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# *Economic* **PERSPECTIVE**

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## **THE ECONOMIC IMPACT OF SCOTTISH SKI CENTRES ON THE HIGHLANDS AND ISLANDS ENTERPRISE REGION**

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### **1. INTRODUCTION**

The recent polarised arguments between conservationists and the pro-skiing lobby over the proposed Cairngorm Funicular railway have raised amongst other issues the 'value for money' of public investment in the Scottish skiing industry. This paper considers the economic impact of Scottish ski centres, to the Highlands and Islands Enterprise (H.I.E) area. The justification for and estimated contribution of public investment in the Scottish skiing industry is outlined in the second section. The economic impact of Scottish ski centres on the H.I.E economy is outlined in section three. The final fourth section draws some tentative conclusions about the prudence of public sector funding of the Scottish skiing industry.

### **2. PUBLIC INVESTMENT IN THE SCOTTISH SKIING INDUSTRY**

Downhill skiing has a long history in Scotland with skiers noted on the Scottish hills as early as the 1890s (Simpson, 1982). Organised skiing with uplift provided by caterpillar tracked vehicles and mechanised tows began in 1907 with the founding in that year of the Scottish Ski Club (Elliot et al, 1988). In the 1930s the first ski hut was erected on Ben Lawers (Davidson, 1981). In the 1940s ski holidays were offered by hoteliers in the Cairngorms area. By the 1950s ski areas were established at Glencoe, Glenshee the Lecht and Cairngorm, with the first private ski school founded in 1954. Commercial skiing in the Highlands began in 1956 when the White Corries Ski Company opened the first commercial ski lift at Glencoe. Five years later in 1961 the Cairngorm Ski Centre began its first commercial operations. Glenshee opened soon after in 1962 with the Lecht Ski

Centre opening in 1978. Nevis Range Ski Centre which opened in 1989 is the most recent commercial ski development in Scotland.

Tourism is a significant industry in Scotland, particularly in the H.I.E. constituency and is actively promoted by, and receives funds from, the public sector. The Highlands and Islands Single Programming document (European Commission, 1994) suggests that tourism employs 20% of the workforce and is responsible for 20% of the Gross Domestic Product in the H.I.E region. Chief among the reasons for promoting skiing as a tool for economic regeneration in the Highlands, is the problem of seasonality. Seasonality or the trend towards higher levels of unemployment in the winter months is a feature of employment patterns throughout the UK but is particularly pronounced in the H.I.E. area. The extension of the tourist season is a stated objective of both the Highlands and Islands Enterprise Agency and the Scottish Tourist Board. These bodies have encouraged the development of skiing in the H.I.E. constituency as one means of generating employment in the winter months (January to March) when only 11% of all tourist trips are taken in the constituency as compared to the summer months (July to September) which accounted for 43% of trips to the constituency between 1991 and 1993 (Scottish Tourist Board, 1993).

The Scottish skiing industry however, is itself not immune to the vagaries of the Scottish weather with the volume of skiing activity varying dramatically depending upon the prevailing weather conditions. Figure 1, shows the total number of skier days each year in Scotland between 1981 and 1995. Good seasons show figures up at 680,000, poor as little as 190,000. With break-even at around half a million skier days, a series of bad winters makes investment extremely risky.

In addition to this risk, the level of public investment in the infrastructure of skiing in Scotland is contentious especially amongst those who object to certain ski related developments on environmental grounds. The environmental impacts of ski developments include disturbance to wildlife and their habitats which may be exacerbated in the summer months by the easier access to fragile alpine environments which the access roads and summer opening of chairlifts afford. Ski developments may also affect site hydrology encouraging erosion. The presence of permanent mechanised structures in otherwise 'wild' areas may spoil the 'wildness experience' sought by other mountain

recreationalists and may impair the scenic qualities of the area (Save the Cairngorms Campaign, 1992). Moreover, pollution may be caused by the construction debris, litter, chemicals and sewage associated with ski developments (Scottish Tourist Board, 1986). Environmental concerns are often concentrated upon the visual intrusion of ski centres and the issues of summer access to areas which in the absence of ski centres would be relatively inaccessible. Environmental studies by Wood (1987) and Watson (1991) conclude that numbers of summer visitors are increasing in the Cairngorm area, where the skiing development versus environmental protection debate is particularly polarised.

