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Coastal Gateways: Costs and Subsidies on British Columbia Coastal Ferry Routes

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Introduction

Ferry service to remote communities is a type of "gateway," a link for the "locationally disadvantaged" to the rest of the provincial transportation and economic system. The British Columbia Ferry Corporation (BCFC) operates numerous services along the B.C. coast, including the high volume services between the Lower Mainland and Vancouver Island. The large volume routes generate revenues at least close to full cost recovery. In contrast, BCFC also operates a number of "minor routes" which link various coastal and island communities to centres with road access to the rest of the Province. These minor routes invariably generate revenues less than costs. Just as with other government services, the ongoing need for subsidies is being questioned. It is likely that BCFC will come under increasing pressure to reduce deficits and move toward higher cost recovery on many of these routes.

Following a brief review of possible rationales for ferry subsidy, and the current practice, the paper reviews the extent of subsidy on 17 minor ferry routes in B.C. A cost model based on BCFC cost experience provides a common basis for costing services on each of the routes and comparing projected cost recovery and subsidy levels on the routes. A final section examines the policy environment and challenges facing the Government and BCFC in meeting the subsidy requirements.

Rationales for Subsidizing Ferry Service

Subsidies for coastal ferry services can reflect a number of rationales. There are circumstances where economic efficiency considerations call for subsidy, such as under increasing returns to scale or externalities. Scale economies or indivisibilities have been a traditional argument why infrastructure may not result in full cost recovery. Because the costs are sunk, the optimal policy is to price low to encourage utilization of such facilities.

However, ferry service is not like the classic textbook example of low marginal cost service such as bridges or roads. Ships are mobile assets which have opportunity costs. The prices paid must cover the opportunity costs. Moreover, although the marginal costs of additional cars or passengers may be essentially zero on any given trip, the costs of operating the vessel for the shift or for the day need to be covered by the cumulative demands served that day. In theory, the prices charged could vary for every trip depending on the demand at any particular hour, but the cumulative revenues for the day would cover the costs of providing the service. That is, unlike the text book illustration of sunk infrastructure, short run marginal cost pricing on ferries would not call for prices close to zero, but rather the average fares would have to be sufficient to cover the full avoidable costs of the service.

Another situation where economic efficiency arguments may call for subsidy is where services generate economic benefits for society generally, i.e., a positive externality. Ferry service enhances economic well-being and stimulates commercial, recreational and tourist activities in the markets served. Some might see this as an argument for subsidy, but the argument is weak. The economic efficiency arguments for subsidy require that these external benefits go unrecognized by ferry users or direct beneficiaries. Otherwise, the market outcome (supply meeting the demand) would be an efficient outcome. Tourism and other development will benefit businesses served by ferries. But this development generally will be diversions of tourist activity from one region to another; the net gain to the B.C. economy is much less than the local impact. Further, just as with transportation services elsewhere, whatever development is stimulated by subsidized ferry operations will result in higher land values. It is unlikely that these benefits go unappreciated by ferry users or nearby land owners, i.e., it is difficult to argue that those who benefit would not notice and be willing to pay for these benefits.

In brief, the economic arguments for ferry subsidies are weak. But there are also various social rationales. These include policies to redistribute income, favour particular regions, certain social groups such as aboriginal peoples. There are also constitutional entitlements, i.e., agreements for subsidy enshrined in law. The most likely rationale is a perceived social obligation to partially offset the locational disadvantage of residents of remote regions. There is a tradition of such policies in Canada and elsewhere, although the rationale and relevance today may be more debatable today than many decades ago. Existing B.C. ferry subsidies probably reflect a mix of considerations, primarily social, but are more accurately described as historical happenstance: for whatever reasons, subsidized ferry services have existed for some time and have come to be regarded as entitlements both by the recipients and perhaps by government and BCFC as well.

A particular interpretation is a "road equivalent" entitlement whereby ferry service is viewed as an extension of the highway system. More specifically, because of a community's proximity to other settlements and the size of the local population, communities would expect to have roads constructed at public expense as a regular part of the highway network, except that water and adjacent terrain make road construction prohibitively expensive. The ferry is viewed as a cost-minimizing obligation to provide the equivalent of highway services. The dilemma here is identifying just what combination of population, distance, costs, etc., society is willing to support given the points were connected by land rather than by water. Certainly there are examples of roads built which serve small traffic volumes, but they tend to be minimal roads, and increasingly, road investment must be justified by calculations of the user benefits of time and operating cost savings. There are limits to what society will spend to provide access from remote locations. A complication for ferry services concerns safety standards. Roads built to small communities can be of minimal standard, whereas ferry service must conform to the rigorous safety standards imposed for all commercial waterborne transport.

