ECONOMIC PERSPECTIVE

TRANSPORT AND TOURISM IN THE HEBRIDES: The Impact of Ferry Improvements on Tourism in Mull

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1. Introduction

Doubts have recently been raised about the benefits local communities derive from transport improvements. Whatever the merits of the arguments in other circumstances, there are certain local communities for whom transport improvements still provide unambiguous benefits. Many remote communities on the rural fringes of Western Europe remain heavily dependent for their livelihood on the provision of a heavily-subsidised transport infrastructure. This paper offers evidence that for such communities improvements to the transport infrastructure continue to be important for local economic development.

Fig.1 illustrates the communities on which research was focused. The fragile areas of the Scottish Highlands and Islands (defined on the basis of a series of socio-economic indicators by Highlands and Islands Enterprise) rely for much of their trade on a network of ferries, most of which are provided by a State-owned operator, Caledonian MacBrayne (CalMac). The operator receives substantial amounts of subsidy to meet revenue shortfall on loss-making services. This represents an important part of a general commitment by the government to preserve the social and cultural patterns of life in these parts of Scotland, and to maintain and create local employment as well as reducing out-migration.

Initial research [*Beard et al*, 1993] on the benefits these communities receive from the network focused on the operating subsidy, which amounted to more than £6 million in 1992. This concluded that without subsidy the operator would need to raise charges and/or reduce the level of service provision. In addition to the immediate impact this would have on living standards within these communities, over the medium to long term it would also reduce local employment prospects and stimulate out-migration, eroding the continued viability of these areas.

The research reported in this paper [*Jackson et al*, 1994] focused on a closely related aspect: the benefits derived from subsidised upgrades of the network. In addition to meeting the cost of loss-making services, government subsidy is also provided for improvements to the fleet and other operating facilities, such as docking equipment and slipways. The operator maintains schedules and charges to a standard agreed with the Scottish Office, and its network attracts public funding for new vessels and other capital expenditure as and when capacity constraints and unsatisfied demand within the system become evident, following an appraisal based on projections of future demand. Operating as a State-financed monopoly and providing the principal supply lines for these fragile economies, CalMac does not exercise the freedom given to a commercial concern to raise charges and test whether the market would bear such improvements.

The object of the research undertaken on behalf of the Scottish Office and Highlands and Islands Enterprise was to gauge the impact of these improvements on the communities affected, and to consider the extent to which they contribute to the general commitment given to these areas by the government. No attempt was made to analyse their effect on the operating costs of CalMac, but it must be assumed that these improvements have been crucial in allowing the operator over recent years to extend its services while simultaneously reducing its reliance on revenue subsidy.

2. The case study area

Fig.2 identifies the routes selected for evaluation. These were chosen to complement those used in the first phase of research. All five routes had benefitted from some form of enhancement in the recent past, the details of which are summarised in **Table 1**. In the case of Mull, these consisted of:

- the introduction of a newly commissioned vessel on the Oban-Craignure route, which provides the island with its principal mainland connection. This vessel has almost doubled vehicle carrying capacity on the route, as well as removing restrictions on commercial vehicles and total cargo deadweight;

- provision of a larger drive-through vessel on the Fishnish-Lochaline route, which permits the carriage of large coaches as well as three times the number of cars;

- construction of slipways at Tobermory and Kilchoan to permit the carriage of small vehicles on this route.

Together, these improvements have given Mull greatly improved connections to the mainland, as well as raising the payload and increasing the productivity of these routes to the operator. Mull is almost totally dependent on ferry services for its trade with the outside world, so the impact of these improvements on the local economy can be plotted through an analysis of the CalMac carryings data.

3. The local economy

All the Hebridean islands without permanent fixed links to the mainland have to regard ferry services as part of the costs of running their local economies. Hebridean producers are effectively price-takers, and ferry costs must therefore be passed in the form of higher prices to island residents and visitors (*Henderson*, 1993), or absorbed through lower factor returns. The only practical means of stimulating local growth is through increased exports of goods or services. The principal exports of Mull are at present primary products (livestock, fish and timber) and tourism. Improvements to the ferry network, by cutting delays caused by inadequate capacity and poor boarding facilities, will reduce local distribution costs, cut the adverse differential in living costs and increase the competitiveness of local industries. Other things equal, the evidence supporting this should appear in the form of local increases in output and employment, and a reduction in unemployment and out-migration.