The environmental significance of the mountain environment in the Scottish Highlands, albeit more of a scientific than popular nature, is recognised in environmental legislation. Glencoe is exceptional in that it does not impinge upon an environmentally sensitive site; of the remaining sites, Cairngorm, Glenshee and Nevis Range all lie within, or border National Scenic Areas. The Lecht lies wholly within a site of Special Scientific Interest, with parts of Cairngorm and Nevis Range ski centres also abutting sites of special scientific interest (Ross, 1993). Parts of Glenshee and Cairngorm are areas of Special Protection For Birds under Section 3 Of The Wildlife And Countryside Act, 1981. This designation means that planning permission may be challenged before the European Commission under its directive 79/409/EEC on the conservation of wild birds. If successfully challenged by the European Commission, the development in question would have to be removed and the developer compensated (Raemakers, 1991). A decision on whether to designate the Cairngorm Massif area a World Heritage Site, as called for in 1983, is still pending. A proposal to extend skiing at Cairngorm into Lurchers Gully in 1981 led to a public enquiry which rejected the proposals on environmental grounds, leading to the publication of a National Planning Guideline for skiing in 1994. A second proposal for the development of ski facilities at Lurchers Gully in 1989 was also rejected on environmental grounds, prompting the foundation of the Cairngorms Working Party and subsequently the Cairngorms Partnership.

More recently the views of environmentalists and the pro-skiing lobby have again clashed over the proposed funicular railway scheme at Cairngorm and the £9m the proposed scheme will attract in public subsidy (R.S.P.B 1998). The funicular would replace the existing chairlift which gave the Cairngorm Chairlift Company its name and is now over 30 years

old. It is contended that the funicular which would carry 1000 - 2000 skiers per hour in winter could create 100,000 extra skier days. Seats would be fitted in summer, reducing the uplift capacity to 500 - 600 visitors per hour, supporting 250,000 summer visitors (The Scotsman, 1993). Supporters of the funicular scheme included the H.I.E which was prepared to give financial backing to the scheme, the Cairngorms Chairlift Company itself, other businesses in the Aviemore area, downhill skiers and their associations and the majority of the local population. The Royal Society for the Protection of Birds (R.S.P.B) and the National Trust for Scotland opposed the funicular scheme arguing that it would bring visitors close to their Abernethy and Mar Lodge Estates respectively, undermining their efforts at environmental protection and management. The World Wide Fund for Nature, the Ramblers Association and the Save the Cairngorms Campaign also opposed the funicular scheme. The most important objector however, was Scottish Natural Heritage (S.N.H). S.N.H believed that it had a statutory obligation to object to the Cairngorm funicular plan due to European Union environmental legislation pertaining to the protection of birds on the fragile Cairngorm plateau. Highland Regional Council withheld planning permission while the Cairngorm Chairlift Company negotiated a visitor management plan with S.N.H. A visitor management plan involving guided walks by rangers was rejected by S.N.H as unworkable. An alternative Glenmore gondola plan, put forward in March 1996 and supported by environmental groups including the R.S.P.B and Scottish Wildlife and Countryside link, was rejected by Highland Regional Council.

Negotiations by S.N.H and the Cairngorm Chairlift Company led to agreement on a revised visitor management plan. The new plan comprises a 'closed system' whereby summer visitors will have no access to the Cairngorm plateau, but will instead receive an audio-visual presentation outlying the environmental importance of the area, upon reaching the top station. The successful negotiations meant S.N.H withdrew its objection and planning permission for the funicular was granted. The World Wide Fund for Nature and the R.S.P.B continue to object to the Cairngorm Funicular and the revised visitor management plan on environmental grounds. The two bodies took the Cairngorm funicular plans to a judicial review in November 1997, the review will be continued in April 1998. It is not yet clear whether European Union objective 1 subsidy, necessary for the financial viability of the funicular project, will be made available.

There is now some debate as to whether the funicular scheme with a restrictive management plan in place is sustainable in commercial terms. In 1996, the Chairman of the H.I.E gave his support to the funicular plan which he claimed would underpin 2500 tourist jobs whilst creating 100 jobs directly (Buie, 1996). It was claimed that the modernisation of the ski site was necessary if the Cairngorm Chairlift Company with an annual turnover of around £3 million, feeding an estimated £15 million into Strathspey's economy was to flourish (Freeman, 1994). The estimated 250,000 summer ticket sales necessary to make the funicular economically viable is argued to be unrealistic (Cairns, 1996) given competing attractions in the area. A study by Westbrook (1994) suggested that the 100 jobs the scheme would create would cost £89,286 each, compared with the average cost of creating a tourism related job in the region of £10,000. Westbrook suggests that public funds may be better directed at smaller tourist related schemes which are less environmentally contentious (Clouston, 1994).

