

REVIEW OF THE LOG SURPLUS TEST

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Executive Summary

British Columbia has a long-standing history of regulating log exports. Under the Forest Act, the Minister can allow exports if certain criteria are satisfied-two of which hinge on whether or not the timber is surplus to domestic needs. Under the current export system, for wood to be considered surplus, domestic buyers have the opportunity to buy those logs before they can be exported; if they can do so at a “fair market” price based on Vancouver Log Market prices then the logs are not considered surplus and cannot be exported. Based on how these criteria are interpreted, differences could arise as to whether or not timber is considered surplus and whether or not the offer price is “fair”. An examination of those criteria shows that changes in the economics of timber harvesting and manufacturing on the BC Coast, have led to changes in the how the Vancouver Log Markets works. Differences in location and transportation costs, along with changes in market structure, mean that VLM prices might not be directly comparable to the logs being offered. In some cases, these prices might be less than would otherwise be required to cover the costs of production-and would therefore not be representative of those generated under market conditions and therefore not considered a “fair market price”. Determining the cost of production of logs is not straightforward because the decision to harvest is based on comparing stand values against stand harvesting costs. The decision on utilization within the stand-and whether or not to bring in lower valued logs -will depend if they can positively contribute to realized stand values. On the BC Coast much of the Crown timber supply requires a high-value component to support stand values; historically that came from higher valued old growth logs and Cedar. Today some of that value also comes from the export market-which is increasingly important as harvest shifts into second growth with a large component of hemlock and balsam that do not have the higher valued logs and species and there is export demand for lower-valued logs that historically were not exported.

The effect of this export demand is important in how it affects the determination of what is surplus and fair market price-the two criteria employed in the surplus test. In terms of the physical availability of wood to meet domestic needs, exporting can improve stand values which can potentially bring more wood to the market-but then that is offset by the wood that flows into export market. The net effect then depends-while the overall effect has not been quantified, it is clear from comments

from all participants that on balance the contribution is seen as positive. However, where the difference in availability manifests itself is in what volumes move into the open market (outside of internal transfers and supply arrangements). Interviews with market participants suggest that the volume of wood that is freely available has shrunk in recent years, both due to economic factors (poor forest product markets and higher costs reducing harvesting overall) and as an unintended consequence of different policy decisions around mergers (affecting what volumes were entering the market that were not committed). Export demand cuts both ways here too-while higher export values improve harvesting opportunities and the volume of wood that can enter the market, that contribution can be offset by higher returns in the export market can also draw volume away from this market. The surplus test in and of itself does not address how these factors are affecting how the domestic market now operates, and the longer-term implications if these trends continue, which will continue to reduce the availability of timber to that market.

Given that, the application of the surplus test should be guided by an understanding of the long-standing objectives of Crown policy when it comes to regulating log exports. Not only does this include generating harvest opportunities where it is economic to do so, but also in facilitating an open and competitive domestic market. The more appropriate way to administer the surplus test is to utilize economic criteria to assess whether or not the timber can be harvested, transported, and then manufactured economically domestically. Where export prices can improve the profitability of timber harvesting operations such that timber stands that would otherwise not have been harvested are now economic, that timber required to make those stands economic should be considered surplus. This should work at both the extensive and intensive margin, both for stands that would otherwise not be economic to harvest at all, and where it can now contribute to improving the incremental value of those lower-valued logs within the stand that otherwise would not be economic to bring in. Because location is a factor both in how it influences both stand values from not only an export perspective but also relative to domestic prices, this needs to be recognized in the application of the test and especially in the determination of what is a “fair price” while also taking into account the “cost of production”. This test will be consistent with the objective of generating the greatest economic benefit for the Province.

The opinions in this report reflect my own. They are based on a review of existing public documents; previous work in this area; information provided by the Ministry of Forests, Lands and Natural Resource Operations, and interviews with representative market participants.

Introduction

In this report I review the surplus test used under the Forest Act to assess whether or not logs can be exported from British Columbia. My focus on this report is how this test is administered under the current system, more specifically how it operates in the context of the BC Coast, the source of the majority of exports from the Province, and what changes would be required to how the test is carried out such that Provincial objectives around generating the greatest economic benefit are realized.

The surplus test is an integral part of the export permitting process, and involves a determination of whether or not the logs to be exported are surplus to domestic needs and an export exemption can be granted. Under the Forest Act, there are three different criteria under which logs can be exempted, in which two of these involve a surplus test, one hinging on whether or not the volume is surplus to the requirement of local needs, and the other on whether the timber can be processed and transported economically. Under the current export system, for wood to be considered surplus, domestic buyers have the opportunity to buy those logs before they can be exported; if they can do so at a “fair market” price then the logs are not considered surplus and cannot be exported.

I assess the existing method for testing whether or not a “surplus” exists, taking into account these two criteria, and why differences could arise as to whether or not timber is surplus and whether or not the offer price is “fair”, based on how these criteria are interpreted. I discuss what factors should be considered in evaluating offers and what should be considered in identifying a “fair market domestic price”. Taking into account Provincial objectives around generating the greatest economic benefits, existing legislation and policy, I discuss why economic criteria should be used in the surplus test to best meet those objectives.