Although the "road equivalent" argument has been used as a guideline for ferry subsidies in various locations, this is not a theoretical justification for ferry subsidy. Rather this is a pragmatic rationalization to arrive at a specific figure given that the principle of subsidization has been accepted.

In sum, existing ferry subsidies are a historical happenstance whereby long-standing subsidized services have come to be regarded as entitlements. Because of past commitments by the Government and BCFC, the expectations of users that subsidies will continue is understandable, but these expectations do not necessarily justify indefinite continuation of subsidies. Like many other government services being reexamined in Canada and elsewhere, traditional ferry subsidies clash with the fiscal pressures facing today's governments. The rationales for, and size and structure of ferry subsidies are under scrutiny.

The Costs of Ferry Services

Ferries provide service to passengers and vehicles of various sizes and types including freight. Because vessel capital and operating costs are shared among the traffic types, allocations of costs to specific traffic can be arbitrary. The traffic category most useful in examining capacity and utilization is vehicle traffic, expressed in automobile-equivalent units (AEQ), i.e., trucks and buses are converted to equivalent deck space occupied by automobiles. However, note that the presence of passengers necessitates larger crews, safety equipment and amenities which are not required by vehicles; hence passengers have a disproportionate impact on costs compared to deck space occupied.

BCFC reports annual costs, revenues and losses for the various minor routes. However, the BCFC cost figures record the actual expenses for one particular year, which are not necessarily a guide to the expected costs to be incurred over a long term basis. In addition, the BCFC cost figures include allocations of overhead expenses most of which would be incurred independent of the operation of any one minor route. Third, the route costs reported by BCFC are influenced by the cost characteristics of the specific vessel assigned to the route; routes which have larger vessels than necessary -- or recently acquired and thus more expensive vessels -- will tend to show higher costs and lower cost-recovery. Thus, the first step in analysing cost-recovery across the minor routes was to develop a cost model which would reflect BCFC capital and operating costs, but on a long term basis which would enable a more consistent cost comparison across the routes.

Essentially, the costs of building and operating vessels for various size-classes were averaged to produce a consistent cost for each size vessel. Then, any route using a particular size vessel would be assigned identical costs per hour of operation. Current construction costs for various size vessels were obtained from BCFC. **Figure 1** shows the relative size of different cost categories, expressed as an index of the costs of the largest class vessel (greater than 130 AEQ). Both construction and operating costs are expected to show economies of scale in that costs per unit of capacity decline as ship size increases. However, Figure 1 reveals that the economies of scale are not as pronounced as was expected. The slope of the line showing the rise in costs with ship size is expected to rise less sharply as ship size increases. Instead, the graph tends to rise more sharply. The operating cost of the 100 AEQ vessels appears higher than it should be relative to the costs of other vessels. The largest category, greater than 130 AEQ, also shows costs increasing more rapidly than the increase in capacity. However, both of these vessels are a different design which incur higher costs for passenger space and amenities, and correspondingly higher crew requirements. There is also a change in wage rate structure between a 70 AEQ vessel and a 100 AEQ vessel.

BCFC figures for individual terminal operating costs were used to estimate the annual costs of operating various routes.

Costs and Subsidy Calculations for Ferry Routes

Four sets of cost and implied subsidy figures are presented:

(1) BCFC cost and revenue figures as presented in their annual report;
(2) Minimum cost estimates from the cost model, i.e., operating costs only;
(3) Full cost estimate from the model including capital costs of vessels and terminals valued in current dollars and allocations of overheads; and,

(4) "Modified" cost estimates which use current dollar capital costs but depreciate the valuation to the average age of vessels and terminals.

Revenues are the same for all calculations, i.e., reflecting actual revenues collected in 1993/94 on each of the routes.

Table 1 summarizes the cost-recovery ratios for different calculations (route names are in the Appendix). The cost-recovery ratio in column 2 is the figure reported by BCFC. The minimum cost estimate (operating costs only) from the cost model is in column 3. The full cost ferry service (including depreciation and financing costs based on the current replacement cost of vessels) is in column 4. Column 5 is the "modified" calculation from the cost model: this includes an allowance for ship and terminal capital investment, but uses a depreciated current cost valuation of fleet and terminal investments.

In assessing the current situation facing BCFC, the minimum cost basis for the cost-recovery ratio is the most relevant. It indicates the immediate financing required to cover operating costs excluding any allowance for capital replacement or contributions to overheads. The minimum cost basis shows an overall average cost-recovery ratio of 46.8 percent compared to the average cost-recovery ratio of 33.5 percent reported by BCFC.[1] Note that the latter includes historical-based capital costs and allocation of overheads.