A number of factors make the determination of the exact volume of public subsidy directed towards skiing developments over the years difficult to obtain. There are a number of public agencies which may direct subsidy towards tourism developments including skiing, namely; Local Authorities, the Scottish Tourist Board, Area Based Tourist Boards, the S.N.H, the Scottish Sports Council, the H.I.E and its Local Enterprise Companies. Some of these bodies, such as S.N.H the H.I.E and the newly restructured Local Authorities have been established relatively recently and changes in accounting practices between current administrations and their predecessor bodies may make grants and loans to skiing developments problematic to track historically. Public agencies which have an obligation to protect the commercial confidentiality of their ski company clients will often not make explicit the amount of subsidy they have given to skiing in their annual reports. Moreover, where a grant or loan is specifically cited, such as in, for example, the Annual Report of S.N.H (1993) which gave £3,600 towards lavatory facilities at Glencoe Ski Centre, there remains the potential problem of double counting as the H.I.E or similar public body may well have given grant assistance to S.N.H. Similarly many tourist developments are jointly funded by a combination of public agencies cited above. Moreover, the majority of the key public expenditures which took place at Cairngorm, Glencoe, Glenshee and the Lecht would have occurred in the late 1960s and early 1970s when these sites were first established. Thus, such expenditures if they

could be identified would require to be inflated to 1990's prices to make meaningful comparisons possible.

Further problems may arise when attempting to define public subsidy. Herein, public subsidy is taken to be monies distributed by various government agencies. However, even here there may be ambiguity, the Scottish Sports Council is funded partially by charitable donations and partly by government grant. Moreover, it is debatable whether grants from the National Lottery (which awarded the Lecht ski centre £990,200 in 1996 for the purchase of snow making machinery) should be viewed as public money per se, as this was revenue not raised from taxation. Furthermore, European Union money may be distributed via the government agencies previously outlined, or as in the case of Objective One funding, may be distributed by an independent board with more indirect links with government agencies. 80% of the recent £750,000 extension of facilities at Nevis Range was financed by European Union Objective One subsidy. Moreover, subsidy may occur in an indirect manner, as in the case of local authorities, which routinely clear snow from the car parks and access roads of the Scottish ski centres.

Despite the aforementioned difficulties, it is theoretically possible to make some inferences about the public expenditures directed towards skiing in more recent years from the Company Accounts of the various ski centres. The identification of public subsidy in the company accounts is itself however fraught with difficulty. The majority of company accounts cite assets net of grant. Putting grants directly against revenue in this way is reasonable, since much of the infrastructure at ski sites such as pylons for tows is not transferable. The difference between costs of developments and extensions to facilities at these sites and the net revenue cited in the accounts may be presumed to be government subsidy. Glenshee however, uses a different accounting convention with grants shown as income in the accounts and set against depreciation of assets. Differences in accounting conventions make comparisons of subsidy between sites difficult. Even if an estimate of subsidy is identified in the company accounts it is of course impossible to identify from which government agency the subsidy was raised.

In 1995 the Glenshee Chairlift Company bought out White Corries Limited, the operators of the Glencoe Ski Centre for £223,000. Glenshee also upgraded its cafeteria facilities at a cost of around £750,000 for which they received £143,000 in grant

assistance (Glenshee Chairlift Company, 1996). Cairngorm in the 1992-1996 period received a long term loan for approximately £800,000 (Cairngorm Chairlift Company, 1996) and could receive a great deal more public investment via the European Union Objective One funding if the Cairngorm Funicular scheme goes ahead. Nevis Range, since its establishment in 1989 has received £4.2 million in grant and loan assistance (Nevis Range PLC, 1997). The accounts of the Nevis Range Ski Company (which as the most recently established ski centre is the easiest to investigate for public subsidy) suggests that 60 to 70% of capital spending by ski companies in Scotland is financed by public investment.

### 3. THE ECONOMIC IMPACT OF SCOTTISH SKI CENTRES TO THE H.I.E. ECONOMY

Given the recent press surrounding the proposed Cairngorm Funicular railway and the apparent substantial public sector subsidy of capital spending by the five Scottish ski centres, an examination of the additionality of such public spending would seem to be both pertinent and topical. During the 1995/1996 ski season a sample of 1010 skiers was drawn in face to face interviews at each of the five ski sites. Interviews were conducted over one day at the weekend and one quieter weekday at each site in order to obtain data on skiers expenditures which was as representative as possible. Respondents in our sample were estimated to have spent a total of £17,665,224 in the H.I.E constituency, after extrapolation to the population. This compares with an H.I.E estimate that around £20 million per annum is spent on skiing in the constituency, supporting directly and indirectly 1500 jobs in the winter months (Highlands and Islands Enterprise, 1991).

