within-Province manufacture. In British Columbia, domestic demand has yet to approach the production potential of the region; therefore, export markets for manufactured products remain critical to the forest economy of the region.

How Log Exporting Works in British Columbia

Log exports in British Columbia are controlled by Provincial policy, which requires that log exporters follow specific procedures, pass particular reviews, and obtain required permits. Besides following Provincial procedures, exporters must obtain Federal permits. These steps require private businesses to interact with Government departments and their agents. The general public has interests invested in the process through oversight boards (LEAC and TEAC) and Provincial revenues (fees in lieu of manufacture) collected as a part of the process. This section describes how log exporting works from the perspective of the exporter (usually a private firm), the Ministry of Forests, and TEAC.

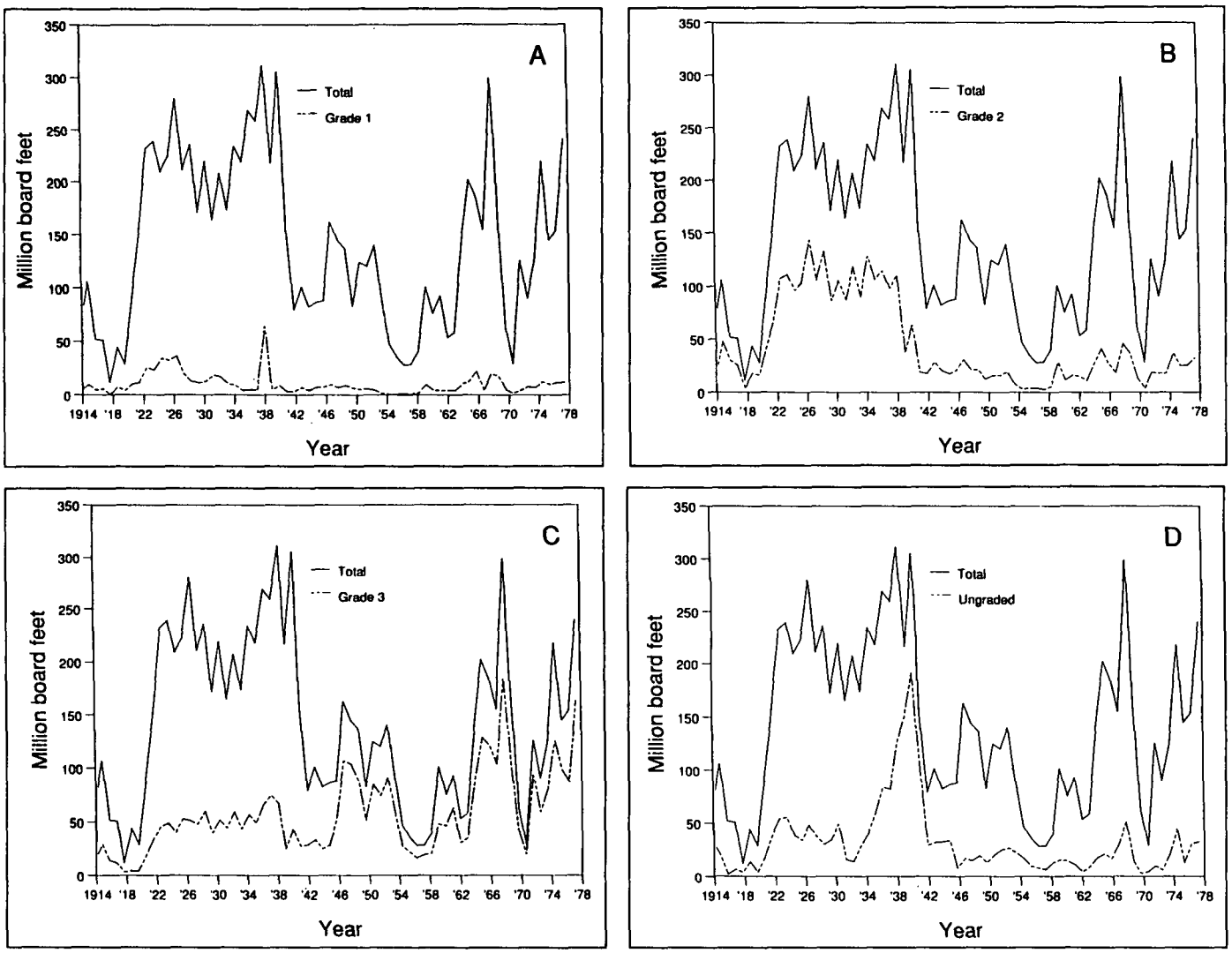


Figure 2—British Columbia log export volumes: (A) total and grade 1; (B) total and grade 2; (C) total and grade 3; (D) total and ungraded.

Perspective of the Exporter

The procedures required to export unmanufactured logs from British Columbia have differed over time; however, the basic administrative approach has remained consistent. Key changes have been made, for example, in rules on surplus, but the assumption that a ruling is necessary has not changed. Further major changes have involved the time delays required by and between administrative steps. These generally have decreased over the years. Although procedures differ for harvested timber, standing timber, new market logger exemption, and Federal and Provincial permits, a common theme pervades: a prospective exporter must apply for and obtain (1) an exemption from the requirement to manufacture within the Province, (2) a Provincial export permit, and (3) a Federal export permit. The generalized procedures for completing these steps will be described for harvested timber from Provincial lands. Provincial lands historically have been the source of most export logs under the most widely accepted criteria: logs surplus to within-Province need.

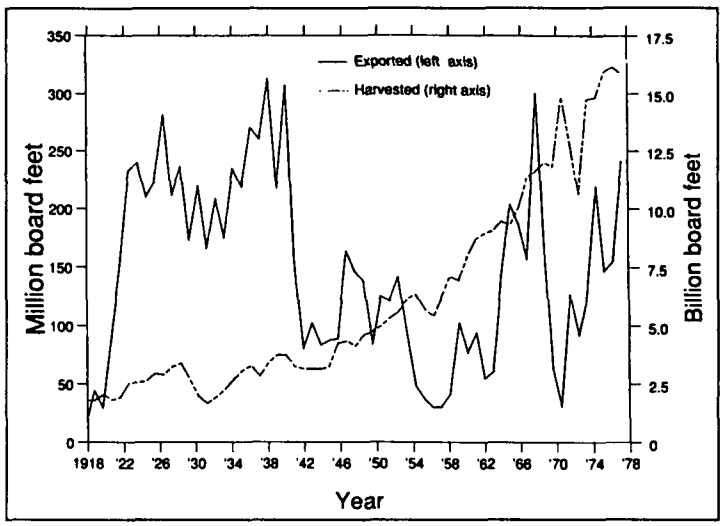


Figure 3—Total British Columbia log exports and total harvest volume.

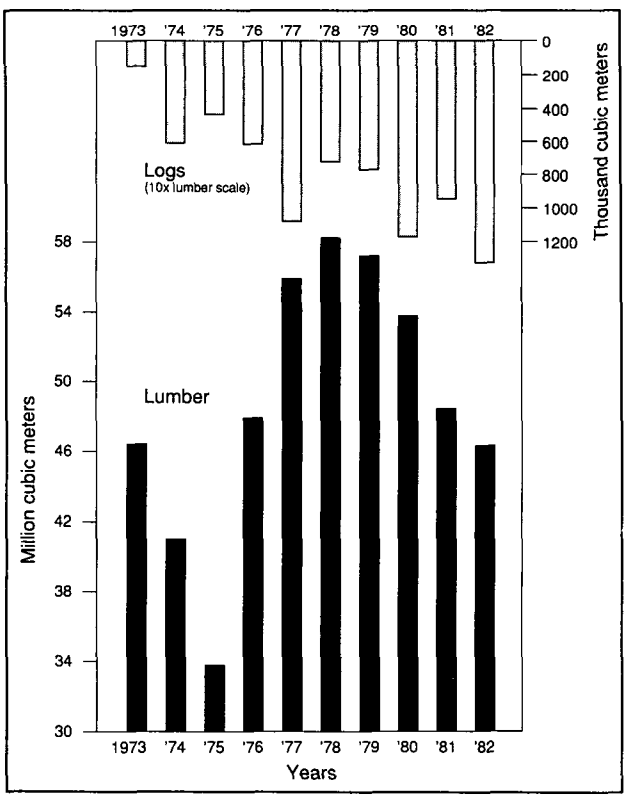


Figure 4—British Columbia log exports and lumber shipments.

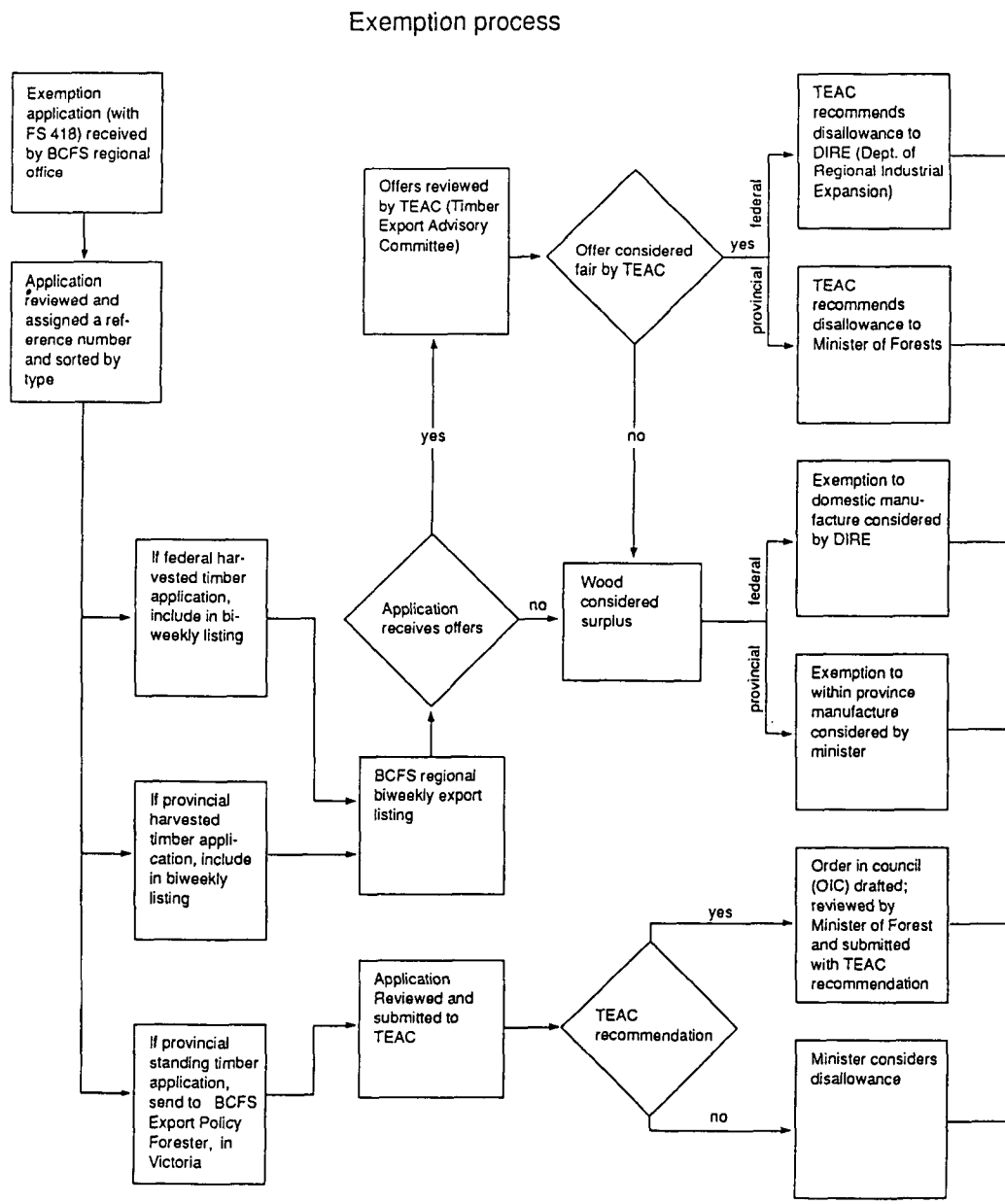
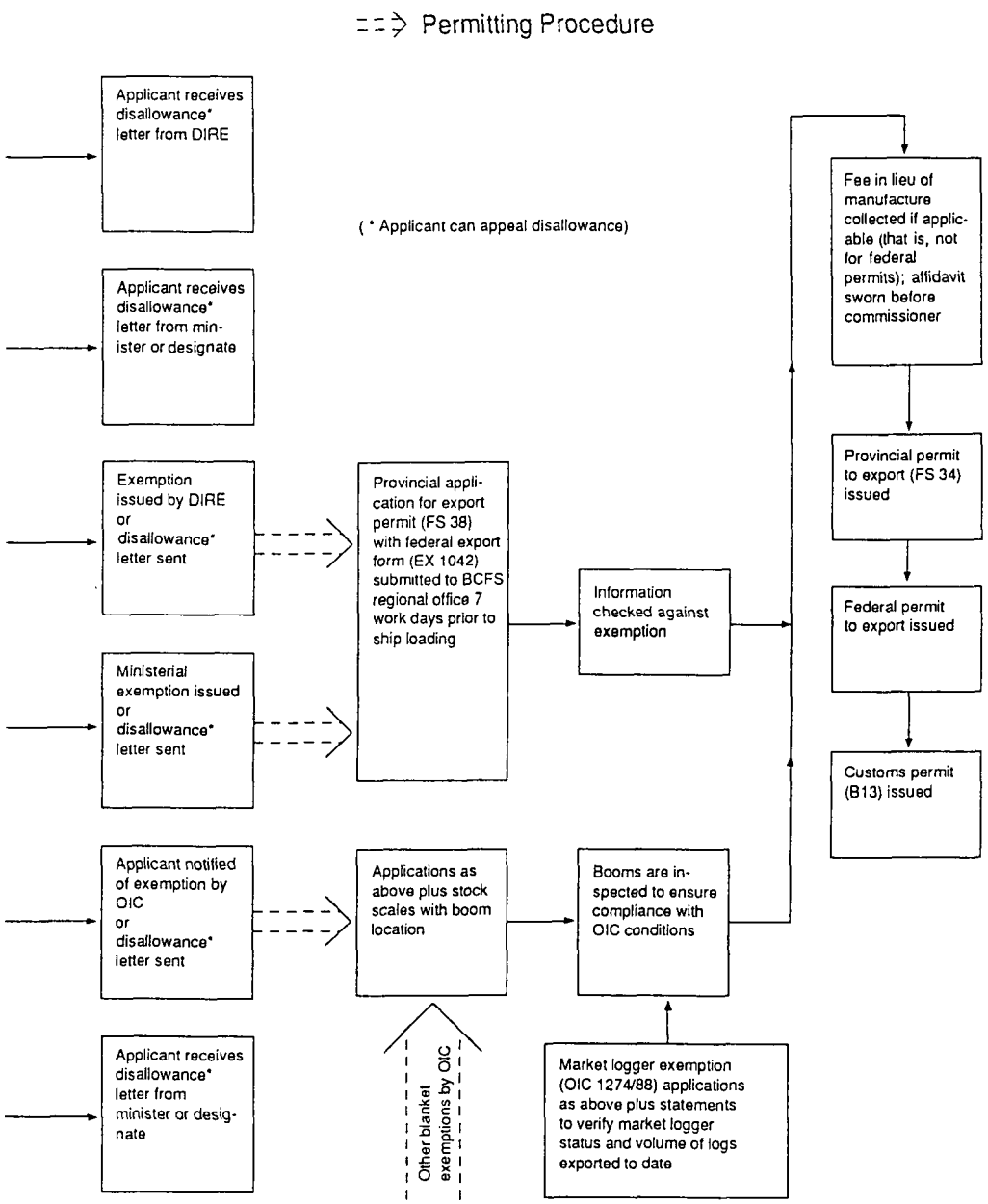