The most relevant comparison between the cost model and BCFC figures would be the "modified" calculations. The overall average cost-recovery ratio is 29 percent in the cost model, which is similar to BCFC's overall average of 33.5 percent. There are differences among routes due to different depreciation and financing charges attributed to the routes by BCFC and the model.

Column 6 in Table 1 shows the ratio of the minimum cost-recovery ratio relative to the full cost ratio. There are some differences across the routes, but on average the difference is about two to one, i.e., the cost-recovery ratio on a full cost basis is about half what is measured in terms of operating costs only. Expressed another way, if fares were increased to bring the current minimum cost-recovery up to 100 percent, this would only be about half the level of revenues needed to sustain operations based on current vessel and terminal costs.

Table 1

BCFC and model predicted cost-recovery ratios					
Route	BCFC Results	Minimum Cost	Full Cost Model	Modified Cost	Minimum Cost/ Full Cost
4	57.8%	83.4%	41.8%	52.7%	2.00
5	17.2%	26.1%	13.2%	17.0%	1.98
6	44.7%	46.1%	23.0%	30.3%	2.00
7	37.7%	70.4%	36.8%	45.1%	1.91
8	40.7%	68.7%	34.3%	43.3%	2.01
9	44.7%	81.7%	38.4%	49.0%	2.13
12	52.5%	50.1%	22.0%	30.8%	2.28
17	49.3%	60.2%	30.3%	39.1%	1.98
18	12.7%	23.0%	10.4%	13.8%	2.22
19	40.2%	55.6%	29.9%	37.3%	1.86
20	20.6%	22.8%	9.5%	13.1%	2.41
21	30.2%	39.7%	18.6%	24.5%	2.13
22	27.5%	32.0%	12.7%	17.9%	2.53
23	39.6%	55.0%	26.9%	34.3%	2.05
24	13.6%	25.1%	8.7%	12.5%	2.89
25	22.5%	36.0%	14.1%	19.3%	2.56
26	17.7%	19.6%	9.5%	12.5%	2.07
Unweighted Avg.	33.5%	46.8%	22.3%	29.0%	2.09

Analysis of Variations in Cost Recovery

The minimum cost recovery ratio (CRR for operating cost only) are used to analyze any patterns in cost-recovery across the routes.

Three factors might influence the level of cost recovery:

(i) annual traffic volume (one might expect lower cost recovery on low volume routes);

(ii) the severity of the peak (cost recovery may be more difficult for routes with a more severe seasonal imbalance); and,

(iii) the utilization of capacity (cost-recovery will be more difficult for routes with low utilization of the vessel).

However, none of these factors explain variations in the level of cost-recovery across the routes.

Figure 2 plots annual traffic volumes in ascending order along with the cost-recovery ratio of the minimum cost basis. There is an upward trend as expected, but there is substantial variation across the routes. Relatively high and

low cost-recovery is achieved on both low and high volume routes.

Figure 3 shows the relationship between the seasonal traffic differentials and cost-recovery. The seasonal variation is measured as the ratio of the two busiest months relative to the two lowest months. The routes are graphed in ascending order of the peak/low-season differential. Contrary to what might be expected, there is no apparent correlation between the problem of the peak and the extent of cost-recovery.

Figure 4 shows the link between average annual vessel utilization and cost-recovery for routes which record vessel utilization. The vessel utilization figures in Figure 4 are the average of peak and low season utilization. They are graphed in ascending order along with their respective cost-recovery ratios. There is an upward trend as expected, but with deviations for a couple of routes.

The effect of vessel utilization requires further discussion. Because vessels are purchased infrequently and traffic volumes are growing, vessels tend to be larger than necessary for current traffic volumes. As utilization increases, revenues will increase with little change in costs, hence cost-recovery will improve. For some routes, we were able to calculate current average vessel utilization over the year. We can then re-scale the cost-recovery ratio (CRR) in order to estimate what it would be on each route when each route reached the same target level of utilization. We chose a target of 60 percent average utilization. This is an arbitrary choice but it is broadly consistent with BCFC's target of 80 percent utilization during the peak season. **Table 2** shows that current fare levels will yield much improved cost-recovery once traffic grows to the target vessel utilization. Two routes (Routes 6 and 7) are projected to more than cover their operating costs. However, an important caveat is that it will be many years before traffic volumes are projected to reach these levels.