The report is organized in three parts. In the first part, I briefly describe the current economic setting under which log exports take place and offers are made, describing the impact of different factors that affect the demand and supply of logs on the BC Coast. I review the institutional arrangements that influence the way logs are transacted in the Vancouver Log Market (VLM), historically the main source for

buying and selling logs in the BC Coast domestic market, and used as reference point for domestic market prices. I also discuss the differences in returns from the domestic and export market, and how this affects the evaluation of “market prices”. I find, based on changes over the past decade, the VLM no longer functions as “the one log market”; instead, it has become a more differentiated and localized market; depending on the log, species and grade, different markets exist and at different locations. Furthermore, in some of those market segments, there is a high degree of concentration on both the buyer side and supplier side. In some cases there may only be a few buyers or even only one, so that the price in that market does not necessarily reflect a competitive or “fair market” price. The same is also true on the supplier side; in some cases they may hold local monopolies (where they are the only supplier within an area) or in certain log markets be the major supplier-which might not necessarily manifest itself through pricing behaviour but in leveraging logs for other volumes (where log trading forms part of the transaction within the domestic log market). Finally, there are a number of different features, including fibre supply arrangements, export restrictions, and other factors that further distort the market, making it difficult to establish how “fair” are those prices where those features may be strongly influencing fibre flows and pricing.

The second part of the report then examines the surplus test itself in the context of this analysis and how it could be modified, taking into account Provincial objectives around generating the greatest economic benefits. Here I specifically address a number of questions around pricing, including the impact of location and transportation on the economic value of timber.

The third part then concludes with observations on options around assessing the validity of observed prices and comments on approaches to applying the surplus test moving forward.

Part 1. The Economic Context: changing economics on the BC Coast

British Columbia has a long-standing history of regulating log exports. Under the Forest Act, the Minister can allow exports if certain criteria are satisfied-two of which hinge on whether or not the timber is surplus. In order to understand this, it is necessary to understand how the market for logs on the BC Coast operates, and how that has changed.

Changes in the BC Coastal Forest Industry

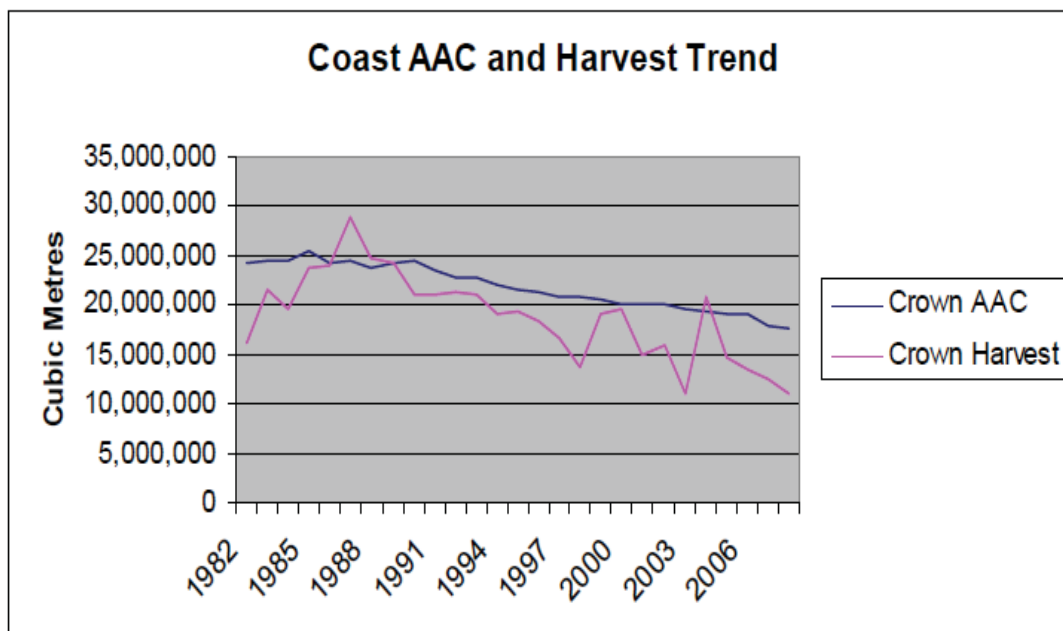
The Vancouver Log Market developed along with the forest industry on the BC Coast. Economic conditions favoured the development of the forest industry; a rich forest resource, growing demand and the establishment of trade routes opened up new markets. As timber values increased, mills were established and logging opportunities grew, the economics of the forest industry on the BC Coast-with loggers supplying a diverse range of species to a large number of mills manufacturing different products, and the ability to move logs by tidewater favoured the development of a market in which buyers and sellers could purchase and sell logs to generate the highest value. Following WWII, sustained yield policies were subsequently implemented and in conjunction with strong markets these contributed to mill expansion, which led to improved harvest opportunities, and harvest volumes correspondingly grew. There were efficiencies from developing a common delivery point, especially where the industry was concentrated in the lower Mainland and southern part of Vancouver Island. Further supporting the development of the market were the benefits that flowed from the establishment of standards and reference points that helped facilitate pricing; improved returns through aggregating volumes and sorting them into different grades; this in turn allowed firms to further specialize; and the development of physical and trading infrastructure that supported all of these exchanges. All parties, both buyers and suppliers, benefited from utilizing this market, which in turn helped develop and deepen trading within it, thereby supporting the development of VLM as a truly competitive market.

The economics were straightforward-as demand for the forest products manufactured from BC increased, the value of timber increased, and with a rich and

abundant forest resource, both mill capacity and harvest levels expanded to take advantage of the economic opportunity, and the VLM helped firms buy and sell logs to their mutual advantage.