Figure 5—Flow chart: exemption process and permit procedure.

A generalized step-by-step approach would be like the one demonstrated in the flow chart (fig. 5) of the exemption process and permitting procedure.[13]

[13] This same general opinion was offered to the author by several people interviewed for this project (see acknowledgment). Often, the inverse relation was suggested with qualifiers like "generally," "many think," or "it seems that."


Permitting Procedure
Applicant receives disallowance* letter from DIRE
(* Applicant can appeal disallowance)
Applicant receives disallowance* letter from minister or designate
Exemption issued by DIRE or disallowance* letter sent
Ministerial exemption issued or disallowance* letter sent
Applicant notified of exemption by OIC or disallowance* letter sent
Applicant receives disallowance* letter from minister or designate
Provincial application for export permit (FS 38) with federal export form (EX 1042) submitted to BCFS regional office 7 work days prior to ship loading
Information checked against exemption
Applications as above plus stock scales with boom location
Other blanket exemptions by OIC
Booms are inspected to ensure compliance with OIC conditions
Market logger exemption (OIC 1274/88) applications as above plus statements to verify market logger status and volume of logs exported to date
Fee in lieu of manufacture collected if applicable (that is, not for federal permits); affidavit sworn before commissioner
Provincial permit to export (FS 34) issued
Federal permit to export issued
Customs permit (B13) issued

The logs first are harvested, sorted, scaled, and boomed (that is, in a boom and confined as sorted in the water). Recent policy interpretations have emphasized the requirement that the logs be in the water in a boom before being advertised for sale and the exemption process applied for. In the interior, the functional equivalent of having the logs in a boon is used whereby logs are stacked once they are sorted on land (that is, decked). Exemptions allowing export of unharvested timber were begun as part of interior chip export applications in the early 1970s. Another similar exception to this procedure of applying to export logs has been for standing green applications, which were reviewed in the early 1980s under the economic inaccessibility criterion. Unharvested timber currently is considered for exemption as standing timber under the economic inaccessibility criterion, the decadent stand criterion, and the so-called market logger exemption. Differences in the procedures for gaining the export exemption for standing timber and the market logger stands are discussed later.

Once the logs are cut, scaled, sorted, and confined, the exporter must apply to the regional BCFS office for advertisement in the regional biweekly export listing. This listing is circulated to interested parties, particularly log buyers within the Province. The biweekly listing replaces the newspaper advertisement that was used until 1986 to determine market surplus.

Appropriate forms must accompany requests for biweekly listing. These forms ask for specific information identifying the logs by type, volume, and location. Proof of scale and authorization to offer the logs also are required. The harvested timber must be sorted and confined (boom or deck) to conform to normal log market practices. This requires that booms contain not less than 90 percent of a single species and domestic use type. The Ministry reviews the application and, where necessary, verifies information such as log grade. The application is given a reference number and is published in the next biweekly listing. The original application is returned to the applicant.

Once the advertising period and the deadline for receipt of offers is complete, the application form and evidence of offers made must be returned to a regional office of the Ministry of Forests. Offers to buy logs advertised in the biweekly listing that are received after the deadline noted in the listing are not considered in later reviews of the application.

Standing timber and market logger application procedures differ from harvested application procedures. Applications for standing timber exemption are considered only when unusual circumstances suggest that the harvested surplus procedures are inadequate. Each application for standing timber exemption is considered as unique. Applications must be to the regional office and include the standardized application form and information appropriate to the review of the case. Information must be included to support claims that the stand is uneconomical to harvest or is decadent. The regional office typically assists in preparing applications for standing timber exemptions to ensure that the information presented is adequate. Applications for standing timber exemption are reviewed by the region, the district, and the ministerial staff in Victoria. The TEAC also reviews and makes recommendations to the Deputy Minister. Exemption from within-Province manufacturing is by Order in Council, which must be approved by the Minister, Cabinet, and Lieutenant-Governor.

The market logger exemption was approved in June 1988 and allows market loggers to gain export permits for standing timber. A market logger is a licensee who does not directly or indirectly own a timber manufacturing facility and must rely on the sale of his harvested logs as a main source of income. To use this exemption, the applicant must state that they and the tenure holder are eligible for the exemption. Order in Council 1274/88 (see footnote 9), which established the market logger exemption, refers to the midcoast, north coast, and Queen Charlotte Islands. The percentage of export from a tenure is limited as part of this order in council. The applicant must confirm that the exemption applied for does not exceed that limit. The review process is neither routine nor automatic. It is similar to other standing timber applications and the review standards for exemption contained in Order in Council 1274/88.

For harvested timber, the step after the return of the application and offers to the regional offices is the review by TEAC, formerly called LEAC. Meetings of TEAC are called by the the chair at frequent but not regular intervals. Applications are reviewed and grouped by region and type in preparation for the TEAC meetings. Additional information required for making judgments is gathered; log price currently is considered as additional information used by TEAC to adjudicate offers for fairness. (This is a change from the mid-1960s when physical surplus was a primary criterion and price was not considered in the offers.) To estimate the legitimacy of an offer, information is gathered on whether the buyer has seen the logs, whether the buyer is registered as a log buyer, and whether the offer is fair. To be eligible to bid on logs, firms must not be exporting logs. A choice to export or buy is limiting for 3 months. Members of TEAC depend on their personal knowledge of the log market and on information gathered by the ministry to judge fairness of the offers.

For each application, background information (such as the record of recent TEAC meetings, including volumes approved) is collected and combined with relevant information about the application. A meeting agenda for TEAC is then set. The committee formally reviews fair prices on offers for all harvested and standing timber applications. All TEAC recommendations are confidential until the Deputy Minister approves notification of the status of on-going TEAC reviews. Recommendations are recorded and forwarded to the Deputy Minister of Forests.

Action is required by the Minister of Forests and then by the cabinet and Lieutenant-Governor. In 1987, signature authority was delegated downward. This may reflect the superior review becoming more routine, the use of more objective criteria for decisions, or an effort to speed the review process. Once a decision has been made and approved, the applicant is notified of exemption or disallowance. If the application is disallowed, the decision can be appealed.

When an exemption is granted, the exporter must secure export permits through the Province and the Federal Department of Industry, Trade, and Commerce. First, the prospective exporter must submit an application for a Provincial export permit. An export sales invoice between the seller and the export customer showing the export market value of the timber under application also must be submitted. Fees in lieu of manufacturing and all other Provincial requirements must be met before the Provincial export permit is issued.

Federal and Provincial paperwork is cross-referenced. The applicant must provide the Provincial application for permit to the Federal Department of Industry, Trade and Commerce, to customs, and to the cargo carrier. The completed Provincial export permit is then taken to the Department of Industry, Trade and Commerce, where a Federal permit is obtained. This is a routine process when the applicant has exemptions in hand. With a Federal permit, the applicant is ready for customs documentation and loading. Inspection during loading ensures that the logs being loaded are those listed in the permits.

Application procedures for export permits for harvested timber originating on lands granted before March 12, 1906, parallel the procedures for lands granted after 1906 but are reviewed under Federal authority by the criterion of surplus. Only the Federal government has authority to restrict log exports from lands granted before 1906. The Province acts as the agent for the Federal government. Federal procedures require documentation of surplus parallel to Provincial procedures, which effectively homogenizes the procedures.

Perspective of the Ministry of Forests

The Ministry of Forests in the Vancouver region has a department, staffed by the Export Policy Forester, to handle the paperwork and review applications and the committee preparations required by the log export policy. The Ministry handles all applications for export of logs and acts as agent for the Federal government in the exemption process. The department has responsibility for documenting the volumes of logs exported and fees in lieu of manufacture received and for the step-by-step review of the exemption procedure.

Within the Victoria office, the Export Policy Forester receives applications from the regional offices of the Ministry of Forests. The applications are reviewed for accuracy and are sent to TEAC for review and recommendations. The Export Policy Forester currently acts as recording secretary for TEAC, so the transfer of applications from the Victoria office of the Ministry to TEAC and back is easily done. Following TEAC review, a summary of total volumes by action recommendation is made. Memorandums for each application are sent to the Minister along with draft exemptions or disallowance letters. The Export Policy Forester is responsible for charting the progress of these applications and maintaining contact with the regional offices having applications in process.

Once the ministerial review is in hand, the information is gathered for review by council and action by the Minister or the Lieutenant-Governor. Approval comes as an order in council or ministerial order. Finalized orders are returned to the Export Forestry office. From here, the applicant and regions are notified. A review and rebuttal procedure is available for disallowed applications. The TEAC reviews rebuttals submitted with additional evidence. Expiration dates for exemptions are set for each application. The time required to process an application in 1988 was 120 days for harvested exemptions and up to 1 year for standing timber exemptions. The timing of the initial application, deadlines for biweekly listings, differences in review requirements, and the timing of meetings account for the differences in time lapse among applications. The process is not quick, and exemptions are not automatic.

Perspective of the Timber Export Advisory Committee (TEAC)

The procedure for obtaining exemption to within-Province manufacture and export permits has been streamlined over the years. The recent changes in export policy continue this trend. Still, the advisory committee, now TEAC (previously LEAC), remains a key part of the process. In the past, the committee consisted of interested parties. The membership was drawn from the Council of Forest Industry, labor, and Provincial representatives. Additions expanded the size of the committee to more than 17 at one point. In policy reviews, Pearse (1976) and Trebett and others (1983) recommended reducing the membership and removal of those directly involved in exporting in favor of informed but disinterested citizens. Following these recommendations, current members have less direct interest in log exports, but they represent traditional interested parties: industry, labor, and loggers. The charge of the advising committee remains much the same today as in 1918. The committee has always served as a recommending body.

Past LEAC committees had broad authority in making recommendations. Typically, the chairman would review the agenda and reduce the applications for review by sorting them into categories, thereby allowing the committee to spend time discussing the marginal applications. The committee has a long history of acting within the general direction of the policy. Ministerial recommendations typically support the action of the TEAC. Action by the cabinet and Lieutenant-Governor generally follows ministerial recommendation.