Table 2

Adjusted Cost Recovery Ratios (CRR) for Differences in Capacity Utilization (selected routes)			
Route	CRR minimum cost model	Annual capacity utilization	CRR if 60 percent
5	26.1%	32%	48.9%
6	46.1%	24%	115.1%
7	70.4%	34%	124.2%
8	68.7%	44%	93.7%
9	81.7%	57%	86.0%
12	50.1%	42%	71.6%

Analysis of the Ferry Fare Structure

The fare structure refers to the fare differentials among traffic types,

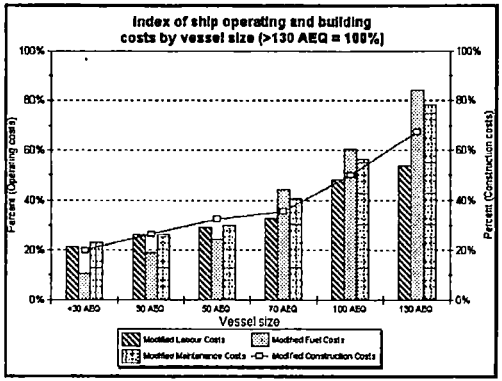

Figure 1

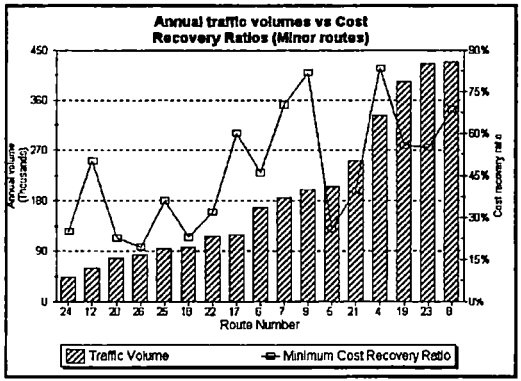

Figure 2

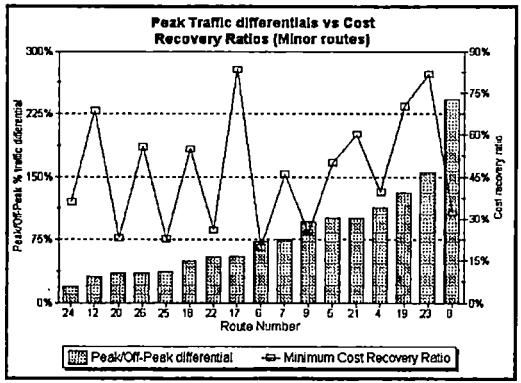

Figure 3

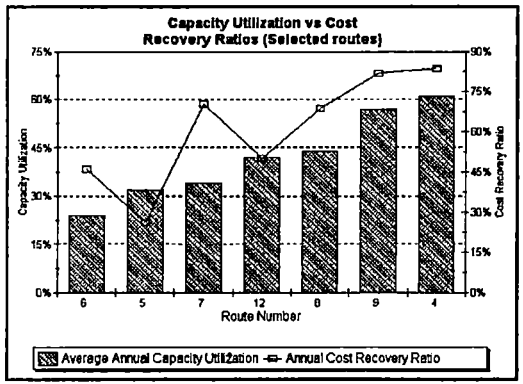

Figure 4

distances travelled, peak/off-peak, etc. We first examine the *consistency* of fares among traffic types. **Figure 5** shows the various fare categories as a percent of the overheight vehicle fare (PVOH). The only apparent anomalies are the relatively high fares on intermediate links of multiple-point routes (identified as 5A and 25A, components of Routes 5 and 25, respectively).

Fare differentials among traffic types. The cost data limit our ability to assess whether or not the fare differentials among traffic types are appropriate. The fares for vehicles seem low relative to those for passengers since it is the carriage of vehicles which determines the size of vessels needed and limits the utilization of that capacity.

Fares and distance. Although other cost and demand factors may be involved, we expect a link between fare levels and distance travelled. **Figure 6** shows only a loose relationship between them. Analysis of ferry operating and cost characteristics can provide a basis for linking fares more closely with distance. **Figure 7** superimposes a hypothetical cost-distance relationship (reflecting time required in port relative to time travelling) on a plot of the (standard passenger car) fares for the minor routes. Because average fare levels are not recovering costs, it may be appropriate to plot the cost-distance line from a higher base (left hand axis) as a basis for adjusting fares to more accurately reflect the distances involved.