In the past decade these three trends have all reversed; demand has weakened for some of the most important products manufactured on the BC Coast and as a consequence timber values have fallen; much of the timber supply has become more costly; with the results that mill capacity has shrunk as have harvest levels. Figure 1 shows the AAC and harvest levels on Crown land on the BC Coast over the past three decades.

Figure 1. AAC and Harvest Levels on the BC Coast



Source: Truck Loggers Association (TLA)

Between 1991 and 2009, lumber mill capacity on the BC Coast shrank from just under 4.4 billion board feet to 1.3 billion board feet (Ministry of Forests, Lands and Natural Resource Operations, various years).

These issues and underlying economic drivers have been well recognized, as recognized in two recent reports examining the economics of the BC Coastal industry:

For more than a century it has depended upon the original natural stock of timber – old growth – famous for its impressive size, quality and value. Today, original timber is becoming scarce in the more developed areas and the industry must adapt to managed, second- growth forests. This transition underlies some of the major industry difficulties discussed in this report...The quality and value of the timber is declining as well, and not all of the available timber will be economically worthwhile to harvest. Pearse, 2001

In particular, the Hemlock-Balsam timber types that account for the majority of timber found on the Coast present a challenge both of the product and harvesting side:

A significant amount of the increasing second growth forests is hemlock-balsam. Along with finding solutions for the higher costs associated with manufacturing products from hemlock-balsam, a better understanding of the harvesting costs of the new second growth forest and the age class/harvest options needs to be developed and explored. This information will provide a better understanding of where the products produced from these forests could fit in the global market place. It should also be noted that the B.C. Coast is not really limited by any market or product restrictions or limitations – it is mainly limited by higher costs relative to competing products or suppliers. As a result, cost reduction in delivered log costs and processing or in determining ways to define an economic timber base becomes a key theme in any coastal industry strategy. International Wood Markets Group, 2007

At a general level, the effect of these trends is to change the fundamental reasons under which a surplus could arise. In a time of increasing demand and abundant and high value timber resources, a surplus could stem where there was short-term mismatch between milling capacity and how much timber could be harvested profitably, and existing milling capacity was the limiting factor, rather than the market or the timber resource (until such time as milling capacity expanded). Today, it is the combination of market values and timber costs that are the limiting factor. It is not the availability of processing capacity, but instead whether the timber can be harvested, processed, and sold and cover all of its costs. In summary,

the nature of the industry has changed, and in order to maximize the benefits of harvesting and processing timber in BC, we have to adapt the concept of “surplus” to meet these changed conditions. Most importantly, we need a test of whether or not the prices offered by mills on advertised logs are sufficient to cover the costs of producing and harvesting the timber on a sustained basis. I return to this point in Part 2.

Changes in the VLM

Changes in markets and the cost of harvesting have had a profound impact on how the Vancouver Log Market works. In terms of the underlying economics, higher costs and lower timber values not only reduce the volume that is available to be harvested but also affect how far timber might move. Lower harvest volumes reduce how much timber might enter the market. On the demand side, capacity shrinks as mills close where they cannot profitably process timber; this then reduces potential demand. Table 1 shows capacity (measured in terms of demand for log inputs) for sawmills for different regions on the BC Coast; it shows overall capacity fell from 13.3 million m3 to 9.6 million m3, with some regions losing all of their sawmilling capacity.¹

**Table 1. Log Input Requirements for Sawmills
at Full Capacity on the BC Coast (000 m3),
selected years**

Region	2006	2008	2009
N. Island	41.76	800.00	0.00
E/S Island	4,921.30	5,617.00	2,816.22
N. Coast	122.91	110.00	0.00
S. Coast	8,276.07	4,826.00	6,831.01
Total	13,362.04	11,353.00	9,647.23

Source: Ministry of Forests, Lands and Natural Resource Operations

¹ Sawmills are not the only firms that utilize logs. There are other processing facilities-plywood mills, veneer mills, pulp mills, and shingle mills-that also rely on logs as well.

Actual demand was much lower. For the most recent year, 2009, for which numbers are available, sawmills processed only 4.9 million m³, yielding a capacity utilization rate only slightly greater than 50%.

The reduction in capacity and demand also has an effect on the dynamics of the market. Fewer mills mean fewer buyers, and depending on the overall number of buyers within a market, they might become concentrated (measured by how much demand the top few buyers account for in a market). Buyers move from being price-takers to a position where their pricing behaviour can influence prices. There is also an impact on the supply side from consolidation within the industry over the past decade and a half, which has reduced the number of suppliers to the market.

Table 2 shows that between 2006 and 2009, the number of lumber mills on the BC Coast fell by a quarter.

Table 2. Number of Lumber Mills on the BC Coast, selected years			
	2006	2008	2009
Medium and Large Mills			
N. Island	0	0	0
E/S Island	8	8	6
N. Coast	0	0	0
S. Coast	16	13	13
Total	24	21	19
Small Mills			
N. Island	4	4	4
E/S Island	26	24	20
N. Coast	2	1	1
S. Coast	12	9	7
Total	44	38	30
Total Mills			
N. Island	4	4	4
E/S Island	34	32	26
N. Coast	2	1	1
S. Coast	28	22	20
Total	68	59	51

Source: Ministry of Forests, Lands and Natural Resource Operations

Other Factors Affecting Timber Pricing and Flows

Finally, there are other factors that affect the value of timber on the BC Coast, namely *long-term fibre and log supply agreements* and *access to the export market*. These different facets of the Coastal fibre market shape not only the relative constraints and opportunities for firms, depending on their different position-whether or not they have access to fibre under such agreements or have to provide it; if they might be able to access the export market either under regulation or through other means. This can lead to significant differences in the value firms place upon a log or even timber stand, above and beyond that associated with either different products they might make or different cost structures, based on these circumstances.