In the case of primary products, changes to the Common Agricultural Policy and to grants and subsidies for less favoured areas, along with the restructuring of the UK forestry industry and serious over-capacity in commercial fish farming, mean that these sectors have not been able to translate improvements to the ferry service into additional local income from exports. At best, the provision of a more efficient ferry service has partially offset some of the adverse trends affecting these sectors.

In contrast, greater accessibility would seem to have been the catalyst for a rapid increase in the island's tourist related industries. Here the market has been far more buoyant, and Mull itself is able to exploit a favourable niche within the tourist sector. The island now provides the quickest means of communication between Oban, the principal resort centre for the West Highlands, and Iona, a heritage centre of international fame, which lies off the western tip of the Ross of Mull.

Many of the visitors attracted to Mull are day-trippers en route to Iona who have either made an independent booking with a local coach operator in Oban or purchased such a trip as part of a package coach tour through the West Highlands. Before the recent improvements, ferry capacity was insufficient at peak periods to meet demand for such trips, resulting in extensive queuing, and a level of discouraged and unsatisfied demand from both sources. A further source of tourist demand of growing importance is provided by independent travellers using private vehicles. Before recent improvements, these visitors would need to book ahead to guarantee a place on the ferry at peak periods. Promotion of "island-hopper" tickets to encourage independent island touring was adversely affected by such difficulties.

There is considerable prima facie evidence that transport improvements have stimulated growth in the island's tourist-related industries. **Table 2** summarises the changes in resident population on Iona and Mull since 1821. Between 1821 and 1971, the resident population on these islands showed a continuous decline, falling in total by 79%. Since 1971, this decline has been reversed, with resident population rising by 17% between 1971 and 1991. This increase is unmatched in any other part of the administrative district which includes Mull, and exceeded only by another popular tourist island in the Inner Hebrides: Skye.

Table 3 shows that these increases in resident population have been matched by large rises in the numbers employed locally in tourist-related sectors of activity. Shift-share analysis indicates that both the local Travel-To-Work Area and the District as a whole have lost local share in these sectors, while

Mull has gained it. These changes have occurred during a period of major improvements in the island's transport infrastructure and capacity to handle tourism traffic. This started in 1964 with the introduction of ro-ro facilities at Craignure, which was followed by Highlands and Islands Development Board assisted investment in a major new hotel at the same location, and by extensive upgrading of the road between Craignure and Fionnphort, plus improvements to the Fionnphort-Iona ferry service.

3. Methodology

The aggregate contribution made by various improvements to the transport infrastructure on Mull is clearly greater than the sum of the individual contributions. It is evident, however, that certain investments have provided the key to realising the potential of the island for tourism, and in promoting subsequent improvements. An obvious early example is the introduction of ro-ro facilities at Craignure during the 1960s, without which the subsequent rapid build up of vehicle traffic visiting the island would have been impractical, and the need for road improvements and additional tourist accommodation would have been limited. A similar claim can be made for the recent improvements which have permitted coach traffic on the Fishnish-Lochaline route and cars on the Tobermory-Kilchoan route.

Assessing the benefit to the local economy of investing in extra carrying capacity which simply permits more of the same type of traffic onto the island is not so clear cut. There are certain benefits to the operator in terms of spreading overheads and extending the season, and existing local businesses will enjoy some reductions in distribution costs. But, beyond this, in order to be able to identify a significant impact on the local economy which can be directly attributable to such transport improvements, it is necessary to demonstrate that part of the growth in tourism traffic which has provided the main impetus for local growth would not have been realised without such improvements.

Some work has recently been published on price and income elasticities of demand for CalMac ferry services (*Henderson and Maddison*, 1992; *Henderson*, 1994). Here it is assumed that users of these routes are no different from the average for the whole network. Given that the pricing policy is uniform throughout the network and that each part of it operates under the same general economic constraints affecting the aggregate demand for CalMac services, variations in the growth of carryings on these routes from the network norms can be attributed principally to changes in capacity on these routes.