Seasonality and fares. The seasonal difference in traffic varies substantially across the routes. **Figure 8** plots the ratio of high/low monthly traffic (bar graphs scaled on the left hand axis) against the peak/off-peak fare differential for under-height vehicles. Notice the size of the traffic differential, as high as a 250 percent increase during the peak season and as low as about 30 percent. In contrast, the peak fare differential is very modest and is almost uniform compared to the major differentials in traffic volumes.[2]

For a few routes, we estimated the proportion of total annual costs which could be assigned to the peak season demands. Serving the peak requires acquiring a vessel larger than necessary to serve the route for the rest of the year. That is, the costs of serving the route are higher than necessary throughout the year in order to have capacity adequate for the summer peaks. We assign this increase in annual costs to the peak season, and calculate the implied surcharge above a "shoulder" fare that would be necessary for peak users to bear the full costs of serving them.

A minimum vessel size was chosen sufficient to handle the shoulder season with 80 percent utilization. This compares with BCFC's target of maintaining capacity to achieve 80 percent utilization during the peak months. The average

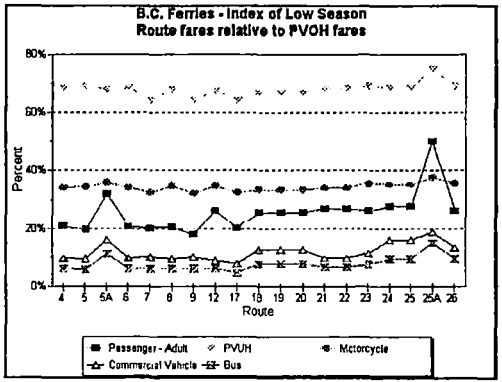

Figure 5

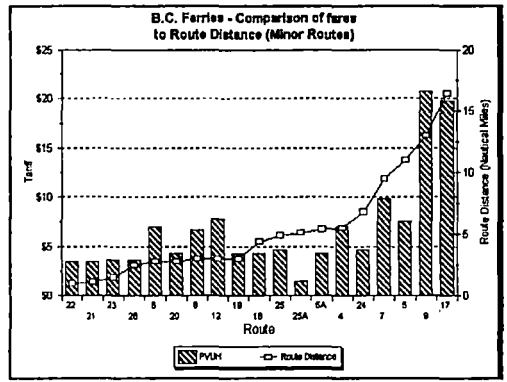

Figure 6

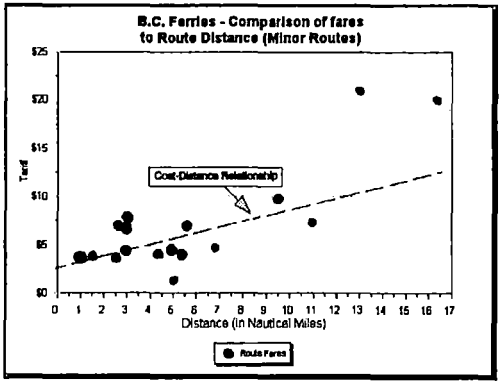

Figure 7

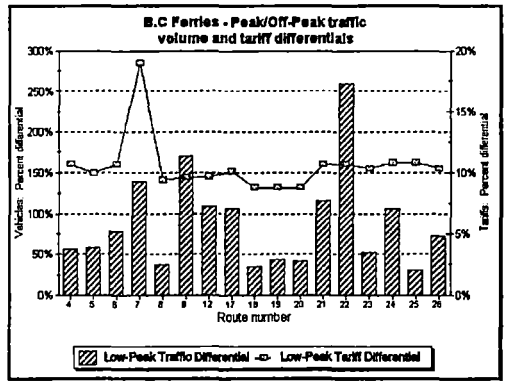

Figure 8

fare necessary to cover the annual costs of the smaller vessel, TC_S, is found by dividing annual costs by annual traffic volume, Q_{annual}. Total costs can be defined as operating costs only or inclusive of the capital costs of the vessel. We calculate both versions, using full replacement costs for the total cost calculation.

We wish to calculate the proportional increase in peak period fares sufficient to cover the full annual incremental cost associated with running the larger vessel needed to serve the summer peak. This peak fare is the average fare calculated above plus the difference in total costs of the large and smaller vessel, (TC_L-TC_S), divided by total peak traffic (i.e., three months), Q_{peak}. This calculation can be written as:

$$\text{Peak Fare} = \frac{TC_S}{Q_{annual}} + \frac{TC_L - TC_S}{Q_{peak}}$$

Dividing the numerator through by TC_S and the denominator through by Q_{annual} yields:

$$\frac{\dfrac{\text{Peak Fare}}{TC_S}}{\dfrac{1}{Q_{annual}}} = \frac{\dfrac{TC_S}{TC_S}}{\dfrac{Q_{annual}}{Q_{annual}}} + \frac{\dfrac{TC_L - TC_S}{TC_S}}{\dfrac{Q_{peak}}{Q_{annual}}}$$

$$\frac{\text{Peak Fare}}{\text{Avg. Fare}} = 1 + \frac{\text{\% increase in vessel costs}}{\text{\% peak to annual traffic}}$$

Thus, the surcharge for the peak fare is found simply by dividing the percentage increase in annual costs by the proportion of annual traffic carried during the peak months. (This does not allow for any loss of traffic due to the higher fares; incorporating a demand elasticity would call for even higher fares.)