There are a number of long-term fibre and log supply agreements that underpin the Coastal industry, many of them centered on supply to pulp mills and exchanges of pulp fibre (residue and pulp logs) for sawlogs to secure that fibre. Overall these agreements direct fibre flow between different parties, reducing how much can enter the market unfettered. On the export side, which offers higher returns, not all firms have equal access to the export market nor enjoy equal returns. In some cases regulations may permit exports-such as the OIC's that exist for parts of the BC Coast. Elsewhere firms might be in a position to supply the export market because of a combination of supply arrangements and a surplus of fibre for their own needs.

The effect of this export demand is important in that it can improve stand values which can potentially bring more wood to the market-but then that is offset by the wood that flows into export market. The net effect then depends on whether the increase in wood supply is greater or less than the increase in demand from the export market for those volumes. It is clear from comments from all participants that on balance they viewed the overall contribution of exports as positively contributing to wood supply. However, where the difference in availability manifests itself is the net effect on the open market (outside of internal transfers and supply arrangements)-which is heavily influenced by past policies in which the supply to this market has been trending down, even before the impact of exports. To the extent exports are now drawing disproportionate volume from this pool, the net

effect would be to further reduce the volume of open market timber that is available to domestic buyers.²

This would happen where firms have the opportunity to earn higher returns from the export market and are in a position to supply volume into the export market. Logs will then move away from the domestic market, and given previous policy changes, the net effect of exporting would then be to exacerbate what has already been a reduction in volumes moving into the domestic market (excluding those volumes committed under some type of supply agreement).

All of these factors interact to influence the value different firms will place upon the same timber; their fibre needs (or surplus); how they view the marketplace; and how they then position themselves.³ Firms will take different approaches to sourcing timber and how they bid for timber; and this in turn further impacts how the Coastal log market operates especially where one firm by virtue of its size can have an impact on either the buying or selling side and upon prices.

Ultimately the overall effect of these different forces and factors: increased timber costs; reduced demand; reduced timber values; the potential to exercise market power on the buying side or supplying side; and other factors affecting the flow and pricing of timber, including access to the export market; underlying supply agreements; and private land, have had the net effect of fragmenting and dividing the timber flows that once all entered the Coastal log market into a number of different market segments. Where the VLM once provided a common point of exchange, one can no longer assume that it continues to operate as one central market or even as a common reference point across different log types and grades. The market itself has become much more complex with different types of agreements that in turn affect sourcing and pricing behaviour, making it more difficult to utilize prices from transactions where it is not clear how independent are the buyers and sellers, and whether or not the prices used in the exchanging of particular types of logs represent fair market price or instead form part of a broader exchange of different types of fibre under various types of obligations.⁴

² I did not assess the net effect on this market.

³ For example, firms with private land although they face similar export restrictions do not have to pay fee-in-lieu.

⁴ Canada Revenue Agency defines fair market value as “usually the highest dollar value you can get for your property in an open and unrestricted market, between a willing buyer and a willing seller

Prices and Harvesting Costs

While it is logs that are sold, it is stands that are harvested-and this makes it difficult to determine the exact cost of production for any individual log. Instead, it depends on stand values that are compared against stand harvesting costs. The net stand returns then influence the utilization decision over which logs within the stand are brought to market-especially lower valued logs, which fall below the average cost of harvesting the stand. Those will then be valued on their incremental contribution to realized stand values. On the BC Coast much of the Crown timber supply requires a high-value component to generate high enough stand values to support harvesting; historically that came from higher valued old growth logs and Cedar (which cannot be exported). Today some of that value also comes from the export market-which is increasingly important as harvest shifts into second growth with a large component of hemlock and balsam that do not have the higher valued logs and species and there is export demand for lower-valued logs that historically were not exported.

Table 3 shows the difference between export prices and domestic prices for common log grades sold in both markets.

Table 3. Export Premia over Domestic Prices, 2009-2011				
		2009	2010	2011
Standard	Japan	63%	50%	59%
	Korea	74%	60%	31%
	China	57%	35%	25%
Peeler	Japan	59%	43%	53%
Gang	Korea	80%	75%	40%
	China	56%	35%	25%
Small	Japan	38%	39%	63%

who are acting independently of each other". As described above, there is a significant divergence between that idealized conception of "an open and unrestricted" market and independence between buyer and sellers that generates the "fair market value", and how the Coastal log market currently operates. <http://www.cra-arc.gc.ca/tx/ndvds/tpcs/ncm-tx/rtrn/cmpltng/ddctns/lms206-236/229/cca-dpa/menu-eng.html>

	Korea	56%	60%	63%
	China	55%	49%	49%

Source: pers. comm.

In the case of lower value logs, significant differences in transportation costs across different parts of the BC Coast combined with the higher costs of harvesting mean that the economic value of the log is tied to its location. This has been reflected in some cases where there are localized markets or in location-specific prices.