Fig.3 describes a simple model which attempts to encapsulate these variations. The solid line shows the actual trend in carryings along the Mull routes, and the effect of capacity constraints during the sixteen week period of the high season, which in 1992 accounted for 59% of annual passenger and 54% of annual private vehicle carryings. Improvements to relieve these constraints can be expected to result in a sharp initial increase in carryings, as the new facility is made available to previously discouraged and unsatisfied demand, plus an ongoing more gradual increase, as the enhanced capacity on these routes once again permits them to share in the overall network growth.

Fig.4 plots the actual carryings on Mull routes and those on the rest of the Western Isles network over the period of the improvements, and provides a reasonable fit with the model. **Table 4** estimates the additional carryings attributable to ferry enhancements, on the assumption that carryings would have grown at half the network rate in the absence of improvements. The results suggest that 27% of the private vehicle carryings and 45% of the coach carryings on these routes in 1992 could be attributed to improvements in the network.

4. Survey

A CalMac passenger survey was undertaken in 1993, to enable economic values to be assigned to the carryings. The survey covered a random sample of 1,000 passengers leaving Mull on the three routes, and was administered during a peak summer period and again at the end of the season, just after the introduction of the winter timetables. Separate questionnaires were administered to visitors and the much smaller number of residents included in the sample, and in both cases a very high response rate was achieved.

Non-residents made up 98% of the main August sample and 89% of that taken at the end of October. Taking the year as a whole, it is evident that local residents account for no more than 15% of total passenger numbers on these routes at present, and that at least 75% of all passenger carryings involve discretionary visitors. 87% of those sampled in August and 67% of those at the end of October were on holiday or visiting Mull for leisure purposes. Their average per capita daily

expenditure on Mull and Iona was £34 for stay trippers and £12 for day trippers. The average length of stay for private vehicle users was 3.1 days and for others 2.8 days.

5. The local economic impact

Applying these results to estimates of additional carryings produces the estimates of benefit to the local economy summarised in **Table 5**. In 1992, ferry enhancements on the Mull routes are estimated to have generated £3.5 million in additional tourist expenditure. This is equivalent to 23% of the total tourist expenditure derived from CalMac visitors to Mull in that year. Using the Scottish tourism multipliers recently calculated for Skye, this additional expenditure translates into additional local income on Mull of just over £1 million, supporting 124 full-time equivalent local jobs.

The passenger survey enables some estimates to be made of displacement effects, although interpretation of responses can be difficult. Thus, while 35% of day trippers would have chosen a different destination had a day trip to Mull not been possible, 24% would have made an overnight stay on the island. Furthermore, the most favoured alternative location, Skye, has itself enjoyed a rate of growth in carryings above the network average over the same period.

33% of visitors sampled on Mull had no alternative destination in mind. A proportion of these would have visited Mull whatever the level of service and should not therefore be included in estimates of additional carryings, while the rest would not have made a trip at all and must be included. In neither case is displacement at work for this group. 37% would have chosen to visit another Scottish island, 21% somewhere else in the West Highlands, and 9% somewhere else in Scotland.

Assuming 50% of the visitors with no alternative destination would not have visited Mull in the absence of ferry enhancements, these figures suggest that 20% of the estimated additional carryings can be attributed to traffic generated by these improvements. If we add in the traffic diverted from elsewhere in Scotland, this amounts to a net additional injection of £0.3 million in local income and 37 fte jobs in the West Highlands and Islands in 1992. This should be regarded as a conservative estimate of the static net benefits to the whole area. It takes no account of additional investment in tourist facilities stimulated by the extra traffic nor of the impetus to the network of a widening of "island-hopping" routes in the marketing of such holidays.

References

Beard R, Kirk D, Begg H, McDowall S, Elliott D, Tyler P, Woolhouse R (1993) *Evaluation of the impact of ferry subsidies* ESU Research Paper No.32, Scottish Office Industry Department, Edinburgh

Henderson R A and Maddison D J (1992) *Fare price elasticities on the Caledonian MacBrayne ferry network* ESU Research Paper No.30, Scottish Office Industry Department

Henderson R A (1993) "Consumer prices in the Highlands and Islands", *Scottish Economic Bulletin*, No.48, Winter pp.25-33.