Two interesting question having to do with the restrictiveness of LEAC and TEAC committee actions remain unanswered: (1) During periods of a strong economy in British Columbia, are fewer applications recommended for approval? and (2) Do the changes in export volumes reflect a change in the restrictiveness of application reviews or in the number of applications made? When domestic log markets are robust and prices high, fewer standing timber applications pass TEAC economic criteria. Surplus of harvested timber still is possible, in part because of the cyclically larger harvest volume in robust periods. It is possible that fewer applications or lower application volumes (reflecting alternative markets for logs during high domestic demand) rather than greater restrictiveness of committee action account for changes in log export volumes. Without a doubt, recommended action on export applications do differ in response to Ministerial direction and public sentiment on the appropriateness of exporting raw logs.

Propositions: Log Export Policy and Volumes

Policies restricting log exports from British Columbia have been a part of Provincial history for more than 100 years. The expressed goal of the policy is to maintain and support within-Province manufacturing capacity and through that to positively influence Provincial well-being. Well-being is generally discussed in terms of employment, industrial capacity, community stability, and timber-resource revenue returns to the Province.

Although the broad directive of the policy has remained the same for 100 years, changes have occurred in administrative process, criteria for permits, ministerial directives on restrictiveness of policy implementation, and fees related to exports. Each change seemingly has been accompanied and often preceded by controversy. The controversy perhaps results from the importance of the forest economy in British Columbia, from changes in policy that seem to follow the economic mood of the Province, or because the effects of policy changes are not direct or clear and thereby leave opportunity for debate.

In this section, propositions on the effects of log export policy on log export volumes will be considered. Some of these propositions are from interviews and discussions with Canadians involved in the log export process and with academic, industrial, and political observers. Other propositions come from reports, papers, and articles and from historical information gathered to date. Selected propositions will be stated and discussed in terms of the information available. Needs for additional information will be identified. Where the discussion leads to further propositions, this will be stated. The intent is to explore the structure of the effect of log export policy on log export volumes by examining several widely held explanations of the relation. It is hoped that this exploration will stimulate further investigation.

Effects on Log Export Quality and Species

To maintain and support manufacturing capacity within British Columbia, Provincial policy can restrict the quality and species of logs exempted from the within-Province manufacture rule. The efficacy of such restrictions and the effect of the general restriction on the quality and species of logs exported are considered here. From World War I to 1988, log exports were inversely related to quality; that is, lower grades tended to account for more of the export volume (fig. 2). The effect of restrictive log export policies has been to keep better graded logs at home. The simple comparison of figures shows that few grade 1 logs are exported. This comparison does not account for the general decline in log quality in harvest with shifting harvest patterns over the last 75 years (British Columbia Ministry of Forests 1984). The proportion of grade 1 logs exported relative to total log exports needs to be compared with the proportion of grade 1 logs relative to total harvest to see the effect of a general decline in log quality. Data for total harvest by log grade are lacking in the public record. (See British Columbia Ministry of Forests 1984 and BCFS 1984.)

Today a shift in quality of log exports can still be attributed in part to restrictive policy. Figure 2, a and b (grades 1 and 2 log exports), shows that at times higher grades have been exported. The export of higher graded logs is related to the period before World War II, when most export logs were coming from lands granted before 1906. Before World War II, these lands were not subject to either Provincial or Federal restriction. After World War II, Federal policy paralleled Provincial policy restrictions. Comparing log exports by grade in the period just before and after World War II suggests that the restrictive export policy accounts for some of the downward shift in the quality of logs exported.

Species of exported logs can be influenced by restrictive export policy. As with log quality, the species mix of the total B.C. harvest changes over time. Along the coast, early harvests focused on Douglas-fir. As the harvest moved from the coast to the interior just before World War II, the species mix changed. British Columbia was not unique in its preference for Douglas-fir. The within-Province demand for logs was driven by the export market potential of sawn wood (see for example, Hardwick 1963, Marchak 1983). During the early years, up to 75 percent of wood products manufactured in British Columbia were exported. Figure 6 shows Douglas-fir log

export volumes as a proportion of total exports and Douglas-fir as a proportion of total British Columbia harvest. This demonstrates that in British Columbia, with restrictions on log exports, the species mix of logs exported is different from that harvested. Figure 6d shows Douglas-fir total and grade 1 export volumes. The periodic zeros in grade 1 Douglas-fir log volumes exported suggests an effect of restrictive policy, particularly when the price differential for export logs is generally held to be directly related to quality (Margolick and Uhler 1986, Trebett and others 1983, Widman Management Limited 1984).

Part of the shift in species mix can be attributed directly to policy; for instance, in December 1940, Douglas-fir was restricted from export by the Federal government as a war-measures precaution. In this case, as in periodic restriction of spruce (*Picea* spp.) and cedar for trade dispute reasons with the United States, the effect of explicit species restriction seems clear. In log export tables (appendix 3), log export volumes for some species (cedar and spruce) are zero in some years. Given the long history of cedar log exports, it is unlikely that the zero figure can be attributed to lack of demand for export for cedar.

Less clear is the indirect effect of the surplus requirement on the species mix of export logs. Different offshore markets demand different species and different qualities of lumber and, presumably, logs. Also, Provincial capacity to use logs by species will influence the criteria of surplus. These effects are subtle and complex. Western hemlock (*Tsuga heterophylla* (Raf.) Sarg.), for example, was not in industrial demand until 1937; this was attributable partly to changing harvest patterns and technology (kiln drying) and partly to the growing importance of Japanese markets at that time. What is clear in the historical record is that western hemlock was exported in log form as ungraded until 1939 (BCFS 1914-87). Before 1939, only Douglas-fir, cedar, spruce, and cottonwood (*Populus* spp.) were exported by grade. By 1939, total volumes of western hemlock logs exported accounted for the largest volume by species. How did the surplus requirement interact with loose grading standards to affect the volumes of western hemlock exported?

Hemlock is not alone. Western white pine (*Pinus monticola* Dougl. ex D.Don), lodgepole pine (*P. contorta* var. *latifolia* Engelm.), larch (*Larix* spp.), and other species become grade-differentiated species in the log export records as the harvest in British Columbia shifts from the coast toward the interior, and their value grows both within the Province and offshore. The indirect effect of the surplus criteria interacts with offshore changes in demand (reflected in log value by species) for lumber, which is exported freely, and logs, which are restricted. These interactions are complex and subtle.

The general effect of restrictive log export policies is to retain higher graded logs and higher valued species at home. How different the quality mix would be without restriction is not known. Administrative rules can directly affect species and grade mix. The indirect effect of restrictive export policy on species mix and quality is not clear.

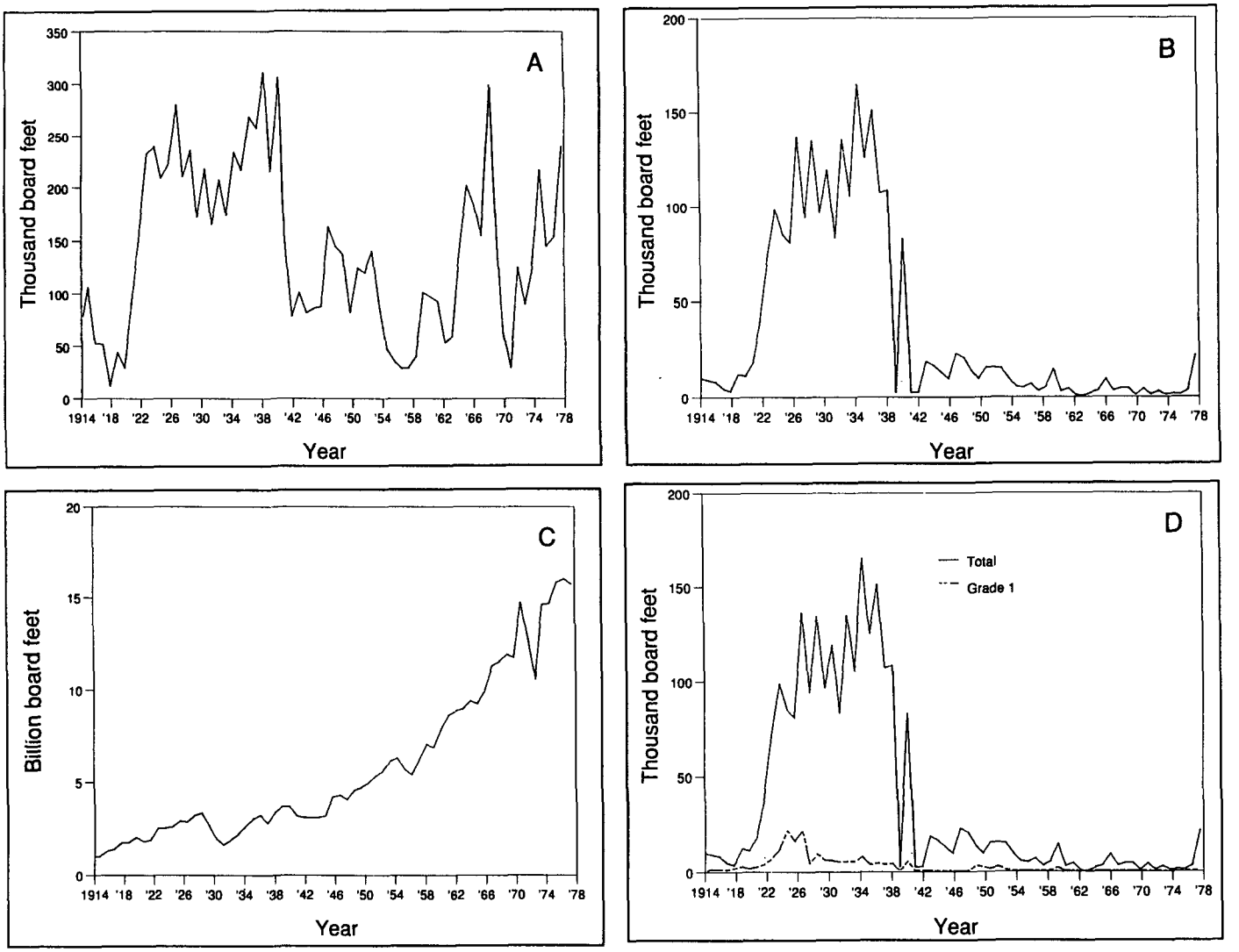


Figure 6—(A) British Columbia total log exports; (B) British Columbia total Douglas-fir log exports; (C) British Columbia total harvest; and (d) British Columbia total and grade 1 Douglas-fir log exports.

The Role of Offshore Demand

A rule of thumb, offered by observers of log exports in British Columbia, is that "log exports tend to vary inversely with the health of the North American lumber market" (Davies 1977). More recently, people involved in log exporting in British Columbia have described log export restrictiveness as flip-flopping; that is, becoming more or less restrictive with the changing fortunes of the B.C. forest industry (see footnote 13.) Like Davies, these observers link the state of the B.C. forest industry to the U.S. demand for lumber. Housing starts have been the conventional indicator for U.S. demand.

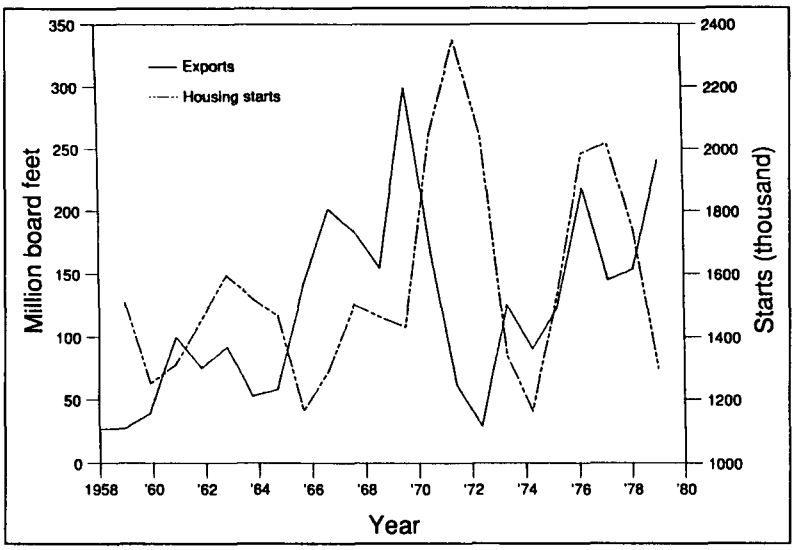


Figure 7—Total log exports and U.S. housing starts.

This rule of thumb postulates that B.C. log export restrictiveness, measured as the total volume of logs allowed as exports, is greater when the U.S. housing market is strong; this relates to a strong B.C. lumber economy, so that fewer logs meet the surplus requirements. Hence, when U.S. housing starts are up, exports are lower. The data suggest, however, that this is not necessarily so. The relation between U.S. housing starts and log export volumes for 1960 to 1980 are shown in figure 7. This is the period when the United States was the major buyer of lumber exports from British Columbia. In 1971, 70 percent of B.C. lumber exports went to the United States. The above rule of thumb (log exports inverse to U.S. housing starts) is most likely to hold for this period.