Table 4 shows some differences in relative harvesting costs for different stands on the BC Coast. These costs reflect getting timber to water (stump to dump) but no sorting or transportation, nor other costs (overhead and other related costs) and are meant to illustrate the range of delivered costs for different types of timber at different locations throughout the Coast.

Table 4. Harvesting Costs for Different Locations and Timber Types, BC Coast		
Timber Type	Location	Cost
Second growth, good access and mechanical harvesting	South Island	\$35-\$38/m ³
Old Growth, hembal	MidCoast	\$110/m ³
Old Growth, hembal	West Coast Vancouver Island, mid Island	\$71/m ³

Source: pers. comm.

The direct consequence of all these changes is that the price generated in the VLM is not necessarily representative of what would be the “fair market price”, either because markets may be separated by distance and transportation costs, or that

additional factors, namely market structure, affects the price being offered. Therefore, the price in the VLM will not necessarily reflect the “fair domestic price” for that log without taking these factors into consideration. Included in this is how stand values (and hence relative costs of production) might be influenced by the different higher valued components, including export. I return to this point in the next section.

Part 2. What Determines Surplus?

In Part 1 I discussed the changing economics affecting harvesting and processing on the BC Coast, how that has impacted the way the VLM works; how other factors affect the flow of pricing and timber in the BC Coastal fibre market; and as a consequence how fair market domestic price can be determined. Based on the preceding economic analysis, I now examine the surplus test and address the following questions I have been asked to answer:

1. Under 128 (3) (a) and using the current system for testing ‘surplus’, what factors should be considered in determining the fair domestic market price appropriate to any boom of logs in the Coast area of BC for which an export exemption application has been made?

I have discussed earlier how there are various markets for logs on the BC Coast, differentiated by species, grade, and their location that all affect their relative value to the purchaser. The first consideration is whether or not the price being offered comes from comparable markets. For example, where markets for similar types of logs are separated by distance, one would not be able to infer prices from one market to another directly (a straightforward example would be different markets for pine sawlogs in the Northern versus Southern Interior).

Where there is a common market, and there are ongoing transactions in a market between independent buyers and sellers, with sufficient volumes being exchanged on a regular basis, this meets our criteria for what we would consider a competitive market-and those prices can then be used as indicative of a fair market value. Where this does not exist-where exchanges are infrequent and volumes are small, buyers and sellers are not independent, then there is less assurance that the prices being generated necessarily reflect the economic value. The problem is heightened when

the number of buyers is limited, especially when there are three or fewer. In this case, purchasers may exercise monopsonistic or oligopsonistic pricing practices, choosing lower prices than would otherwise prevail in a more competitive market.⁵

Where market power can exist, then other factors have to be taken into account. Purchasers could push price levels down below the cost of production-in this case offering prices below the cost of providing logs. The current surplus test, using criteria 128(3)(a), is incomplete if it only looks at whether or not the firm offering the price has unused milling capacity. In this case, while the offering firm may be setting the price at which they can economically process timber given their capacity, if the price offered does not cover the cost of producing that fibre then that firm producing the fibre is incurring losses-and by that measure the price would not be “fair” as it would not have been generated in a competitive market where the seller would be unwilling to supply logs at that price.

If that price offered is below that required to cover the costs of producing that fibre, then the question is not whether there is surplus milling capacity, but whether there is surplus economic capacity, where this is defined not only by what firms can economically process but also by what can be economically supplied. Just as there is a difference between the physical timber inventory that can be supplied at different prices, the same is true of processing capacity. Just as we would not require domestic timber purchasers to pay a price higher than they could otherwise afford to sustain a certain level of processing activity, we would not expect sellers to accept a price lower than their costs in order to sustain a certain level of timber production. This criteria-the cost of production-then is an important factor in the determination of whether the price offered could be considered “fair” where market power is a concern.⁶

Beyond these two criteria, there are a number of other factors identified earlier that can affect the flow and pricing of timber within the BC Coastal market. In and of

⁵ Where buyers are spatially dispersed and transportation costs are significant, they can also have an impact on spatial pricing patterns (Faminow and Benson 1990).

⁶ The standard practice in the industry is to identify an average cost of production, based on average harvesting costs. Although lower valued logs are typically worth less than this average cost, they will be harvested where overall stand values will be sufficient to cover the costs of harvesting and those logs can provide incremental revenue. The more exact test of whether their cost was being covered would then be that the price offered was low enough such that those logs would not otherwise come to the marketplace.

itself, the presence of these features-and how they affect transactions within a market, defined either by log grade or species or by region- is not sufficient to invalidate a price because they are so pervasive. However these factors have to be kept in mind if there have been changes in those features that have negatively impacted how those markets function.

2. *Given that timber from all areas of the Coast of BC is transported to the Southern Georgia Basin and sold for a common species/grade price, should the cost of transportation from more isolated areas be a consideration in the surplus test? Why, or why not?*

In reviewing the evidence not all timber flows from all areas to the Southern Georgia Basin, nor is it all sold for a common species and grade. Therefore, it is incorrect to assume that the price paid in the VLM can be extended to reflect the value of all species and grades across the Southern Georgia Basin. Especially for lower valued timber, the cost of transportation plus the price required to obtain the timber may be greater than firms are willing to pay. Therefore, while there may be wood physically available, it is not economically available. This is especially true for more remote areas, where higher transportation costs generally make that wood the most expensive, where it is influenced not only by distance, by also by the fact that it will need to be barged (if it is coming from the Mid and North Coast, or the West Coast of Vancouver Island); and where there are also additional handling costs. For example, wood traveling from the North Coast costs approximately \$20/m³ to transport; from the NW coast of Vancouver Island approximately \$12/m³; and from the West Coast \$10/m³.⁷ This is significantly higher than wood moving from the East Coast of Vancouver Island, where shorter distances and towing reduces the cost to \$1-\$3/m³.