Henderson R A (1994) "Consumer expenditure (income) elasticities on the Caledonian MacBrayne ferry network", *Scottish Economic Bulletin*, No.49, Summer pp.23-27.

Jackson A A, McDowall S, Begg H, Broom G, Tyler P, Warnock C (1994) *The impact of improved ferry services on local economic development* ESU Research Paper No.34, Scottish Office Industry Department, Edinburgh

Table 1: Enhancements to Ferry Services		
Change	**Outcome**	**Date of Change**
Oban/Craignure		
Replacement of vessel with another with higher clearance for commercial vehicles, no deadweight restrictions and greater capacity	Increased carrying capacity for vehicles (from 45 in summer, 55 in winter to 80 all year round), larger commercial vehicles can be carried and greater total cargo deadweight	April 1988
Lochaline/Fishnish		
Increase in size of vessel, drive through vessel	Increased capacity for cars from 6 to 12 cars in winter, and 6 to 18 cars in the summer, drive through facility	August 1986
Tobermory/Kilchoan		
Introduction of vehicle carrying on ferry following provision of slipways. Substantial increase in services	New vehicle route to Mull with 6 cars per sailing	April 1991
Vatersay/Barra		
Replacement of passenger only ferry with fixed causeway link	Access by vehicle at any time	1991
Gigha/Tayinloan		
Replacement of vessel with another with greater capacity	Increased capacity for cars from 6 to 12 all year round	Sept. 1992

Source: Caledonian MacBrayne Ltd

* Note: for the peak 1993 season, capacity on the Tobermory/Kilchoan service was almost doubled with the addition of a second vessel from Tuesdays to Saturdays

Table 2: Resident population of Mull and Iona, 1821-1991		
Year	**Population**	
1821	10612	Change 1821-1971= -8402 (-79%)
1851	8369	
1861	7240	
1871	6335	
1881	5529	
1891	5029	
1901	4557	
1911	4082	
1921	3707	
1931	3149	
1951	2625	
1961	2343	
1971	2210	Change 1971-91= +369 (+17%)
1981	2364	
1991	2579*	

* 1981 base

Source: Censuses of Population

Table 3: Changes in the structure of employment on Mull and Iona, 1981-91

SIC Division	Economically Active*		Employees**	
	1981	1991	1981	1991
Agriculture, forestry, fisheries	280	270	107	154
Energy and water	na	20	10	20
Mining	0	0	0	0
Engineering	40	0	0	0
Other manufacturing		20	0	0
Construction	120	130	102	49
Distribution, hotels, catering[$]	140	210	139	350
Transport and communications	na	80	32	96
Financial & business services	30	30	14	16
Other services[$]	220	230	137	319
Not Stated	70	40	0	0
Total	900	1030	541	1004

* economically active residents based on 10% Population Census samples

** employees in Mull and Iona establishments, Census of Employment

$ Divisions with tourist-related industries

Table 4: Estimating the Additional Carryings Attributable to Improved Ferry Services to Mull			
		Cars (000s)	Coaches
a:	1986 carryings	76.0	716
b:	Additional carryings on the assumption of constrained growth 1987-92	+14.7	+535
c:	Total constrained carryings 1992 (a+b)	90.7	1251
d:	Actual carryings 1992	123.8	2293
e:	Extra carryings attributable to service improvements (d-c)	+33.1	+1042
	of which:		
f:	"Enhanced capacity effect" (additional carryings on the assumption of WIN growth rate 1987-92)*	+24.2	+238
g:	"New facility effect" (e-f)	+8.9	+804

* The gains from enhanced capacity will continue to increase beyond 1992, until capacity constraints re0-emerge

WIN - Western Isles Network

Table 5: Economic impact of improvements to Mull ferry services, 1992		
	Cars	**Coaches**
Additional CalMac traffic carryings (excluding residents)	31,444	1,042
No. of trips to Mull (= 0.5 carryings)	15,722	521
No. of passengers carried (average 2.6 per car, 30 per coach) =additional visitors	40,877	15,630
of which:		
Day Visitors (27% car, 98% coach)	11,037	15,317
Total Expenditure Day Visitors (26,354 x £12 ave. spend per head)	£316,248	
Stay Visitors (73% car, 2% coach)	29,840	313
Total Expenditure Stay visitors (30,153 x £34.30 ave. spend per head x ave. length of stay 3.1 for car users, 2.8 for coach users)	£3,202,947	
Combined day and stay visitor additional expenditure	£3,519,195	
Economic impact, applying Skye multipliers:		
Additional local income 1992 (=£3,519,195 x 0.291)	£1,024,086	
Additional FTE jobs in Mull economy 1992 (£28,374 per FTE job)	124	
Additional FTE jobs all Scottish economy 1992 (£22,838 per FTE job)	154	