The rule of thumb can be broadened to include all export demands for lumber from British Columbia. Then the proposition would be that log export volumes are inversely related to export lumber shipments from British Columbia. Trebett and others (1983) suggest that the broadened rule of thumb holds: log export volume in British Columbia "fluctuates approximately inverse to the markets for finished products of the forest industry." Figure 4 shows the relation of lumber shipments to log exports for 1973 to 1982. Waterborne shipments of B.C. lumber are reported in aggregate in BCFS annual reports (1914-69). Figure 8 shows the relation of total log export volumes and total sawn wood waterborne export volumes until 1969. During this longer period, the inverse relation is not clear. Some periods seem to have an inverse relation; but during other periods, the relation is less apparent.

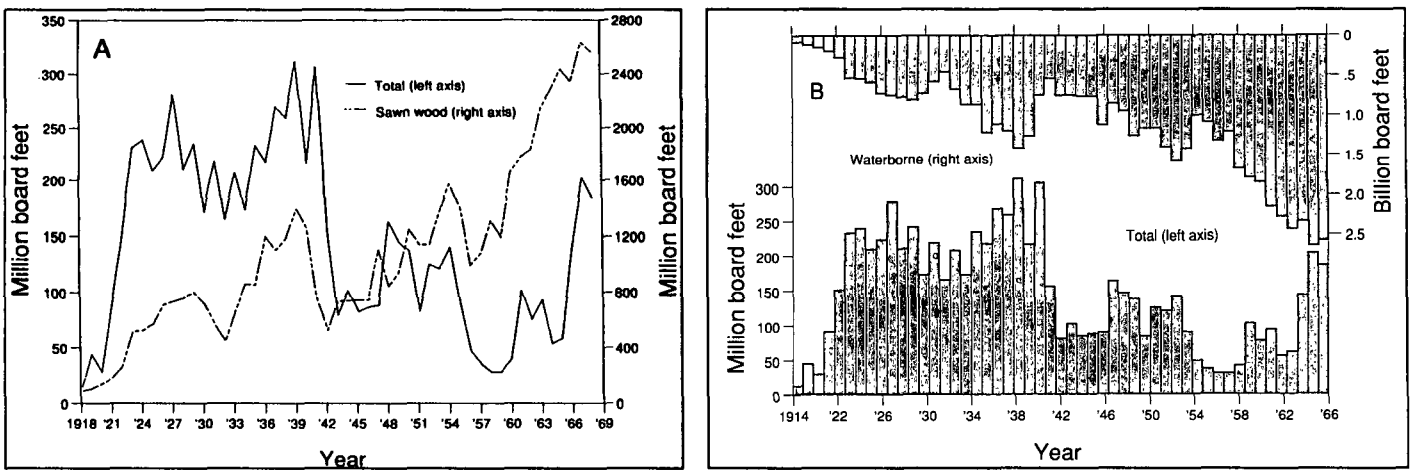


Figure 8—(A) Total British Columbia log and waterborne sawnwood exports, 1918-69; and (B) total British Columbia log and waterborne sawnwood exports, 1918-66.

The anomalies in total log exports are not explained by simple demand relations. Stumpage price, B.C. gross domestic product, and qualitative evidence of lumber prices show patterns of weak association like housing starts and waterborne lumber exports. A review of BCFS annual reports (1918-87) shows that log export volumes are defined in several different ways by the BCFS: by total harvest volumes (references to weather and fires), by decline in alternative supply (references to changes in contribution to total supply from the U.S. Pacific Northwest), by structural change of the sawmill industry (for example, sawmill numbers range from 2000 in 1960 to 800 in 1970), and by market changes (references to orders from South Africa, Australia, Europe, the United Kingdom, and the United States at various times). The above comparisons and the historical reports suggest that the problem of understanding export log volumes is not only one of understanding lumber demand but also one of understanding actual log surplus in British Columbia. The demand for finished lumber is central to the domestic demand for logs, and domestic demand for logs is central to understanding log surplus. Other factors have roles that are not as clear. Still, if it is necessary to understand actual surplus to understand log export volumes, then B.C. log export policy is successful in providing an escape valve for the log-producing part of the economy in addition to support in the form of reduced competition for raw materials to the log-using part of the forest industry.

The Four-Percent Upper Limit Proposition

The proposition that 4 percent of total harvest acts as an upper limit to log exports is rooted in the idea that log exports should be a minor portion of total B.C. forest-related exports. By no means is it suggested that the BCFS responds directly to an upper limit. What underlies this proposition is a generally held belief in British Columbia that the export of significant amounts of unmanufactured wood products will weaken the Province's forest industry. Several observers have suggested 4 percent as the fraction beyond which people begin to feel uncomfortable with the volume of logs being exported. To test this proposition, the export percentage of Provincial harvest has been related to change in export volume in the following year. The proposition is that as log export volume approaches 4 percent of total B.C. timber harvest, log export volumes are likely to decrease.

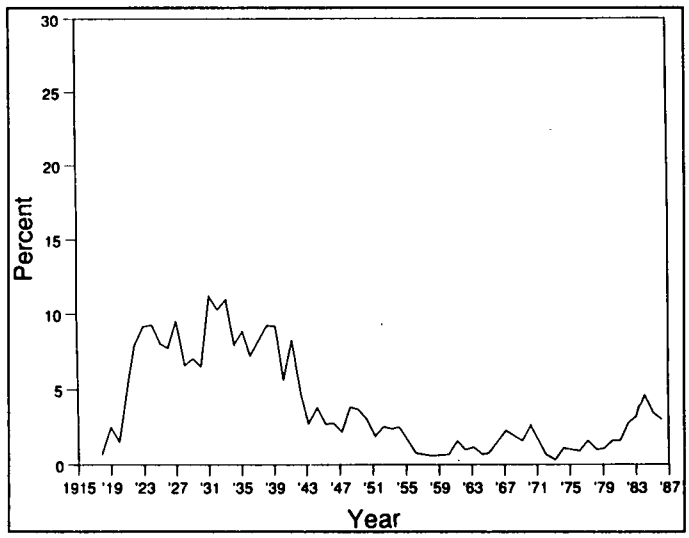


Figure 9—British Columbia log export volumes as a percentage of total harvest.

Although 4 percent has served as an upper export limit in recent years, this has not been the case historically (fig. 9). In the early part of the 20th century, 4 percent was exceeded regularly. Figure 9 suggests that the effect is not direct in a causal sense. Perhaps the causal sequence relates to the perception of key interest groups on the difference of well-being between mill owners and workers. In recent years, 4 percent may be closely related to this perception.

A proposition of this sort is worth pursuing. In British Columbia, log export policy is viewed as instrumental, a tool to influence Provincial well-being. The goals or purposes of the policy are rather uniformly expressed by diverse interested parties and over time. The rise and fall of recent standing green exemptions demonstrate the flexibility of the Minister in implementing the policy. It is less clear how the need for changes in export policy restrictiveness is assessed.

Political pressure and general sentiment may follow the 4-percent limit as a significant visible proportion; further, the spread of well-being may be couched in the cyclical nature of forest industry. This proposition can be explored more completely by using path analysis or comparative analysis of historical periods in which the 4-percent limit is approached.

Although the 4-percent limit provided an upper limit in the recent past, the evidence does not suggest that 4 percent acts directly as a trigger to increasing restrictiveness of log export policy. There is general sentiment that log exports should be a small proportion of total harvest. What that proportion should be and what factors influence the perception of "small" remain unclear.

Effects of Mixed Source and Standing Inventory

Log exports originally came mainly from the coastal region of British Columbia. As the cut in British Columbia moved from the coast to the interior after World War II, the total export volume of logs also declined. Accessibility of timber and transportation has been suggested as the primary cause for the pattern of shifting harvest (Hardwick 1963). In addition, the pre-World War II forest industry focused on Douglas-fir. As the lower latitude and coastal Douglas-fir was cut out, the harvest patterns began to include other species (Hardwick 1963; Sloan 1945, 1957). Was the decline in log exports related to the shift in standing timber inventory?

Two factors complicate the question: the pattern of tenure in British Columbia, which differs from coast to interior, and the pattern of harvest, which differs similarly. Pre-1906 grants, free of Provincial export restrictions, are concentrated along the coast as was early harvesting. Log exporting has been most significant along the coast. Does the standing inventory combine with the pattern of tenure to impact the volume of logs exported?

This second factor of the question is at the heart of log export history, and the way to separate inventory and tenure requires further study. It is clear that the source of logs by tenure is important. During several periods before World War II, the export volumes of logs came from pre-1906 lands—at times, 90 percent of exports (BCFS 1914-87). Lands granted before 1906 are free from Provincial restriction and those before World War II are without Federal restriction. The dominance of logs from pre-1906 lands suggests an important tenure effect.

During World War II, Federal restrictions were implemented, and the forest industry became heavily regulated (BCFS 1940-45, Sloan 1945). Federal regulations on log exports since have paralleled those of the Province. Land tenure status since World War II regarding land granted pre-1887, pre-1906, and post-1915 should not have major effects. After the boom years in lumber exporting in the early 1950s, log exports became more evenly distributed between pre- and post-1906 lands (see fig. 1). This suggests a homogenizing of policy restriction across lands.

The impact of standing inventory on the volume of logs exported is more ambiguous. Data available in aggregate annual series used here suggest that the interior, where standing timber exemptions had their origin, increasingly contributes to the total harvest since World War II as seen in the depiction of B.C. annual harvest by region (fig. 10a); however, the coastal region maintains dominance in log exports (fig. 10b).

The economic accessibility of standing timber has decreased continuously since World War II, as has stand quality. Exemptions for standing timber have their origin in the interior region due to the combination of decreasing economic accessibility and decreasing stand quality. In the interior, wood historically was sold standing with a limited market for harvested logs. Also, standing green exemptions were issued to expedite the removal of insect-damaged stands. In the early 1980s, the criterion of financial profitability or uneconomical harvest became a basis for standing green exemptions for log exports on the north coast as well. The number of standing green exemptions increased cyclically until the economic decline in the mid 1980s, and since that time, standing timber exemptions have decreased. Now standing timber exemptions are considered only for exceptional economic circumstances.

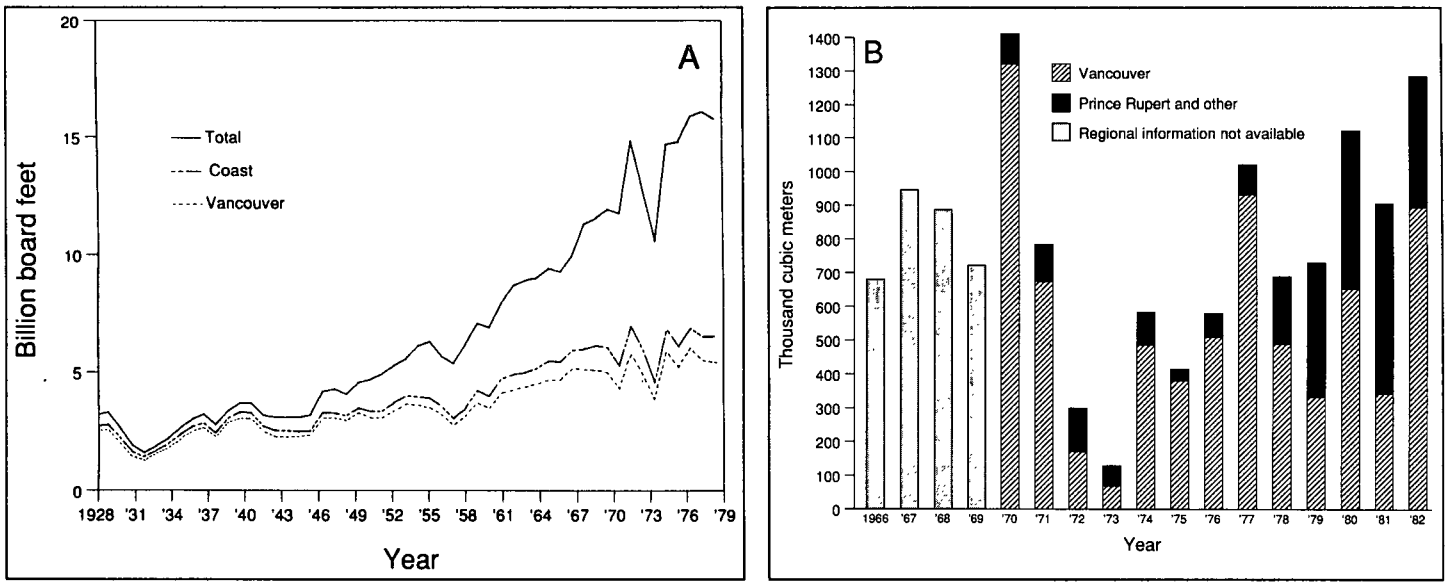


Figure 10—(A) British Columbia annual harvest by region; and (B) British Columbia log exports by region (from British Columbia Ministry of Forests annual reports).