The calculations are shown in **Table 3** both for operating costs only as well as on a total cost basis (including vessel capital costs). The required surcharges are shown in the two right-most columns of Table 3. These differentials are much higher than current peak/off-peak differentials, and do not allow for reductions in demand which might accompany such price increases.

The analysis of peak/off-peak traffic differentials relative to the modest seasonal fare differentials reveals a substantial cross-subsidy implicit in BCFC fare policy. At present, low- and shoulder-season travellers are paying a substantial part of the costs of supplying peak users, and peak period fares are well below the incremental annual costs of supplying them.

Table 3

Peak Surcharge Necessary to Cover Annual Incremental Cost of Operating a Larger Vessel Needed for the Peak (selected routes)					
Route and vessel size, peak / off-peak	Increase, Annual Op. Costs	Increase, Total Cost (including capital)	Peak / Annual Traffic	Peak Surcharge, Op Cost Only	Peak Surcharge, Total Cost
Route 7 70 AEQ / 50 AEQ	23.4%	17.8%	34.2%	68.4%	52.0%
Route 8 70 AEQ / 50 AEQ	23.4%	17.7%	27.8%	84.2%	63.6%
Route 21 50 AEQ / 30 AEQ	12.6%	16.7%	34.3%	36.7%	48.6%
Route 23 70 AEQ / 50 AEQ	23.4%	17.6%	29.5%	79.4%	59.7%
Route 24 30 AEQ / <30 AEQ	26.5%	29.3%	32.7%	81.2%	89.7%

This cost calculation is simplistic, but it is believed to be a reasonable approximation of the difference in annual costs imposed by serving the peak season. A more sophisticated analysis could allow for changes in the number of sailings during different times of the year. We also ignore the occasional demand surge during the year (i.e., holiday weekends, spring break, etc.) which would be better served by the larger vessel. Hence, this calculation of peak costs is probably overestimated, but the degree of overestimation is uncertain. Incorporating a demand response would complicate the calculation further: high peak fares would cause some traffic not to move, thus reducing revenues, but also reducing the costs of serving the peak since less capacity would be required.

The Policy Environment and Directions for Change

The foregoing illustrates the magnitude of subsidies on BCFC's minor routes. There is no explicit rationale for the level of subsidy, and certainly no rationale for the differential subsidies across the routes. Nor is there a clear directive from the Government of British Columbia; what guidelines that exist are contradictory or unworkable. To appreciate the policy vacuum which exists, we review the history and suggest directions for ferry subsidy policy for B.C.

Provincial subsidy policy

B.C. Ferries was formed in 1960 by Premier W.A.C.Bennett, who saw ferry services as an important tourist attraction as well as an essential service for B.C. residents. The B.C.Ferry Authority operated essentially as a government department. Apparently there was no explicit subsidy arrangement, the government provided the ships and left the ferry operation to cover operating expenses.

BCFC was formally incorporated in 1976. The Act of incorporation included explicit provision for subsidies by the Province. At about the same time, the Province signed an agreement with the Federal government whereby an annual subsidy to the Province for ferry service would be accepted in lieu of direct Federal involvement and payment for certain coastal services. Provisions of the 1976 Act called for BCFC to finance its operations from fares and borrowings, and to receive an annual subsidy from the Province:

> "The Lieutenant-Governor in Council... may authorize the Minister of Finance to pay to the corporation in its 1977 fiscal year and in each subsequent fiscal year a sum of money, to be known as the Annual Highway Equivalent Subsidy..."

which was calculated as:

> "...the aggregate of the annual cost of maintaining and the annual amortization of the capital cost, of lengths and classes of highways in the Province which, in the opinion of the Lieutenant-Governor in Council, are substantially equivalent to the ferry routes operated by the corporation..."

Orders-in-Council specified the highway-equivalent costs in some detail and linked the total payment to the system route mileage, then 918.96 miles, for an initial payment of $43.5 million to the corporation for the fiscal year 1977-78. In subsequent years, the payment would be adjusted according to changes in the Consumer Price Index for Vancouver and changes in ferry route mileage.