FIG. 1 : Highlands and Islands Enterprise - Fragile Areas

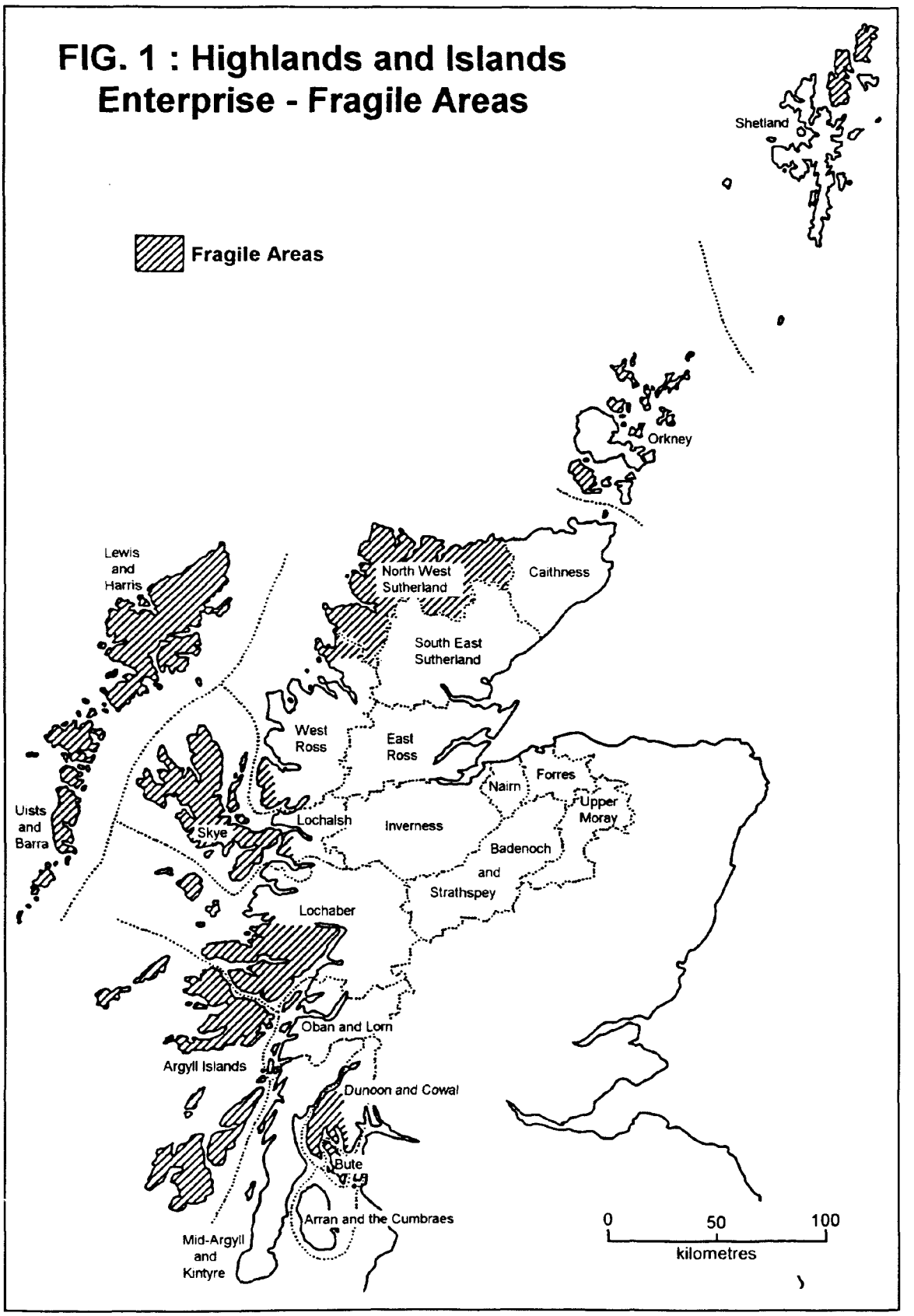