The source of logs has an impact on log exports. Prior to World War II, lands granted before 1906 had a distinct advantage and accounted for more than 75 percent of log exports. After Federal restrictions were instituted at the beginning of World War II, the 1906 land grant advantage was less apparent. Under the harvested timber exemption procedures, log source and stand inventory currently play a smaller role. The policy direction for use of the economic and decadent stand criteria is less clear. The economic profitability criterion gave regional advantage to the north coast, Queen Charlotte Islands, and some interior regions. Recent ministerial direction has been mixed. On the one hand, the current direction seems intent on reducing harvest for export by more restrictive review of standing timber applications. On the other hand, the market logger exemption provides a new basis to harvest for export. Tenure by ownership of manufacturing facilities by definition includes market loggers. This, along with stand conditions, creates new political pressures on log export policy. For these reasons, the interaction of standing inventory by land tenure class is worth dissecting.

Gamesmanship Surrounding Log Exporting

Several observers and the discussions in log export policy reviews (Pearse 1976, Trebett and others 1983) suggest that, at times, firms interested in exporting engaged in "fiddle" (the gamesmanship surrounding log export permits) to ensure meeting the surplus requirement. In discussions on the change of surplus criteria in the 1960s, from three refusals to advertisement in local papers, a primary consideration was the potential for a log exporter to gain three refusals by arrangement with mill owners (Davies 1977). Also, because price was not considered in the early LEAC reviews, mill owners could make extremely low bids to lower the local log market price. Trebett and others (1983) discuss the opportunity for such gamesmanship. The change in surplus criteria suggests that it has been practiced; however, it is difficult to separate the effect of game playing from actual surplus conditions.

Because LEAC was made up of people near the timber industry, if not actually engaged in log export marketing, the opportunity for such gamesmanship to affect the trend of log exports seems small. Fiddle could account for marginal changes in export volumes or in the ownership of particular exported logs.

In 1989, the fee in lieu of manufacturing increased to 100 percent of the difference between domestic price and export price for logs. The change in this fee from a nominal flat fee to 30 percent of the lift in 1986 and now 100 percent reduces some of the historical benefit of exporting. Though the net economic benefit is less, a premium for export logs remains. Also, TEAC can and does adjudicate offers on export booms (see footnote 6). In the face of these facts, low bidding and blocking seem less likely with less to be gained. Yet the policy of relating fee in lieu to a proportion of the price differential provides opportunity for fiddle on price as well as volume.

The opportunity for fiddle related to fee in lieu of manufacturing lies in influencing offers for logs to be exported and domestic log market price. The Vancouver log market historically has been dominated by a few large firms with the ability to influence price and surplus (Hardwick 1963). This domination has been modified by the industrial restructuring of the 1980s. Still, the price of logs in the Vancouver log market has been subject to debate for years (Pearse 1976, Stanford Research Institute 1974, Trebett and others 1983).

The problem stems from the changing structure of the forest industry after the depression in the 1930s. As firms integrated and expanded, open market use became restricted to small- and medium-size producers and users. Larger firms entered only those volumes surplus to internal needs. Even smaller producers entered long-term arrangements to guarantee supply or sales (Sloan 1957). Fiddle implies conscious manipulation for direct gain; however, a bias or influence caused by the widely regarded imperfection of the market is possible with current criteria, such as market value and fees in lieu of manufacture to determine export exemptions.

Trebett and others (1983) suggest that the self-interest of members of LEAC affected recommendations. The effect also can be seen as positive with inside knowledge reducing the possibility of game playing affecting overall trends. The effect also can be seen as negative in allegations of friends in high places. There is, however, no evidence, anecdotal or otherwise, in any of the periodic reviews of LEAC and TEAC or in interviews to suggest that the committee has been anything but forthright in their considerations.

Recent changes in committee membership have provided some support for reasoning that close personal knowledge contributes positively to the exemption review process. In 1985, TEAC was chartered to review standing timber exemptions. Waterland, the Minister of Forests (see footnote 6), said that the advisory committee (TEAC) "will not have any members from the log-harvesting, trading, or manufacturing business. Its recommendations will be based purely on factual and unbiased data related to logging, manufacturing and export costs." In 1986, TEAC was reconstituted with membership reflecting historically interested parties. The reconstituted

TEAC was charged with both review of fair offers on harvested applications and review of standing timber applications. The membership of TEAC and the charge remained the same through 1989. A return to representative membership on TEAC suggests that personal knowledge is important in review of export applications.

The information used by TEAC comes from applicants' reports, public records, and the personal knowledge of committee members. Some of this information can be stressed more than others; for example, reported values and public records that may be influenced purposefully (fiddle) or not (imperfect market). One example is the impact of limited participation of major industrial forest firms in the Vancouver log market previously discussed. As the fee in lieu of manufacture increased to 100 percent of the difference between domestic and export log price, the incentive to influence these prices or the information TEAC used to determine these prices also increased.

Other policy procedures have been modified to minimize the opportunity for fiddle. Logs are offered for sale in biweekly listings developed and circulated by the Ministry. Current procedures require a firm to choose to participate exclusively as a buyer or exporter of logs for 3-month periods. These procedural changes to reduce the opportunity suggest that the potential for fiddle still exists.

Fiddle probably does exist. But the effects are assumed to be marginal, to be short term, and to not be influencing the trend of log export volumes directly. More important, but less determinable, are the systematic influences of imperfect domestic markets interacting with a regulated log export market.

Conclusion

The history of log export policy combines an enduring commitment to restrict logs to within-Province manufacture with an equal commitment to respond to the current conditions of forest industry. The policy has been affirmed by ministerial direction and periodic policy review. The implementation of the policy has changed over time. At first, no exemptions were recognized. Next, economic conditions persuaded exemptions to be recognized, and a process for regulating exports was established. Federal and Provincial regulations then were homogenized, and procedures for determining surplus were rationalized. The early to mid-1980s was the beginning of exploration into exemptions for standing timber. But, based on past historical trends, the future long-term policy direction regarding economic criteria and decadent stand conditions is not clear. One trend, remains certain though—maintaining the use of logs for within-Province manufacture.

In 1986, a change in fee in lieu of manufacturing was made; it changed from a flat fee to a percentage of the difference between domestic and export prices as Provincial revenue. In 1989, the fee in lieu of manufacturing was raised to 100 percent of the difference. These changes can be read either as (1) retrenchment maximizing Provincial well-being from the restrictive export policy by increasing the fee in lieu, or (2) an incremental change in policy toward control entirely by a charge on price differential and away from administrative rule. No matter what history records as the correct interpretation, the actions of the Minister of Forests in 1987, 1988, and 1989 reconfirmed B.C. commitment to maintaining within-Province log manufacturing.

Between each set of changes, the actual volumes of log exports changed dramatically. In fact, the history of log export policy can be read as one of pulses. The capacity building period from the turn of the century to 1906 coincided with a restrictive log export policy. The 1906 boom year was followed by the downturn of 1908. The downturn provided stimulus for allowing export of logs. World War I followed and furthered the financial need in industry for exporting logs. The period after World War I saw a return to restrictive policy on lands the Province had authority over. The flood of exports from lands granted before 1906, over which the Province had no restrictive authority, stopped because of the twin circumstances of World War II and the progression of the cut. This ebb and flow has continued and was recognizable in the last decade. The downturn of 1982 was cause for a more open log export policy. As the hard times of 1982 became the bad times of 1985, harvesting for export with standing green exemptions became a part of log export policy history before a return to more restrictive export.

That is the history, but what are the explanations for changes in the policy? How does policy restrictiveness interact with other factors in influencing the volume of logs exported? Restrictive policy influences the mix of log quality and species exports, thereby keeping better quality and higher valued species within the Province. Land-tenure patterns, harvest patterns, and stand condition affect logs exported as well. Subtly, because of the changing structure within industry and with forest resources, the industry exerts pressure to persuade different kinds of economic relief during successive industry downturns. World War I saw full relief from export restriction. After World War I, firms holding lands granted before 1906 needed and sought no relief. This was a period when relatively free exporting of logs occurred. Decades of relative calm followed World War II. Then during the 1960s and early 1970s, the harvest progressed to the interior, and forest industry sought extended permits for exporting low-grade timber. More recent standing green permits included the interior, the north coast, and the Queen Charlotte Islands as areas uneconomical to harvest. As a proposition, the history of log export policy has an umbrella of general good—the improved well-being of the Province through increased or stabilized industrial capacity, jobs, and revenues. Under the umbrella of general good, which legitimizes the specific actions sought, special interests (particularly the large integrated forest firms) seek to balance the potential of exports with the reduced cost of raw materials that results from restrictive log export policy.

This study suggests that simple rules of thumb are not adequate to explain either restrictiveness of policy recommendations or total export volumes. To pursue explanations of either, complex models will have to be built, including models for actual log surplus within the B.C. economy, offshore demand, and a measure of change or perceived well-being within the population of British Columbia.

Some data and variables useful for further explorations can be identified from this study. First, the time between the two World Wars represents a period of relatively free exporting, if only from pre-1906 granted lands and mainly from the lower coastal region. The period might be used as a comparative period for a relatively unrestricted export perspective. The historical records treat species rather uniformly, but data on differences by grade were not as uniformly gathered. The historical data series on log exports summarized in appendix 4 (BCFS 1914-87) is complete with reasonable data consistency. Since 1980, the format, term of reporting, and variables differ among years. The data series on log exports provides a good indicator of log export volumes. The narrative portions of the annual reports provide a perspective of industrial forestry until the mid-1970s. The perspective of other interest groups, such as labor, loggers, transportation interests, is not as complete. Measures of restrictiveness and proportion of favorable recommendations by advisory committees over time are more difficult to obtain.

The history of log export policy continues to be formed. The current policy based on legislation and ministerial directives has changed the approach used in calculating the fee in lieu of manufacture, and has reaffirmed the policy of within-Province manufacturing of logs. As the well-being of the B.C. forest industry and the Province as a whole ebbs and flows, new pressures for less restrictive policy will create additional changes. A restrictive log export policy is seen as good and is supported for the values implied. Because the wood-using industry, the log-producing industry, and the Province as a whole derive benefits from the restrictive policy on log exports; it seems unlikely that the policy will be abolished. The effects, in the future, though, are less certain.

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Appendix 1: Chronology

Table 1—Chronology of policy and implementation changes in B.C. log export policy

Date	Title	Level of government	Content summary	Sources
1865	Land Ordinance	Provincial	Introduced B.C. system of granting rights to cut timber without alienating land.	Sloan 1945
1867	Canadian Constitution Act	Federal	Legislation enacting the federation. Assigns to province management of resources.	Reed 1986
1871	B.C. joins Canadian confederacy			B.C. Lumberman Greenbook 1972
1884	Timber Act	Provincial	Enabled granting of licenses and set royalties.	B.C. Lumberman Greenbook 1972
1888	Land Act (amendments)	Provincial	Mills in proportion to land grants, tax export logs.	Davies 1977: 54
1891	Land Act (amendments)	Provincial	Restricted all timber cut on crown lands to B.C. use and manufacturing.	Sloan 1945
1901	Land Act	Provincial	Added possibility of specific exemption to export logs.	Davies 1977
1903	Land Act (amendments)	Provincial	Imposed tax on nonroyalty lands, those granted before 1887 refundable upon local use or manufacturing.	
1906	Timber Manufacture Act	Provincia	Included 1901 restrictions and applies to crown-granted lands after 1906.	Davies 1977
1909	Timber Manufacture Act (amendments)	Provincial	Provisions for exemptions to export logs added.	Trebett and others 1983
1912	Forest Act	Provincial	Enables B.C. government to restrict timber cut on crown lands granted after 1906 to use in province unless exempted by Lieutenant-Governor in Council.	Davies 1977 Pearse 1976 ABC 1916-17
1914	Timber Royalty Act	Provincial	Assigned royalties.	Sloan 1957
1916	Forest Act (amendments)	Provincial	Amendment gave Lieutenant-Governor in Council authority to permit export of logs.	"ABC" 1916

Table 1—Chronology of policy and implementation changes in B.C. log export policy (continued)

Date	Title	Level of government	Content summary	Sources
1918		Provincial	B.C. government established Log Export Advisory Committee made up of manufacturers, contractors, exporters, labor, government. Committee reviews export applications; based on its knowledge, makes recommendations that are usually followed.	Davies 1977 B.C. Lumberman Greenbook 1972 Trebett and others 1983
1924		Provincial	Annulment of Timber Royalty Act; royalty now in Forest Act.	B.C. Lumberman Greenbook 1972 Sloan 1945
1929	Forest Act	Provincial	"Struck during the continuance of the present war" from clause empowering export of logs.	"ABC" 1929
1931	Trade Agreement	Provincial	Shipping subsidy B.C. with Australia giving Australia preference for export logs.	B.C. Lumberman Greenbook 1972
1932	(Minister's interpretation)	Provincial	Minister of Lands to Log Export Advisory Committee: physical surplus, orders to disregard spread in price between domestic and export offers.	Davies 1977: 57
July 10 1940	War Measures Act	Federal	Prohibited unmanufactured export of Douglas-fir and other "listed" items.	Sloan 1945
December 1940	War Measures Act	Federal	Expanded prohibition to all true firs.	Sloan 1945
1942	War Measures Act	Federal	Prohibited export of all unmanufactured wood products unless specifically exempted.	Sloan 1945
1945	National Emergency Transitions Power Act	Federal	War Measures Act was incorporated into NETPA including export restrictions.	Sloan 1945
1947	Exports and Import Permits Act	Federal	War control focus. Allows federal government to draft "Export Control" list.	Davies 1977
1969		Federal	Ministry of Industry, Trade, and Commerce introduced restrictions similar to B.C. on log exports.	Davies 1977
1969		Provincial	Chip Export Advisory Committee meets for first time.	Pearse 1976