Below I describe how these different costs would affect the cost of purchasing timber, depending on the location, and where I assume the seller is responsible for delivering the logs to a common point in the Fraser River (as is practice under the current system) but where the seller may or may not be reimbursed for those costs. In this simple example, I assume that the timber is the same species and grade in all examples, that the current domestic market price in the Fraser River just covers the costs of harvesting, and that the only additional costs are transportation costs.

⁷ Sources: personal communication, various.

- a. An application is made to export from Quatsino Sound. An offer is made at the current domestic market price found in the Vancouver Log Market, requiring delivery to the buyer in the Fraser River
- b. An application is made to export from the Fraser River. An offer is made at the current domestic market price found in the Vancouver Log Market requiring delivery to the buyer in the Fraser River.
- c. An application is made to export from Port Alberni. An offer is made at the current domestic market price found in the Vancouver Log Market, delivered to the Fraser River requiring delivery to the buyer in the Fraser River.
- d. An application is made to export from Quatsino Sound. An offer is made requiring delivery to the buyer in Quatsino Sound at a price which is considered to be equivalent to the current domestic market price found in the Vancouver Log Market, less the transport cost from Quatsino Sound to Vancouver, Fraser River.

In all four examples, the cost of the wood to the buyer would be the same. In the first three examples (A, B and C), the seller is obliged to cover the transportation costs of delivering the logs to the Fraser River so the net price received is the VLM price less transportation costs. In this case then the least valuable wood as far as sellers are concerned is that coming from Quatsino Sound (Example A). The seller in Quatsino Sound would receive the VLM price less \$12/m³ to transport wood their wood from Quatsino Sound to the Fraser River. This wood would be worth less than that coming from the Fraser River where they receive the VLM price (example B) or Port Alberni wood where they would receive \$10 less than the VLM price (Example C). In Example D, by netting out transportation costs, the offer to the seller at the point of advertising is quite explicit.

In all these examples while the VLM price is the same, the different values received at the application point, which is generally close to the harvesting location, will influence the decision of sellers over whether or not they should mill the timber themselves and/or harvest stands of similar timber in the future. Given the assumptions made above, that the sellers could just cover costs at the VLM price the seller in Quatsino Sound would face a loss of \$12/m³ and the one in Port Alberni a loss of \$10/m³, while the seller in the Fraser River would just break even. In the long term, those in Quatsino Sound and Pt. Alberni would not continue to harvest that timber.

Therefore, these transportation costs can significantly affect the value of the logs- and therefore needs to be taken into account in determining whether or not those

logs could either be harvested economically or processed economically. Neither buyers nor sellers ignore these costs in determining where they will try to source their wood, or what value they will get for it, and the surplus test should recognize those costs as well. Just as buyers would recognize the higher costs associated with sourcing wood from more distant locations-such as Quatsino Sound in the example above-so would sellers respond differently to different purchasers if their net return varied depending on who was purchasing that timber and where they were located.

3. *Would it be helpful to change the surplus test to require mills who make offers to make those offers FOB the location of the advertised timber? What impact, if any, would this have on the log market?*

The surplus test should be changed to make offers FOB the location of the advertised timber. Changing the surplus test to make offers FOB the location of advertised timber would simply acknowledge the current realities in the market and the way logs are already being priced for some grades and species. As such, it would improve efficiency within the market, as prices would reflect the impact of location and transportation costs on the value of the timber being offered. This would increase transparency; incorporate the economic realities of existing economics within different regions and timber types into those prices; and improve how the market functions through providing better and more accurate information. At the same time, export values will also need to be taken into account in terms of how they influence the cost of production-which will also vary by location and how much of the stand is being exported.

Part 3. What Criteria Should be Used for the Surplus Test?

I now turn to the question of what criteria should be used in the surplus test, given the objective to generate the greatest economic benefits for the Province. The main focus of the Province should be on generating economic opportunities on the forest land base through improving stand values, and how this can be used to support both the harvesting and manufacturing sector. Given this objective, the surplus test should then be based on the economic criteria that determines where it would otherwise be uneconomic to harvest that timber, based solely on domestic log values, and where export prices could improve the economics of those stands so that they are now available for harvest.

In short, the surplus test should be modified to declare surplus, specified timber and wood residue if it ***cannot be economically harvested*** or processed locally, or transported and processed locally that is, criteria 128(3)(b) under the *Forest Act*. This in turn will generate the greatest level of economic activity. Beyond that how the benefits that flow from those activities are distributed among the Crown and different parts of the forest sector depend on other policies outside the scope of this test that are discussed elsewhere in this report.

I next address the issue of market power as posed in the following question:

Where the domestic market price is being used in the surplus test, and is being set at the time of offer by a single buyer, does this create an issue for the validity of the test and should there be different considerations taken into account in this single buyer environment compared to a multiple buyer market environment?