Over the years the basis for provincial payment of subsidies changed. The reference to "...may authorize ... an annual highway equivalent subsidy..." was retained, but without any reference to how it would be calculated. Section 20 of the Act goes on:

> 20. "In addition to any other money authorized to be paid under section 19, the Lieutenant-Governor in Council may, by order, authorize the Minister of Finance to
> (a) purchase unissued shares of the corporation;
> (b) purchase notes, bonds, debentures or other securities of the corporation; and
> (c) advance money to the corporation for its temporary or long term purposes on the terms and conditions as the Lieutenant Governor in Council may determine..."

In brief, the Act is entirely permissive in authorizing the Provincial government to grant subsidies, but there is no direction regarding the amount or purpose of any subsidies.

The Province has paid subsidies, along with the Federal subsidy discussed below. In March 1989, the budget speech agreed to finance BCFC's capital expansion and maintenance program by a subsidy of $51.0 million annually for ten years. However, following the change of government in 1991, this commitment was reduced although an operating subsidy has continued on an annual basis. BCFC prepares an annual budget which forecasts revenues and expenses; this is reviewed by the Treasury Board. The subsidy is used first to cover annual operating loss excluding depreciation, less net financing income and long term debt and capital lease repayments. The subsidy is applied secondly to a capital subsidy account. The amount of subsidy has been on the order of $50 million annually including the Federal subsidy discussed below, but reduced to about $41 million in 1992/93 as the Province cut its grant. The Provincial subsidy declined further, to about $10 million by 1995, for a total of $30 million.

Federal subsidy for B.C. ferry service

British Columbia receives an annual subsidy from the Federal government. The origins for the Federal subsidy are found in British Columbia's terms of union with the Confederation. Canada agreed to provide the Province with "an efficient steamship service between Victoria and the northwestern United States and to adapt these vessels for conveyance of freight and passengers."

This subsidy has since been prescribed in the *Federal-Provincial Subsidy Agreement* of 1977 which transferred authority for the provision of ferry and coastal freight and passenger services in B.C. from the Federal to the Provincial government. The agreement specifies a Federal subsidy to be provided to the Province, via the Minister of Transport, in return for the assurance of "reasonable and adequate service." In addition, the Province is required "to give effective links where required on the coast between communities and principal water and air services." However, the amount of the subsidy is linked to the route mileages of two water links, the Strait of Georgia crossing and the Port Hardy to Prince Rupert link, for a total route mileage of 337 statute miles.

The initial subsidy was set at $8 million for the fiscal year 1977/78. In each subsequent fiscal year, the Federal government subsidy would be:

> "equal to the previous year's subsidy increased or decreased, as the case may be, by the percentage difference between the average Consumer Price Index for the two preceding fiscal years as published by Statistics Canada for Vancouver, British Columbia."

The subsidy has grown with inflation and now is about $20 million per year. Although the Federal subsidy agreement made specific reference to certain

coastal services, it appears that both the Province and Federal government have accepted that the subsidy may be used for ferry support generally and not confined to specific routes.

Current subsidy payments

BCFC both operates ferry services and contracts for freight or passenger service on some even smaller routes than those they operate (the latter are not included in this analysis). The losses are absorbed into the overall operating budget of BCFC, and covered out of the general subsidy received from the Provincial and Federal governments as well as some cross-subsidy from operating revenue surpluses from the high volume "major" routes.

In 1992/93, BCFC received $41 million in subsidy, $19.6 million from the Federal Government with the balance from British Columbia. In addition BCFC raised about $17 million in cross-subsidy from major routes and inadequate provision for capital replacement.

Policy directions

Although at present there are no explicit directives regarding subsidies for BCFC, there are explicit guidelines for ferry pricing. In 1992, a Cabinet Committee on Crown Corporations issued a directive to guide BCFC pricing policies. The guiding principles include:

> "... the relationship between the fare charged to a user and the costs imposed by that user on the system should be the same among all users....
>
> "... The demand of users will fully take into account, through pricing, the costs involved in meeting that demand."
>
> "... revenues ... to be equal to operating costs plus a positive return on capital [where] .... the operating costs should include the capital maintenance required to fully sustain the operability of each existing asset to the end of its economic life.... [and] the rate of return on capital should reflect the value of the social and economic opportunities foregone elsewhere and the financial impact of acquiring the capital....
>
> B.C. Cabinet Committee on Crown Corporations, "Pricing Principles for B.C. Ferry Corporation," (July, 1992).

In brief, the pricing guidelines call for no subsidies, but this contradicts the historical price levels and structures of BCFC. But Cabinet has not showed any inclination to hold BCFC to the pricing directives. In fact it is the opposite.