Table 1—Chronology of policy and implementation changes in B.C. log export policy (continued)

Date	Title	Level of government	Content summary	Sources
October 1973	Export Tax on Logs	Provincial	Tax raised to $2/CUNIT.	Davies 1977
February 1974	Export Tax on Logs	Provincial	Tax rates by species $2 to $40/CUNIT.	Davies 1977
1974	Export and Import Act (revision)	Federal	Includes Provincial language of promoting domestic manufacturing in export restriction.	Davies 1977
1975	Implementation changes	Provincial	Prior to 1975, surplus meant 3 written refusals from mills to buy; this also met the "offer for sale" requirement. After 1975, surplus meant to advertise in Vancouver and local newspaper for 2 weeks without offer.	Davies 1977
1975	Implementation change	Federal	Federal implementation to parallel B.C. procedure for determination of surplus.	Davies 1977
1978	Ministry of Forest Act Forest Act	Provincial	Major rewriting of legislation regarding forest management; includes language in log export portion to write permits for the export of unharvested timber.	
1980	Forest Act	Provincial	Requires Provincial use (no export of unmanufactured logs) except by grant from Minister. In 1980, exemption could be granted for 15 CUM harvested logs and unlimited volumes of unharvested logs meeting 3 criteria: (1) wood is surplus to Province, (2) wood can't be economically processed, and (3) prevention of waste or poor management.	Hines 1987
1983		Provincial	Special Log Export Committee reported restrictions were "generally sound" and makes 47 recommendations.	Trebett and others
1984	Ministerial Directive	Provincial	Tightened policy regarding "standing greens." Also, established Timber Advisory Committee to review standing greens separate from LEAC.	News release 1984[a]
1988	Forest Act (amendments)	Provincial	Included minor changes in legislation regarding log exports. Ministerial review delegated downward.	Personal communication[b]

[a] News release. [Title unknown]. November 16, 1984. British Columbia Ministry of Forests. On file with: Craig W. Shinn, Portland State University, School of Urban and Public Affairs, P.O. Box 751, Portland, OR 97207.
[b] Personal communication. D.W. Ruhl, export policy forester, British Columbia Ministry of Forests, Victoria, British Columbia.

Appendix 2: Overview and Relevant Sections of Selective Forest Acts

Introduction to "ABC" British Columbia Lumber Trade Directory and Yearbook (1916).

Forest Act, 1916: Part X.
Forest Act, 1929: Part X.
Forest Act Amendment Act, 1967: Chapter 28, Part X.
Forest Act, 1982: Part XII.

These sections are taken from a leading trade journal which provided the most ready access to Provincial law and contained entire sections of some statutes ("ABC" Trade Directory and Yearbook 1916-17, 1929, 1967.)

The laws governing the forests and the cutting, manufacture, and sale of timber in British Columbia ("ABC" British Columbia Lumber Trade Directory and Yearbook 1916-17: 71).

In 1912 the various Acts, which were then current for governing the cutting, manufacture and sale of timber, were consolidated into one act, known as the Forest Act, which enacted further provisions in addition to the regulations then in force. Amendments to the Forest Act were passed in 1912, 1913, 1914, 1915, and 1916. "The Forest Act"...is a consolidation of all these amendments, and is thus brought up to date.

British Columbia Forest Act 1916: PART X (100, 101, 102 (1) (2), 103, 103a, 103b) (as taken from "ABC" British Columbia Lumber Trade Directory and Yearbook 1916).

> 100. All timber cut on Crown lands or on Crown lands granted since the twelfth day of March, 1906, or on Crown lands which shall hereafter be granted, or on lands held under pre-emption record, shall be used in this Province, or be manufactured in this Province into boards, deal, joists, lath, shingles, or other sawn lumber, except as hereinafter provided. 1915, c. 28, s. 20; 1916, c. 23, s. 8.
>
> 101. Should any lessee of any ungranted lands of the Crown or any holder of a special or general license to cut Crown timber or timber upon ungranted lands of the Crown, or any servant or agent of such lessee or licensee, or any person acting for such lessee or licensee, or under the authority or permission of such lessee or licensee, violate or refuse to keep and observe the provisions contained in the next proceeding section of this Act, then and in such cases the lease or license of such lessee or licensee shall be canceled by the Lieutenant-Governor in Council by Order in Council.
>
> 102. (1) The Minister and the Forest Board may do all things necessary to prevent a breach of the provisions of this Part of this Act, and to secure compliance therewith, and may for such purpose take, seize, and hold all timber so cut or suspected to have been cut as aforesaid, and to be in course of transit out of this Province in contravention of the provisions of this Part of this Act, and may also take, seize, and hold every boat which may be towing any such timber; and when the Minister decides that it is not the intention of the lessee, licensee, owner, holder, or person in possession of such timber to use the same in this Province, or to manufacture or cause the same to be manufactured into sawn lumber in this Province

as aforesaid, or to dispose of such timber to others who will use the same in this Province, or have the same so manufactured in this Province, then the Minister may sell or cause to be sold such timber and boat by public auction, and the proceeds of such sale shall be the property of His Majesty, and shall form part of the consolidated revenue of this Province. In case said boat escapes after having been so seized, or in case it avoids seizure by crossing the International Boundary, it may at any time afterwards be reseized in any of the waters of British Columbia, and sold as above provided.

(2) Whenever a seizure is made of timber or a boat on account of a suspected contravention of the provisions of this Part of this Act, the onus of proving that no part of the timber seized was Crown timber or cut on ungranted lands of the Crown, or on lands of the Crown granted after the twelfth day of March, 1906, and that no part of the timber seized had been dealt with, or was about to be dealt with, in a manner contrary to the provisions of this Part of this Act, shall be upon the owner, holder, or person in possession of said timber and boat. 1913, c.36, s.13.

103. The Lieutenant-Governor in Council may authorize, on such terms and conditions and upon payment of such charges as may be imposed by the Lieutenant-Governor in Council, the export by lessees or licensees of the Crown of the following kinds of timber cut on ungranted lands of the Crown, or on lands of the Crown granted since the twelfth day of March, 1906, or which shall hereafter be granted, namely: Piles, pulp-wood, telegraph and telephone poles, ties, and crib timber, although not manufactured nor to be used in the Province. And it is hereby declared that the Lieutenant-Governor in Council was duly authorized under this Act to pass Order in Council No. 810 on the twelfth day of July, 1912; and the said Order in Council and the action of the Lieutenant-Governor in Council in pursuance thereof are hereby ratified and confirmed. And it is hereby declared that the Lieutenant-Governor in Council was duly authorized to pass Order in Council No. 1050 on the twenty-sixth day of August, 1914, and amendments thereto being Order in Council No. 1095 approved the sixteenth day of September 1914, and Order in Council No. 40 approved the seventh day of January, 1915; and the said Orders in Council and the action of the Lieutenant-Governor in pursuance thereof are hereby ratified and confirmed. 1913, c. 26 s. 14; 1914, c. 32, s. 28; 1915, c. 28, s. 21.

103a. The Lieutenant-Governor in Council may, upon such terms and conditions as he may impose, permit the export of unmanufactured timber from areas adjacent to the boundaries of the Province in cases where it is proved to his satisfaction that such timber cannot, owing to topographical reasons, be profitably manufactured within the Province.

103b. Notwithstanding anything in this Act contained, the Lieutenant-Governor in Council may, during the continuance of the present war, permit the export from the Province of unmanufactured timber upon such terms and conditions as he sees fit. 1916, c. 23, s. 9.

British Columbia Forest Act 1929: PART X (86, 87, 88 (1) (2), 89, 90, 91) (as taken from "ABC" British Columbia Lumber Trade Directory and Yearbook 1929).

86. All timber cut on Crown lands or on lands granted after the twelfth day of March, 1906, or on the lands held under pre-emption record, shall be used in the Province, or be manufactured in the Province into boards, deal, joists, laths, shingles or other sawn lumber, or into wood-pulp or paper, except as hereinafter provided: and all logging and manufacturing camps or premises used or occupied for any purpose of or in connection with the cutting or manufacture of such timber shall be located in the Province. 1916, c. 23, s. 8: 1921, c. 28. s. 13.

87. If the holder of any timber lease or timber license, or the holder of any pre-emption record, or any servant or agent of the lessee, licensee, or pre-emptor, or any person acting for the lessee, licensee, or pre-emptor, or under the authority or permission of the lessee, licensee, or pre-emptor, violates or refuses to keep and observe the provisions contained in the last preceding section, the lease of the lessee or license of the licensee or pre-emption record of the pre-emptor, respectively, shall be canceled by the Lieutenant-Governor in Council. 1912. c. 17, s. 101 (redrawn).

88. (1) The Minister may do all things necessary to prevent a breach of the provisions of this Part, and to secure compliance therewith, and may for such purpose take, seize, and hold all timber so cut or suspected to have been cut as aforesaid, and to be in the course of transit out of the Province in contravention of the provisions of this Part, and may also take, seize, and hold every boat which is towing any such timber; and if the Minister decides that it is not the intention of the lessee, licensee, owner, holder, or person in possession of the timber to use it in the Province, or to manufacture or cause it to be manufactured into sawn lumber or wood-pulp or paper or have it so manufactured in the Province, the Minister may sell or cause to be sold the timber and boat by public auction, and the proceeds of the sale shall be the property of His Majesty, and shall form part of the Consolidated Revenue Fund. In case any boat escapes after having been so seized, or in case its seizure is avoided by the removal of the boat outside the waters of the Province, it may at any time afterwards be seized, if found in any of the waters of the Province, and sold as provided in this section.

(2) Where a seizure is made of timber or a boat on account of a suspected contravention of the provisions of this Part, the onus of proving that no part of the timber seized was Crown timber or cut on Crown lands or on Crown lands granted after the twelfth day of March, 1906, or on the lands held under pre-emption record, and that no part of the timber seized had been dealt with, or was about to be dealt with, in a manner contrary to the provisions of this Part, shall be upon the owner, holder, and any person in possession of the timber or boat. 1913, c. 26, s.13.

89. The Lieutenant-Governor in Council may, on such terms and conditions and upon payment of such charges as may be imposed by him, authorize the export of piles, poles, railway-ties, and crib-timber cut on Crown lands, or lands held under pre-emption entry and record or lands granted after the twelfth day of March 1906. 1913. c. 26. s. 14: 1914, c. 32. s. 28 (part redrawn).

90. The Lieutenant-Governor in Council may, upon such terms and conditions as he may impose, permit the export of unmanufactured timbers from areas adjacent to the boundary of the Province in cases where it is proved to his satisfaction that such timber cannot, owing to topographical reasons, be profitably manufactured within the Province. 1916, c.23. s. 9 (part).

91. Notwithstanding anything in this Act contained, the Lieutenant-Governor in Council may, until the thirty-first day of March, 1930, permit the export from the Province of unmanufactured timber upon such terms and conditions as he sees fit. 1920, c. 44, s. 17.

British Columbia Forest Act Amendment Act 1967: Chapter 128, Part X (92, 93, 94 (1a, b, c, (2)), 95, 96, 97) (as taken from "ABC" British Columbia Lumber Trade Directory and Yearbook 1967). Also titled: Timber Laws of British Columbia. Forest Act, Including Amendments to July, 1967. An Act respecting Crown Timber and the Conservation and Preservation of Forests.

92. All timber cut on Crown lands, or on lands granted after the twelfth day of March, 1906, or on lands held under pre-emption record, shall be used in the Province, or be manufactured in the Province into boards, deal, joists, laths, shingles, or other sawn lumber, or into wood-pulp or paper, except as hereinafter provided; and all logging and manufacturing camps or premises used or occupied for any purpose of or in connection with the cutting or manufacture of such timber shall be located in the Province.

93. If the holder of any timber lease or timber license, or tree-farm license or the holder of any pre-emption record, or any servant or agent of the lessee, licensee, or pre-emptor, or any person acting for the lessee, licensee, or pre-emptor, or under the authority or permission of the lessee, licensee, or pre-emptor, violates or refuses to keep and observe the provisions of section 92, the lease of the lessee or license of the licensee or pre-emption record of the pre-emptor, respectively, shall be canceled by the Lieutenant-Governor in Council.

94. (1) (a) The Minister may do all things necessary to prevent a breach of the provisions of this Part, and to secure compliance therewith, and may for such purpose take, seize, and hold all timber so cut or suspected to have been cut as aforesaid, and to be in course of transit out of the Province in contravention of the provisions of this Part, and may also take, seize, and hold every boat which is towing any such timber.