I have earlier described the distortions in the Coastal fibre market, and how market power can influence the price being offered. Where there is only one buyer, or monopsony, the potential exists to exert market power. This issue of monopsony has long been recognized as a concern in timber markets. Where monopsony power is exercised, the price will be lower than would prevail in a more competitive market, and it cannot necessarily be considered representative of the fair market price, especially if the seller has no other opportunities.⁸ It also becomes

⁸ Appendix C provides more detail on the potential outcomes that can prevail under circumstances of market power.

problematic in extending prices from one market to another market (distinguished by different locations); a single buyer can also influence the spatial pattern of prices that can further extend their market power (Faminow and Benson 1990). On the monopoly side, log sellers may use their market power to extract either higher prices or other terms (perhaps preferential access to other types of logs) that benefit them.

Where prices cannot be considered to represent fair value, it will then be necessary to examine alternative estimates of what might constitute a fair market value. I have discussed how cost-based measures can provide one such indication. This will require careful consideration of whether enough information exists to be able to generate reliable cost estimates associated with providing those logs, taking into account the complex relationships between stand value and what log sizes and species they can yield; these include differences in harvesting requirements and equipment; access and transportation costs; infrastructure; and location.⁹

Other alternatives involve looking for proxies in other market segments; or making adjustments based on evidence or experience of what otherwise might have prevailed under more competitive conditions.

Finally, I also noted earlier that the cost of production would be influenced by the location of the stand and how much might be going into the export market; this too will be important in assessing the cost of production that will also influence the assessment of whether or not the offer is “fair” -if it covers that cost.

Identifying a formula that will establish exact costs will be problematic because of the joint nature of production especially when there is significant heterogeneity in the stand; for example, when a stand might have a component of high value Western Red Cedar or logs suitable for export. Depending on the different prices for those components, how those components are evaluated, and how costs are allocated, this can all lower the incremental cost of bringing out the remaining volume as these higher-valued components bear a greater share of the overall costs. Although it is difficult to establish cost-based formula where this kind of heterogeneity exists, it is common industry practice to make these kinds of evaluations and decisions around how to value stands and how this influences the incremental costs of different log grades, and this information could be used in evaluating costs of production.

9

Conclusion

In this report I have assessed the current surplus test and found that it needs to be modified to take into account economic criteria, principally the cost of production. Recognizing the cost of production is consistent with the long-standing objectives of Crown policy when it comes to regulating log exports. The more appropriate way to administer the surplus test is to utilize economic criteria to assess whether or not the timber can be harvested, transported, and then manufactured economically domestically. Where export prices can improve the profitability of timber harvesting operations such that timber stands that would otherwise not have been harvested are now economic, that timber required to make those stands economic should be considered surplus. This should work at both the extensive and intensive margin, both for stands that would otherwise not be economic to harvest at all, and where it can now contribute to improving the incremental value of those lower-valued logs within the stand that otherwise would not be economic to bring in. Because location is a factor both in how it influences both stand values from not only an export perspective but also relative to domestic prices, this needs to be recognized in the application of the test and especially in the determination of what is a “fair price” while also taking into account the “cost of production”. This test will be consistent with the objective of generating the greatest economic benefit for the Province.

References

Dumont, W., & Wright, D. (2006). Generating More Wealth from British Columbia's Timber: A Review of British Columbia's Log Export Policies. Victoria.

Faminow, M., and B. Benson. 1990. Integration of Spatial Markets. *American Journal of Agricultural Economics*. February: 49-62.

INTERNATIONAL WOOD MARKETS GROUP, 2007. B.C. Coast Strategic Options: Current Business, Future Opportunities and Outlook to 2020. March. Vancouver, BC.

Pearse, P. 2001. Ready for Change. Vancouver, BC.

Quayle, M. 2003. Some Pricing Issues of Long-Term Contract Log Sales in Tropical North Queensland, Australia in Sugh et al (eds.) *Marketing of Farm Grown Timber in Tropical North Queensland*, pp 65-74. University of Queensland, Brisbane.

Shinn, C. W. (1993). *British Columbia Export Policy: Historical Review and Analysis*. USDA.

Appendix A. The Forest Act

Exemptions

128 (1) The Lieutenant Governor in Council may exempt from section 127

(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 the minister, the minister may exempt from section 127

(a) a volume of timber that has been harvested, not exceeding 15 000 m³ for each application, and

(b) a volume of wood residue, not exceeding 5 000 bone dry units for each application.

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

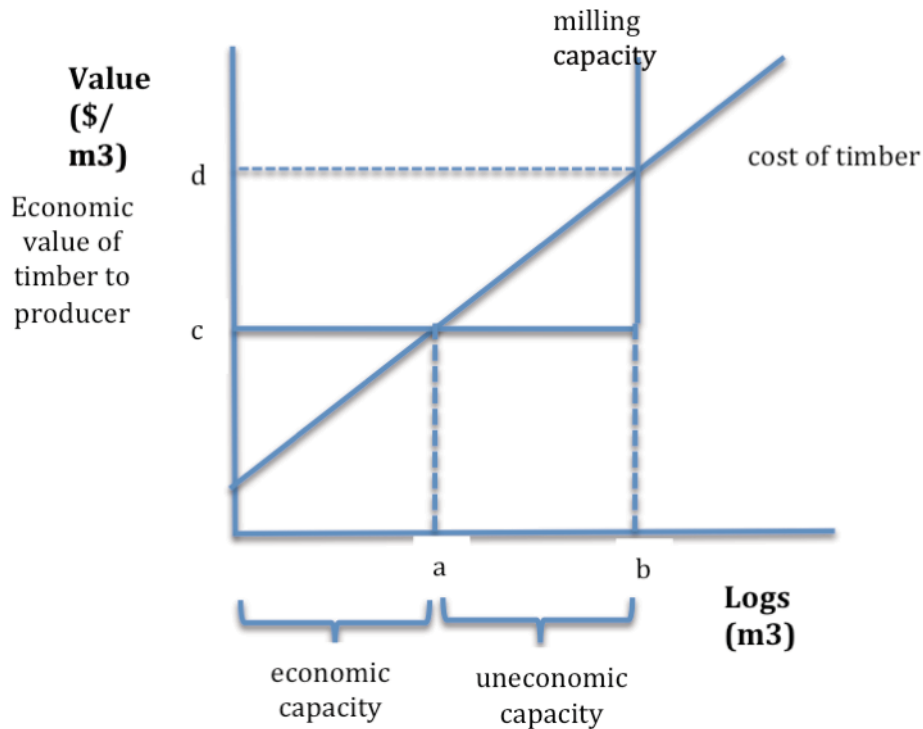
(a) the timber or wood residue will be surplus to requirements of timber processing facilities in British Columbia,