FIG. 2 : Three Case Studies : Mull, Gigha and Vatersay

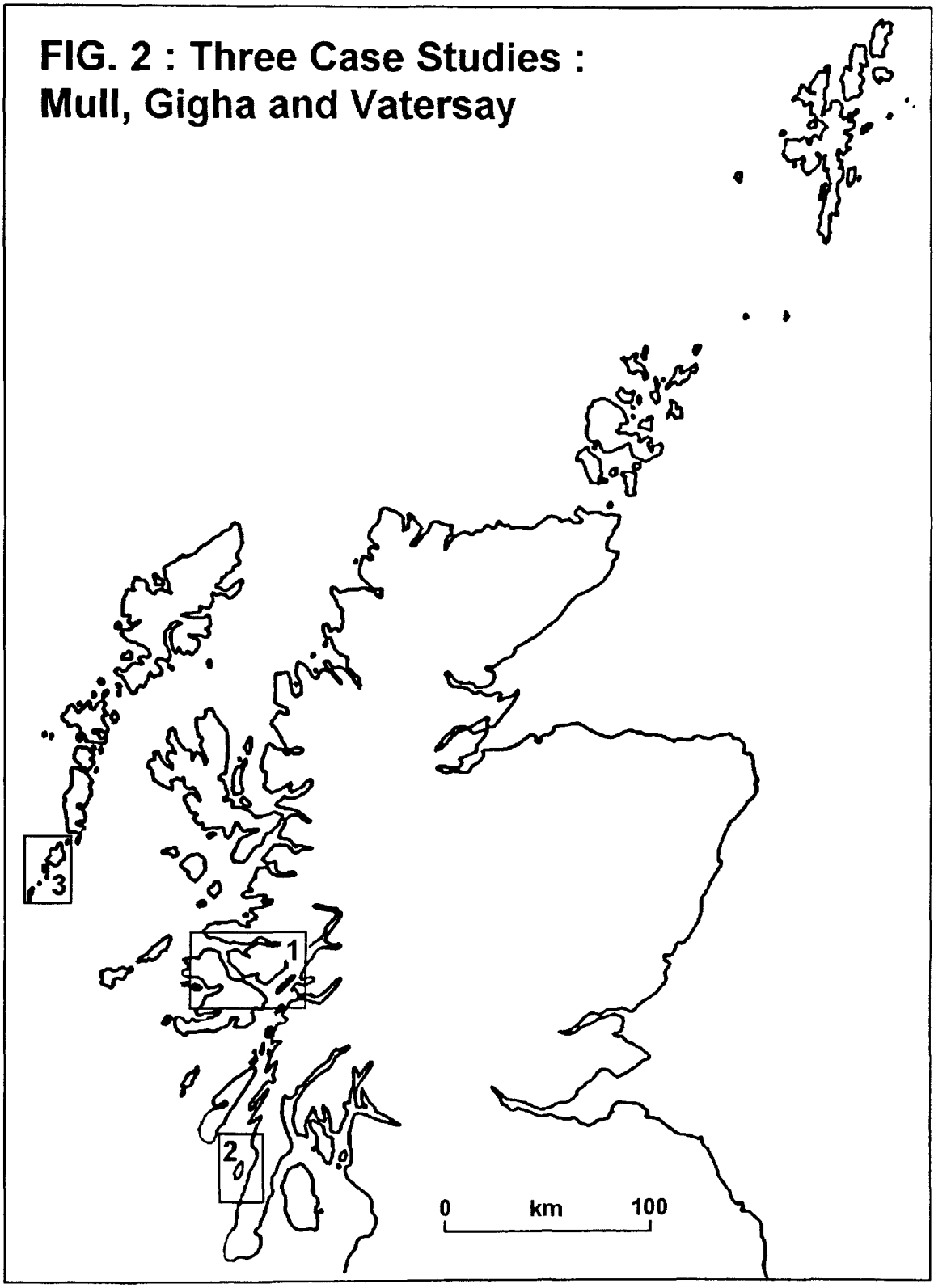