(b) If the Minister decides that it is not the intention of the lessee, licensee, owner, holder, or person in possession of the timber to use it in the Province, or to manufacture or cause it to be manufactured into sawn lumber or wood-pulp or paper in the Province, or to dispose of the timber to others who will use it in the Province, or have it so manufactured in the Province, the Minister may sell or cause to be sold the timber and boat by public auction, and the proceeds of the sale shall be the property of her Majesty, and shall form part of the Consolidated Revenue Fund.

(c) In case any boat escapes after having been so seized, or in case its seizure is avoided by the removal of the boat outside the waters of the Province, it may at any time afterwards be seized, if found in any of the waters of the Province, and sold as provided in this section.

(2) Where a seizure is made of timber or a boat on account of a suspected contravention of the provisions of this Part, the onus of proving that no part of the timber seized was Crown timber or cut on Crown lands or on Crown lands granted after the twelfth day of March, 1906, or on lands held under pre-emption record, or on lands included in any tree-farm license, and that no part of the timber seized had been dealt with, or was about to be dealt with, in a manner contrary to the provisions of this Part, is upon the owner, holder, and any person in possession of the timber or boat.

95. The Lieutenant-Governor in Council may, on such terms and conditions and upon payment of such charges as may be imposed by him, authorize the export of piles, poles, railway-ties, crib-timber, wood-chips and other minor forest products cut on Crown lands or lands held under pre-emption entry and record, or lands granted after the twelfth day of March, 1906, or lands included in a tree-farm license.

96. The Lieutenant-Governor in Council may, upon such terms and conditions as he may impose, permit the export of unmanufactured timber from areas adjacent to the boundary of the Province in cases where it is proved to his satisfaction that such timber cannot, owing to topographical reasons, be profitably manufactured within the Province.

97. Notwithstanding anything in this Act contained, the Lieutenant-Governor in Council may permit the export from the Province of unmanufactured timber or wood-chips manufactured from timber, cut on Crown lands, or lands held under pre-emption entry and record, or lands granted after the twelfth day of March, 1906, upon such terms and conditions as he sees fit.

British Columbia Forest Act Amendment Act 1982. Statute of British Columbia 1982: [Amendment to s.156 proclaimed effective September 7, 1982.] CHAPTER 140. [Consolidated July 12, 1982.] [Act administered by the Ministry of Forests.] PART XII (135, 136 (1a, b, c) (2) (3a, b, c), 137 (a) (b)).

135. Unless exempted under this Part, timber that is harvested from Crown land, from land granted by the Crown after March 12, 1906 or from land grated by the Crown on or before March 12, 1906 in a tree farm license area, and wood residue produced from the timber, shall be

(a) used in the Province; or

(b) manufactured in the Province into

(i) lumber;

(ii) sawn wood products, other than lumber, manufactured to an extent required by the minister;

(iii) shingles or fully manufactured shakes;

(iv) veneer, plywood or other wood-based products;

(v) pulp, newsprint or paper;

(vi) peeled poles and piles having top diameters less than 28 cm and fence posts;

(vii) Christmas trees; or

(viii) sticks and timbers having diameters less than 15 cm, ties and mining timbers.
1978-23-135.

136. (1) The Lieutenant Governor in Council may exempt from section 135

(a) a species of timber or kind of wood residue and may limit the volume of a species of timber or kind of wood residue to which the exemption applies for a period or for successive periods of time; and

(b) a volume of timber, whether or not harvested, or a volume of a wood residue, on receiving an application in a form required by the minister.

(2) On receiving an application in the form required by him, the minister may exempt from section 135 a volume of timber that has been harvested, not exceeding 15 000 m3 for each application.

(3) An exemption shall not be given under this section unless the Lieutenant Governor in Council or the minister, as the case may be, is satisfied that

(a) the timber or wood residue will be surplus to requirements of timber processing facilities in the Province;

(b) the timber or wood residue cannot be processed economically in the vicinity of the land from which it is cut or produced, and cannot be transported economically to a processing facility located elsewhere in the Province; or

(c) the exemption would prevent the waste or improve the utilization of timber cut from Crown land.
1978-23-136.

137. An exemption made under section 136 may

(a) stipulate conditions to be met and fees to be paid to the Crown; and

(b) provide for the granting of a permit by the regional manager in respect of the timber or wood residue described in the exemption.
1978-23-137

Appendix 3: Sample Table

Table 2—Sample log export volume table

Species and totals by year	Grade 1	Grade 2	Grade 3	Ungraded and lumber reject	Total	Exportable[a]	Exported under permit[b]
				Cubic feet			
Fir	—	24,392	57,227	—	81,619	41.100	40,519
Cedar	50,416	158,932	412,562	—	621,910	436,806	185,104
Spruce	212,729	738,589	1,719,730	—	2,671,048	597,255	2,073,793
Hemlock	208,858	462,391	1,842,984	—	2,514,233	632,457	1,881,776
Balsam	—	—	—	313,672	313,672	178,089	135,583
Lodgepole pine	5,660	77,329	105,717	—	188,706	110,155	78,551
Cypress	104,400	592,443	2,405,602	—	3,102,445	686,383	2,416,062
Hardwood	—	—	—	95,173	95,173	95,120	53
Cottonwood	135,033	254,569	209,387	—	598,989	228,481	370,508
Totals 1972	717,096	2,308,645	6,753,209	408,845	10,187,795	3,005,846	7,181,949
Totals 1971	2,874,315	6,094,192	16,817,09	2,324,425	28,110,022	4,630,425	23,479,597
Totals 1970	3,222,351	7,629,924	30,800,174	8,396,211	50,048,660	13,455,734	36,592,926
Totals 1969	598,829	3,031,347	17,270,817	5,040,281	25,941,274	10,655,349	15,285,925
Totals 1968	3,619,562	4,482,835	20,111,753	2,695,646	30,909,796	16,265,130	14,644,666
Totals 1967	2,021,374	6,886,800	21,499,239	3,495,473	33,902,886	11,418,913	22,483,973
Totals 1966	1,625,172	4,553,790	14,666,899	2,821,874	23,667,735	7,348,820	16,318,915
Totals 1965	559,204	1,794,367	5,974,462	1,440,105	9,768,138	6,458,926	3,309,212
Totals 1964	624,730	2,431,755	5,131,602	637,616	8,825,703	4,741,111	4,084,592
Totals 1963	578,164	2,691,635	10,465,035	1,730,420	15,465,254	4,518,306	6,946,948
Average, 1963-72	1,644,080	4,190,529	14,949,028	2,899,089	23,682,726	8,649,856	15,032,870

Source: British Columbia Forest Service 1914-87.
[a] Export privilege—exported from lands crown-granted prior to March 12, 1906.
[b] Exported under permit from crown lands and lands granted after March 12, 1906, under authority of section 97 of British Columbia Timber Manufacture Act 1906.

Appendix 4: British Columbia Log Export Data Series Summary

B.C. LOG EXPORT DATA: By grade, by privilege, and total by year in foot board measure (FBM) (1910-88).

YEAR	GRADE 1	GRADE 2	GRADE 3	UNGRADED	PRIVILEGE	BY PERMIT	TOTAL
1910	NA	NA	NA	NA	NA	NA	NA
1911	NA	NA	NA	NA	NA	NA	47000000
1912	NA	NA	NA	NA	NA	NA	63280375
1913	NA	NA	NA	NA	NA	NA	58752678
1914	3876147	15150087	13814653	32837167	NA	NA	65678054
1915	10110681	48033651	29284854	19445749	NA	NA	106874935
1916	4809557	31058451	14283873	2032504	NA	NA	52184385
1917	5977834	26312898	12002870	6882866	NA	NA	51176468
1918	454199	3900135	3398333	3855600	NA	NA	11608267
1919	7501474	18292038	4558114	13919317	NA	NA	44270943
1920	4013711	16521832	4315532	3882863	NA	NA	28673938
1921	10457378	42860296	18524059	18374774	NA	NA	90216507
1922	11894693	66347295	34930525	38346199	NA	NA	151518712
1923	26081071	107815949	45971600	53789421	NA	NA	233658041
1924	23416816	111801016	49549135	55763860	NA	NA	240530827
1925	34501748	96701737	40312806	38901670	NA	NA	210417961
1926	32195991	105322879	53113521	33845324	NA	NA	224477715
1927	36545972	144942558	51584928	48510833	NA	NA	281584291
1928	20563249	106084161	47994423	37305398	NA	NA	211947231
1929	13015146	133997595	60002711	29978125	225731000	16586000	242317000
1930	11571481	86502990	40147841	34696715	153190000	19729000	172919027
1931	12886187	106331594	51909961	49048820	182787000	37389000	220176162
1932	18572020	87223114	44380166	15589383	73342000	92423000	165764683
1933	16941207	119089673	59215094	13694960	157627000	51314000	208940834
1934	10489155	89831736	43416151	28998709	142232000	30504000	172735751
1935	8766098	129029692	56979194	40516782	207139000	28153000	235291766
1936	4028567	107007342	49061362	58731564	192976000	25853000	218828835
1937	4924298	114991217	66611218	83947361	254596000	15876000	270474094
1938	4386370	98637490	74650653	81998569	220462000	39211000	259673082
1939	63833983	111155799	66870882	128323383	284557000	28176577	312733462
1940	4697188	37567582	24865886	150396702	166903705	50623653	217527358
1941	8549320	63485278	43165973	191879335	263795733	43284173	307079906
1942	2639167	18960886	27618347	106793550	144290745	11721205	156011950
1943	2809744	17720743	28863804	29261754	77644670	991375	78656045
1944	6724297	29051958	33851519	32027805	98836026	2819553	101655579
1945	3852321	20696800	24903105	32624170	78599890	3476506	82076396
1946	6843046	17485065	28308163	33898926	82088715	4526485	86535200
1947	7156095	21100803	52368152	7552386	82057256	6120180	88177436
1948	9380092	31127805	106739296	16367096	138160402	25453887	163614289
1949	6392228	21382979	103550707	14228041	115767801	29786154	145553955
1950	8659552	21625295	88031088	19210615	124806149	12720401	137526550
1951	5901140	12229159	51699605	12427537	76721165	5536276	82257441
1952	4732890	15944292	84757110	19561926	107682623	17313595	124996218
1953	5341576	15853076	74187464	24763455	97910425	22235146	120145571
1954	3948345	19595544	90691771	26740262	110690677	30285245	140975922
1955	906141	7468949	58863477	21728961	73843819	15123709	88967528
1956	183859	2933129	27433037	16460201	41595347	5414879	47010226
1957	524180	3987443	22016291	9047264	30175355	5399823	35575178
1958	734991	3727452	16164689	7477535	18425803	9678864	28104667
1959	486685	2601653	19608208	5838931	20137157	8398320	28535477
1960	1391803	5351398	20872330	12695679	299271	12011939	40311210
1961	9216534	28611982	48009763	15513919	31272030	70080168	101352198
1962	3773734	11215447	46151663	13839528	44255041	30725331	74980372
1963	3468986	16149811	62790210	10382520	51109835	41681692	92791527
1964	3748377	14590533	30789610	3825697	28446668	24507549	52954217

B.C. LOG EXPORT DATA: By grade, by privilege, and total by year in foot board measure (FBM) (1910-88) (continued).

YEAR	GRADE 1	GRADE 2	GRADE 3	UNGRADED	PRIVILEGE	BY PERMIT	TOTAL
1965	3355224	10766201	35846770	8640629	38753555	19855269	58608824
1966	9751031	27322739	88001394	16931247	44092921	97913490	142066411
1967	12128244	41320799	128995437	20972835	68513476	134903839	203417315
1968	21717373	26897011	120670517	16173878	97590782	87867997	185458779
1969	3592972	18188084	103624904	30241684	63932092	91715552	155647644
1970	19334108	45779543	184801044	50377268	80734401	219557562	300291963
1971	17245890	36565152	100902540	13946550	27782550	140877580	168660130
1972	4302576	13851870	40519254	2453070	18035076	43091694	61126770
1973	928374	3827826	19648140	4100736	19607976	8897100	28505076
1974	3696048	19143810	93324858	9854076	67960512	58058280	126018790
1975	7239540	17891958	59038620	5905632	44068296	46007454	90075750
1976	6064200	18136800	80065800	20676600	53266200	71677200	124943400
1977	11563200	37414800	125851800	44055600	58841400	160044000	218885400
1978	9214800	25125600	99000000	12091800	18580800	126851400	145432200
1979	11238117	26149604	86820431	30505548	25472923	129240780	154713700
1980	10932069	32942249	164052940	32700429	81844892	158846360	240627690
1981	NA	NA	NA	NA	NA	0	0
1982	NA	NA	NA	NA	80945800	23813322000	343489900
1983	NA	NA	NA	NA	101288200	418290600	519578800
1984	NA	NA	NA	NA	141337300	589082000	730419300
1985	NA	NA	NA	NA		48948900	514280400
1986	NA	NA	NA	NA		59120100	428885600
1987	NA	NA	NA	NA	NA	NA	NA
1988	NA	NA	NA	NA	NA	NA	NA

Source: British Columbia Forest Service 1914-87.

B.C. LOG EXPORT DATA: Douglas-fir grade 1 and total; log exports as percent of total harvest (MFBM except total log = FBM) (1910-88).