(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 British Columbia, or

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

Reviews of the policy and its development can be found in Dumont and Wright (2007) and Shinn (1993).

Appendix B. Measuring Mill Economic Capacity.



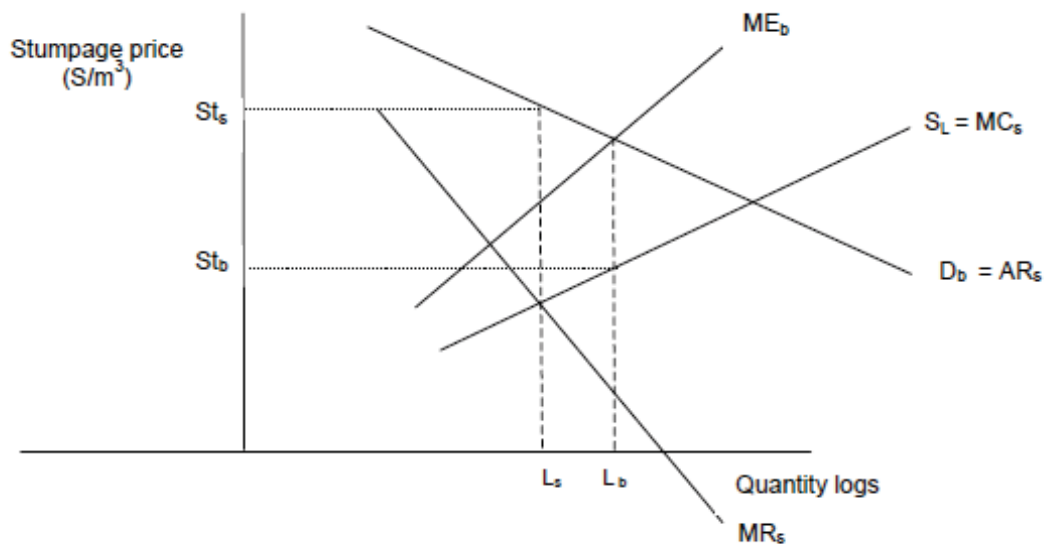
The Figure above illustrates the idea of mill economic capacity. Given market demand, the economic value of the timber-the price at which the mills in aggregate can afford to economically process timber-is at *c*. While physical milling capacity is *b*, the mills can only economically process timber up to point *a*. As market prices for processed products improve, so does the price the processors can afford to pay for timber-and the harvest will expand. If timber values increase beyond *d*, then that timber will now be surplus to the total physical capacity of the mills to process it.

Appendix C. Market Power and its impact on Pricing.

The exercise of monopsony power will yield prices lower than would prevail in a competitive market, and the quantity transacted is also likely to be lower (depending on the nature of the supply curve).

Price indeterminacy exists where there is a bilateral monopoly and monopsony. The demand curve represents the log buyer's demand for logs, while the supply curve represents the marginal cost to the seller of supplying those logs. Both parties then seek to optimize their revenues: the log buyer would like to set the price at St_b and buy L_b ; the log seller would like to sell fewer logs, L_s , and sell them at St_s . The actual price and quantity transacted will lie between these two points, and depend on the relative bargaining strength of the two parties. Note that in either case the actual volume of logs that will transact will be less than under a competitive market (the intersection of D_b and S_L). Therefore, changes made to the existing system that would improve the efficiency of the market and moving away from negotiated pricing would lead to increased harvests. This would reflect the outcome from moving towards more competitive pricing.

Figure 2. Bilateral Monopoly and Monopsony in the Log Market



From Quayle 2003. Note that stumpage price is the equivalent of log price. St_s represents the price that would be charged by log seller, who would offer L_s . St_b represents the price set by the log buyers, who purchases L_b .

Finally, market power may manifest itself in different types of spatial pricing patterns, such as Basing Point Pricing (where a common point is used to set prices throughout the entire market, adjusted for transportation costs) or FOB pricing with Freight Absorption (where prices between different points vary less than the transportation cost)(Faminow and Benson 1990). The concern in introducing a test that involves a simple pricing rule is that it can impose market rigidities or a particular price structure that creates inefficiencies and distortions, that can further impair efficient market functioning and the generation of competitive prices (taking into account all the other factors affecting the Vancouver Log Market).