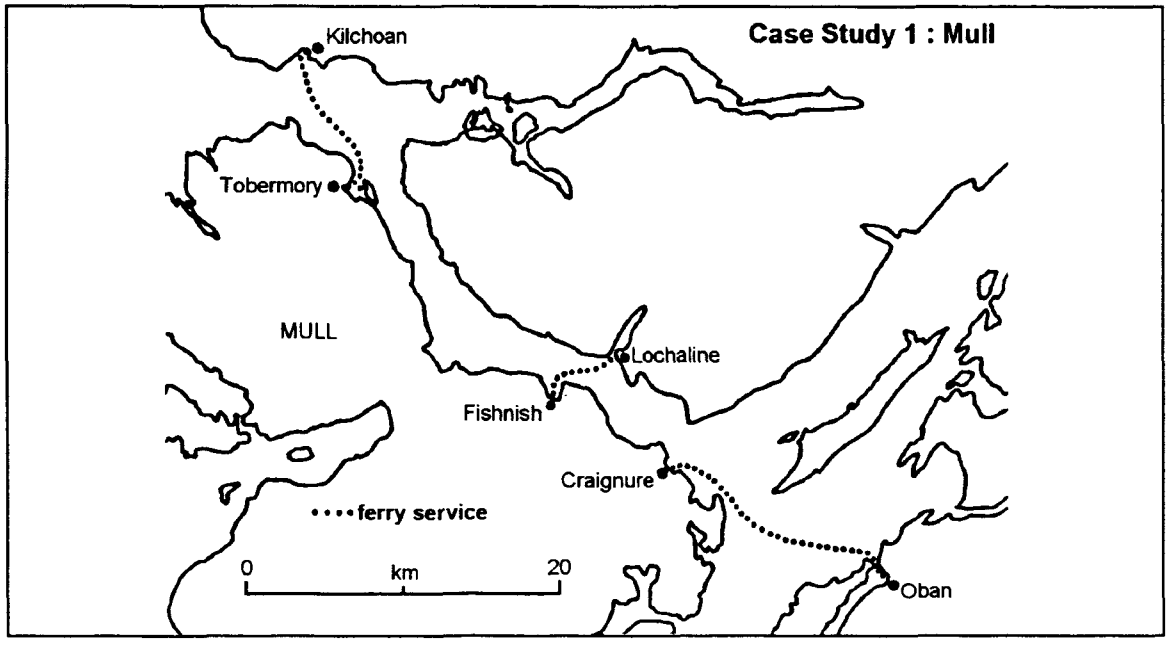
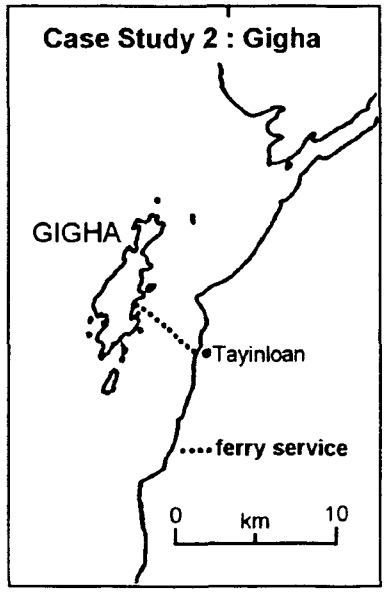