YEAR	DFIREXP1	DFIREXPT	EXP%TOT	TOTAL LOG EXP	TOTAL HARVEST
1910	NA	NA	NA	NA	640786.1
1911	NA	NA	5.5	47000000.0	856048.3
1912	NA	NA	5.7	63280375.0	1105393.8
1913	NA	NA	NA	58752678.0	NA
1914	266.7	9916.2	6.5	65678054.0	996989.8
1915	1360.7	8929.1	10.5	106874935.0	1017683.0
1916	1041.6	7948.5	4.1	52184385.0	1280263.0
1917	863.4	4638.4	3.6	51176468.0	1403724.0
1918	NA	3123.4	0.7	11608267.0	1761184.4
1919	2790.7	12124.1	2.5	44270943.0	175833.0
1920	1554.2	10903.7	1.4	28673938.0	2046469.0
1921	2581.0	18052.4	5.0	90216507.0	1790017.4
1922	3860.5	38895.7	8.0	151518712.0	1899158.3
1923	6839.2	72587.8	9.3	233658041.0	2521735.3
1924	11561.6	99394.2	9.4	240530827.0	2549700.2
1925	21554.2	85832.4	8.1	210417961.0	2611266.5
1926	15798.3	81256.8	7.7	224477715.0	2918119.2
1927	21735.3	137820.7	9.7	281584291.0	2853702.5
1928	4249.6	94657.0	6.6	211947231.0	3206905.5
1929	9076.6	135454.2	7.1	242317000.0	3346144.3
1930	5786.2	97030.3	6.5	172919027.0	2663752.3
1931	5595.3	120216.0	11.3	220176162.0	1948404.3
1932	4873.4	83693.1	10.3	165764683.0	1611458.5
1933	5021.9	136096.6	11.0	208940834.0	1898581.1
1934	5241.9	106089.6	7.9	172735751.0	2214791.9
1935	7652.4	165790.9	8.9	235291766.0	2649288.4
1936	3402.6	126039.2	7.2	218828835.0	3020773.2
1937	4205.6	152274.9	8.3	270474094.0	3241915.6

B.C. LOG EXPORT DATA: Douglas-fir grade 1 and total; log exports as percent of total harvest (MFBM except total log = FBM) (1910-88) (continued).

YEAR	DFIREXP1	DFIREXPT	EXP%TOT	TOTAL LOG EXP	TOTAL HARVEST
1938	3506.7	107666.8	9.3	259673082.0	2779034.0
1939	4079.5	109050.0	9.3	312733462.0	3354895.6
1940	8.0	2093.4	5.6	217527358.0	3693154.8
1941	5172.9	83455.5	8.3	307079906.0	3679757.5
1942	8.0	2093.4	4.9	156011950.0	3172640.2
1943	0.0	2570.6	2.6	78656045.0	3078766.8
1944	119.4	18523.9	3.8	101655579.0	3096333.1
1945	135.5	15955.8	2.7	82076396.0	3081235.5
1946	29.5	12702.2	2.7	86535200.0	3193665.1
1947	18.6	9234.4	2.1	88177436.0	4187816.2
1948	41.7	22685.9	3.8	163614289.0	4293465.0
1949	140.5	20432.1	3.6	145553955.0	4049682.3
1950	2743.5	13679.3	3.0	137526550.0	4560080.1
1951	2134.2	9184.8	1.8	82257441.0	4696346.8
1952	1221.5	15307.2	2.5	124996218.0	4937965.4
1953	2666.9	15021.4	2.3	120145571.0	5291587.3
1954	780.4	14669.2	2.5	140975922.0	5567422.6
1955	3.4	9401.3	1.5	88967528.0	6109201.9
1956	0.0	5383.1	0.7	47010226.0	6307318.6
1957	0.0	4708.6	0.6	35575178.0	5661780.8
1958	288.4	6939.3	0.5	28104667.0	5349507.6
1959	0.0	2773.5	0.5	28535477.0	6176197.3
1960	536.0	5348.2	0.6	40311210.0	7074485.7
1961	1924.0	14322.0	1.5	101352198.0	6875222.1
1962	0.0	2646.6	0.9	74980372.0	7917721.6
1963	107.6	4453.9	1.1	92791527.0	8675831.8
1964	0.0	641.7	0.6	52954217.0	8916038.0
1965	0.0	224.2	0.7	58608824.0	9029978.0
1966	83.7	1918.4	1.5	142066411.0	9441463.7
1967	23.6	3304.2	2.2	203417315.0	9267448.4
1968	66.9	9089.1	1.8	185458779.0	10035320.9
1969	2.9	2883.8	1.4	155647644.0	11340313.4
1970	174.1	4440.8	2.6	300291963.0	11595770.6
1971	20.3	4326.6	1.4	168660130.0	11982487.0
1972	0.0	489.7	0.5	61126770.0	11782482.1
1973	6.4	4185.4	0.2	28505076.0	14861148.7
1974	33.4	652.5	1.0	126018790.0	12731472.2
1975	30.0	2784.3	0.8	90075750.0	10610812.2
1976	0.0	664.7	0.8	124943400.0	14730661.2
1977	2.2	1330.2	1.5	218885400.0	14825777.4
1978	1.6	802.1	0.9	145432200.0	15926502.0
1979	244.8	3328.0	1.0	154713700.0	16145525.3
1980	381.2	21300.0	1.5	240627690.0	15819241.1
1981	NA	NA	1.5	0.0	NA
1982	NA	120783.0	2.7	343489900.0	13270237.5
1983	NA	102983.4	3.2	519578800.0	NA
1984	NA	152144.2	4.6	730419300.0	16466325.2
1985	NA	75224.5	3.4	563442100.0	15780404.9
1986	NA	77343.5	2.9	563442100.0	16714883.9
1987	NA	NA	NA	NA	NA
1988	NA	NA	NA	NA	NA

B.C. DATA: Total waterborne lumber and total harvest by region (MFBM) (1906-88).

YEAR	WATERBORNE	TOTAL HARVEST	VANCOUVER	COAST	TOTAL INTERIOR
1906	NA	175544	NA	NA	NA
1907	NA	413649	NA	NA	NA
1908	NA	407143	NA	NA	NA
1909	NA	475856	NA	NA	NA
1910	NA	640786	NA	NA	NA
1911	47000	856048	NA	NA	NA
1912	53280	1105394	NA	NA	NA
1913	NA	NA	NA	NA	NA
1914	38031	996990	NA	NA	NA
1915	58075	1017683	NA	NA	NA
1916	43677	1280263	NA	NA	NA
1917	43923	1403724	NA	NA	NA
1918	88069	1761184	NA	NA	NA
1919	108872	1758330	NA	NA	NA
1920	146624	2046469	NA	NA	NA
1921	188733	1790017	NA	NA	NA
1922	273147	1899158	NA	NA	NA
1923	521707	2521735	NA	NA	NA
1924	531262	2549700	1843616	2066709	482991
1925	577560	2611267	1983559	2160570	450697
1926	712743	2918119	2272012	2442789	475330
1927	740230	2853702	2239051	2441431	442272
1928	765556	3206905	2581768	2723941	482964
1929	801518	3346144	2645900	2823189	522955
1930	712300	2663752	2055357	2243969	419784
1931	566129	1948404	1543971	1660190	288214
1932	446890	1611458	1347979	1441848	169610
1933	662600	1898581	1644653	1711114	187467
1934	859465	2214792	1830963	1983065	231726
1935	853978	2649288	2214697	2369399	279889
1936	1202994	3020773	2544447	2705419	315354
1937	1107377	3241916	2693167	2872197	369719
1938	1192195	2779034	2304440	2416782	362252
1939	1409052	3354896	2922201	3041647	313249
1940	1257917	3693155	3107647	3323776	369378
1941	736035	3679758	3053574	3266379	413378
1942	525403	3172640	2528148	2711141	461500
1943	735839	3078767	2302158	2525231	553535
1944	738798	3096333	2284467	2516167	577166
1945	747032	3081235	2292502	2482979	598256
1946	745215	3193665	2394826	2519682	673983
1947	1109178	4187816	3098866	3285988	901829
1948	841598	4293465	3091276	3266384	1027081
1949	935670	4049682	2962078	3136877	912805
1950	1251196	4560080	3314538	3476092	1083988
1951	1146291	4696347	3090659	3331555	1364792
1952	1148053	4937965	3102782	3335142	1602824
1953	1391664	5291587	3380185	3702098	1589490
1954	1579946	5567423	3674156	3997981	1569442
1955	1413060	6109202	3595749	3931642	2177560
1956	989664	6307319	3502591	3890432	2416886
1957	1078918	5661781	3216652	3548149	2113632
1958	1314361	5349508	2745804	3017302	2332206
1959	1197653	6176197	3143092	3446708	2729490
1960	1675351	7074486	3714902	4209341	2865145
1961	1789115	6875222	3444164	3952276	2922947
1962	1847026	7917722	4093001	4700099	3217622
1963	2149132	8675832	4246691	4887539	3788293
1964	2282709	8916038	4392978	4970777	3945261

B.C. DATA: Total waterborne lumber and total harvest by region (MFBM) (1906-88) (continued).

YEAR	WATERBORNE	TOTAL HARVEST	VANCOUVER	COAST	TOTAL INTERIOR
1965	2439445	9029978	4489965	5149906	3880072
1966	2344437	9441464	4668600	5458761	3982702
1967	2639088	9267448	4653042	5400157	3867292
1968	2568972	10035321	5148302	5908933	4126388
1969	NA	11340313	5072197	5966474	5373839
1970	NA	11595771	5050581	6109255	5486516
1971	NA	11982487	4956947	6017381	5965106
1972	NA	11782482	4278283	5234703	6547779
1973	NA	14861149	5728264	6934210	7926939
1974	NA	12731472	4868590	5906619	6824854
1975	NA	10610812	3813291	4527172	6083640
1976	NA	14730661	5839637	6821236	7909426
1977	NA	14825777	5160497	6050997	8774780
1978	NA	15926502	5972561	6850409	9076093
1979	NA	16145525	5447496	6476979	9668546
1980	NA	15819241	5364335	6508092	9311149
1981	NA	NA	NA	NA	NA
1982	NA	13270238	383348	6026860	7243378
1983	NA	NA	NA	NA	NA
1984	NA	16466325	5214223	6051864	10414461
1985	NA	15780405	4762664	5654763	10125642
1986	NA	16714884	5742278	5907560	10807324
1987	NA	NA	NA	NA	NA
1988	NA	NA	NA	NA	NA

The early tables were taken from trade journals, in particular the "ABC" British Columbia Lumber Trade Directory and Yearbook (1909, 1912, 1929, etc). The British Columbia Forest Service annual report published the table for various years and, in 1940, published a historical summary. The 1940 summary unfortunately is not as complete as the annual tables. The historical summary was used to check earlier tables taken from various sources. In recent years, the table has occasionally been omitted from the British Columbia Forest Service annual report. In these cases, the British Columbia Lumberman Greenbook and BCFS records have been used to complete the data series.

As the data were collected, relevant data were entered by variable into a data bank with University of Washington DATABANK software. Volume measurement units changed over the reporting years from foot board measure FBM to CUNITS to metric measures. The tables, graphs, and data are recorded in FBM because the conversion factors for some of the later measures are given as part of BCFS records (see appendix 5 for conversions used), and the bulk of values were originally recorded in FBM. Tabular summaries, comparisons, and analyses were carried out by using DATABANK capabilities. The data series remains in the University of Washington CINTRAFOR computerized databank files.

*U.S. GOVERNMENT PRINTING OFFICE:1993-790-301/80007

Appendix 5: Conversion Factors

Conversion Factors for British Columbia Log Export Data.

1. Volumes in BCFS log export reports to 1970 are expressed in foot board measure (FBM). No conversion required.

2. Volumes in BCFS log export reports from 1971 to 1978 are expressed in cubic feet or CUNITS. These were converted to FBM on the basis of 600 FBM/CUNIT.

3. Volumes in BCFS log export reports from 1979 on are expressed in cubic meters or thousands of cubic meters (1000 m^3). These were converted to FBM on the basis of 221.9 FBM/m^3 (600 FBM/CUNIT and 2.83168 m^3/CUNIT).

Shinn, Craig W. 1993. British Columbia log export policy: historical review and analysis. Res. Pap. PNW-RP-457. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 52 p.

Log exports have been restricted in British Columbia for over 100 years. The intent of the restriction is to use the timber in British Columbia to encourage development of forest industry, employment, and well-being in the Province. Logs have been exempted from the within-Province manufacturing rule at various times, in varying amounts, for different reasons, and by changing procedures. Although policy clearly restricts log exports, the effects are not simple. The timber industry benefits from both financial returns due to exporting and a restricted log market, while policy changes and implementation have worked to enhance the economic welfare of the Province. Realizing the intent to maintain Provincial well-being is perhaps the key to understanding the endurance of restrictive British Columbia forest policy over time and its dynamics.

Keywords: Log export policy, log exports, British Columbia, international trade, forest policy (British Columbia), forest history (British Columbia), economic development.

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