BCFC is overseen directly by Cabinet, i.e., price and service decisions must be approved by Cabinet, rather than by a regulatory commission at arms length from Government. Cabinet members are reluctant to approve substantial fare increases because of the furor that is likely to result. This appears to be the age-old conflict between politicians' desire to be prominent when capital expenditures are made, but reluctant to be identified with less politically-palatable decisions such as raising prices to pay for the capital expenditures.

The present policy trap needs to be broken. If subsidies are to be paid, the corporation needs to be able to plan for a certain amount, and some directions are needed regarding the subsidies. The present subsidies have arisen with little conscious direction. They reflect a social principle of partially offsetting the burdens faced by the locationally-disadvantaged. This is a social rationale for subsidy, and not an economic one. It is not appropriate for an operating agency to decide social policy. Some directions need to come from Government.

One way to break this policy deadlock may be an institutional change which distances the Minister and Cabinet from pricing, operating and service decisions (perhaps to be overseen by a regulatory board). It might be necessary to maintain Treasury Board and Cabinet approval for major capital expenditures. This can preserve the "ribbon-cutting" opportunities for Ministers but provide some insulation from the less politically-palatable commercial decisions which must be made by the corporation.

While waiting for guidance from Cabinet and/or a changed reporting structure, there are some policy issues which are more straight forward, viz., the corporation needs to take some steps to restructure fares so they better reflect the relative costs of different services provided. At present, fares and implied subsidy levels differ across routes with no obvious pattern to explain them. The fare structure across traffic types is fairly consistent, although passenger fares may be high relative to vehicle fares. Since vehicles are the primary determinant of capacity utilization, these fares should be increased relative to passengers. There is a case for greater correspondence between fares and distances travelled. Most important is the need to recognize the costs of the severe seasonal imbalance (peak loads) on the routes. At present the seasonal price differentials are modest and not necessarily consistent with the differential peak loads which are faced. Current pricing practices involve substantial implicit cross-subsidization whereby off-peak and year-around users cross-subsidize peak travellers who are often temporary visitors. It is difficult to justify this policy either on efficiency or social grounds. A promising strategy is to move to a three season fare policy: off-peak, shoulder and peak, something already followed on their high volume runs. By offering some off-peak discounts, this may make higher peak surcharges more palatable to the year-around users, who otherwise

will actively lobby to resist fare increases. Further steps would be to adopt even more flexible pricing structures which would offer even greater incentives for better "space management" of ferry sailings.

The ferry corporation needs better guidance from the Government. This in turn would benefit from separating pricing and service decisions by the corporation from Cabinet, and leave Government to concentrate on broader issues of policy such as overall levels of subsidy and criteria they should meet. In the mean time, the directions of change for ferry fares are clear: whatever the final level of subsidy to be permitted, the present fare structure should begin to change toward one more consistent with economic and commercial principles.

Endnotes

1. These are unweighted averages, i.e., these are the numerical average of cost-recovery ratios of individual routes, not weighted by the relative size of costs and revenues. The overall or system cost-recovery is 53.3 percent for the minimum cost model compared to the unweighted route average of 46.8 percent shown at the bottom of Table 4-8.

2. The higher peak to off-peak fare for route 7 is because that route has a three season fare structure in contrast to two fares for the rest of the routes.

Appendix: B.C. Ferry "Minor" Routes

Route	Terminals	Region
4	Fulford Harbour & Swartz Bay	S. Gulf Is.
5	Swartz Bay/Otter Bay/Village Bay/Lyall Harbour/Sturdies Bay	S. Gulf Is. - Vancouver Is.
6	Crofton & Vesuvius	S. Gulf Is.
7	Earl's Cove 7 Saltery Bay	Sunshine Coast
8	Snug Cove & Horseshoe Bay (Berth 1)	Bowen Is.
9	Long Harbour/Sturdies Bay/Village Bay/Tsawwassen (Berth 2)	S. Gulf Is. - Mainland
12	Brentwood Bay & Mill Bay	S. Vancouver Is.
17	Little River & Powell River (Westview)	Vancouver Is. - Sunshine Coast
18	Blubber Bay & Powell River (Westview)	Texada Is.
19	Nanaimo Harbour & Descano Harbour	S. Gulf Is.
20	Chemainus/Thetis Island/Kuper	S. Gulf Is.
21	Buckley Bay & Denman Island	N. Gulf Is.
22	Hornby Island & Denman Island	N. Gulf Is.
23	Campbell River & Quadra Island	N. Gulf Is.
24	Whaletown & Heriot Bay	N. Gulf Is.
25	Alert Bay/Sointula/Port McNeill	N. Vancouver Is.
26	Skidegate & Alliford Bay	Queen Charlotte Is.