Figure 2 (cont.)





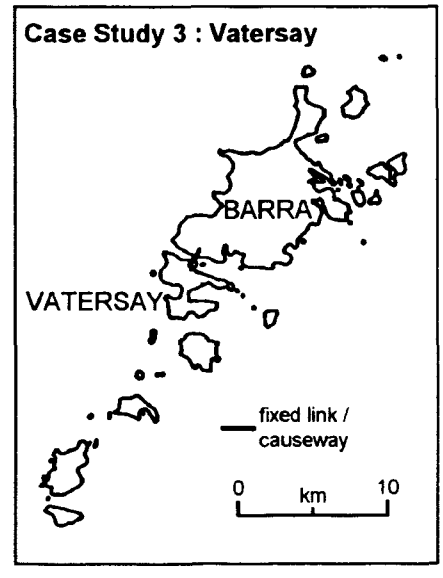


FIG.3: Modelling the effects of service enhancements on ferry carryings

WIN = Western Isles Network

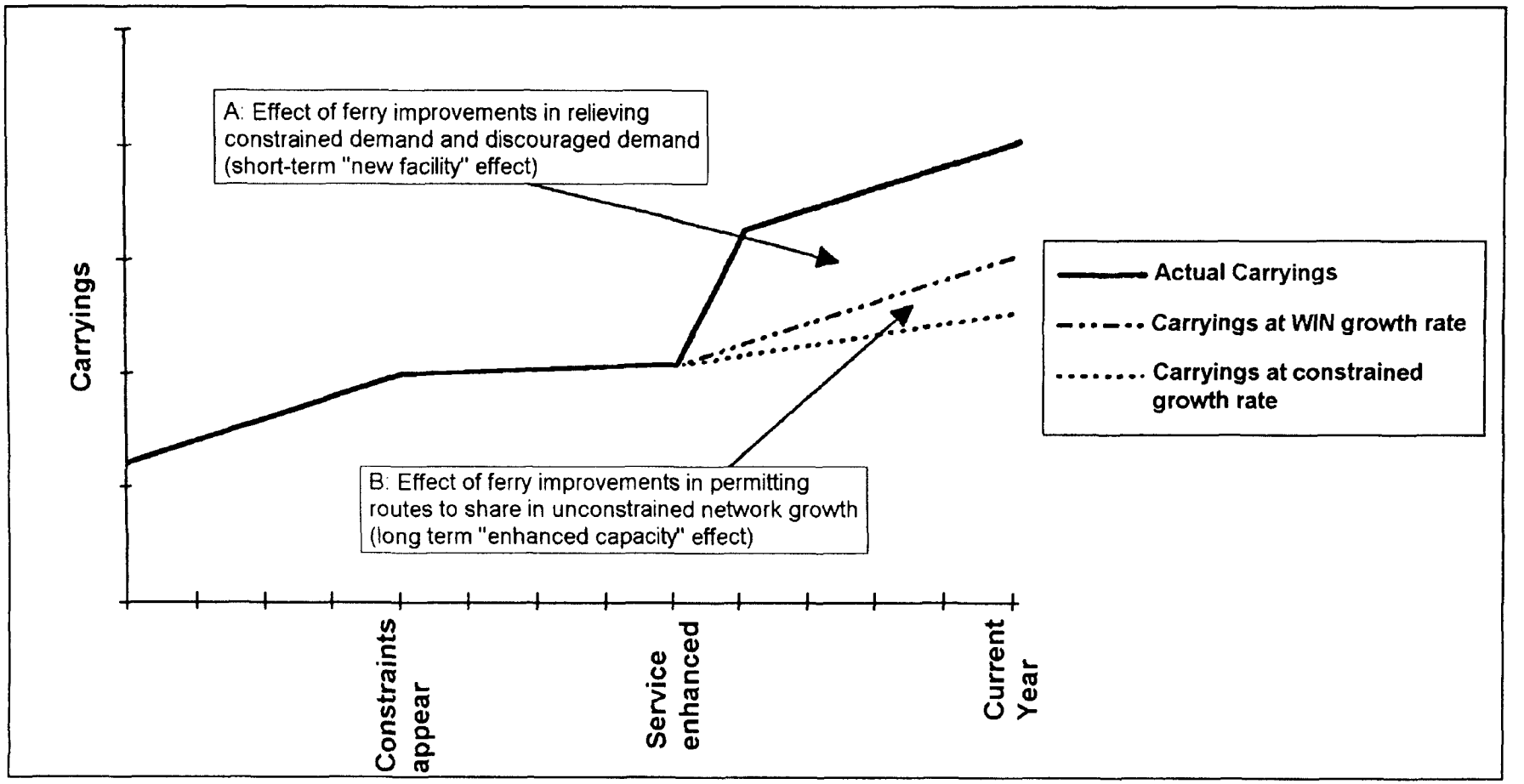


FIG 4 : CalMac carryings 1984 - 93 (base 1984) of cars and caravans for Mull routes and for the Rest of Western Isles Network
Source : CalMac