In assessing the impact of a given activity on a regional economy it is usual to assume that all visitor spending is additional and moreover, that the activity related expenditure of residents is simply a transfer within the region (McGilvary and Perman, 1991). If for example, H.I.E was the relevant constituency, the expenditures of H.I.E residents on skiing might be viewed as merely an internal transfer of funds and excluded from the analysis. The *loss to the H.I.E* area from the closure of all five sites would thus be £14,208,740, which is the estimated total expenditure of skiers resident outwith the H.I.E area. Employing these assumptions, the *loss to Scotland* of the closure of all five Scottish ski centres would, according to our data, be £6,435,510, which is the estimated total expenditure of skiers

resident outwith Scotland. This relatively low figure given total skiing expenditure is a reflection of the fact that skiers in Scotland are predominantly Scottish. Although, it is estimated that over a million British adults are skiers (Projection 2000, 1989) few British skiers will take a skiing trip in Scotland. Indeed, 50% of British skiers do not take a skiing holiday annually and many skiers will only ski abroad (Keynote Report, 1991). Our data on trip frequency gathered in the field survey suggested that there were around 200,000 skiers making trips in Scotland in the 1995/1996 season.

The total closure of all five ski sites is an unlikely prospect. A counterfactual scenario was posed in order to derive the additionality of *individual* ski sites to the H.I.E region, incorporating the effects of expenditure switching between substitute skiing sites and non-skiing activities. The scenario asked all visiting skiers what they would have done in the theoretical instance that the ski site at which they were interviewed had been unavailable. In an open question, all visitors in the sample chose one of four alternatives. They believed they would have either: stayed at home; skied elsewhere; took part in some alternative winter outdoor recreation; or enjoyed other attractions in the local area. The appropriate multiplicand (i.e. exogenous injection) is the differential between visitors' actual spending and the amount they believe they would have spent locally on an alternative ski site or activity. The remaining portion of the skiers' expenditure is, in effect, transferred internally and should be disregarded. Take for example a group of visiting skiers interviewed at Cairngorm. If this group spent £100 and believe they would have spent £20 less if they had (say) skied elsewhere, then it is this differential expenditure of £20 which ought to count as the multiplicand net of transfer. Conceivably, if visiting skiers would have spent *more* in the local area the site multiplicand could be negative. The multiplicands of skiers net of transfer effects, were extrapolated to the site population by multiplying average expenditure per person per day for each group by an appropriate percentage proportion of the skier days figures for that site (Mackay, 1995). Both the gross expenditure of visiting skiers and their expenditures net of transfers are given in Table 1.

Clearly visiting skiers have good substitution possibilities in the form of other ski sites or other attractions of the H.I.E area and would for the most part continue to spend in the region if their first choice site was not available.

With respect to skiers resident in H.I.E., the usual assumption is that their expenditure is simply a transfer. The counterfactual scenario was also presented to resident skiers to question this assumption. The results are given in Table 2.

The negative multiplicands observed for H.I.E residents at Cairngorm and Nevis Range in Table 2 above, reflect the fact that on aggregate these groups would spend more on their chosen alternative activity. In reality, their overall consumption spending in the region may be unchanged with the increased spending on skiing being afforded by a reduction in other consumption spending within the region. On the other hand, it is possible that some skiers may reduce savings or increase borrowing to finance their additional spending on skiing. If this effect was strong the negative sign is legitimate with the magnitude of the resident multiplicand for, say, Cairngorm lying between £0 and -£165,393.

In Table 3 below, the net expenditures in Tables 1 and 2, are combined producing a range for the multiplicand for each site.

It would be wrong to suggest from these results that the H.I.E. constituency would not suffer economically if one of the five Scottish ski sites were to close. Over 40% of the respondents in the sample cited closeness to other ski centres as a positive influence on their destination choice, this suggests a degree of synergy between sites which may be lost if one were to close.

The permanent closure of one or all ski sites is however, an unlikely prospect and policy makers may be more concerned with the marginal economic impact of improvements to facilities. The counterfactual scenario revealed that skiers exhibited a high cross elasticity of demand with 73.5% of all respondents in the sample indicating that they would have skied elsewhere if the site they were at was closed. This suggests, far from the hoped for effect of encouraging new skiers to Scotland, any improvement in facilities at one site is likely to be met with a redistribution of skiers from other existing sites, subject to a capacity constraint. Furthermore, it is possible that this redistribution would also occur, in the separate summer visitor market, resulting perhaps in a decrease in the market share of summer visitors at Nevis Range, if the Cairngorm funicular plan were to proceed.

The counterfactual scenario made it possible to measure the contribution of *each individual site* net of transfer to the H.I.E. economy. An

assessment of the economic impact of any change in the Scottish skiing industry, taken as a system, net of transfer, would require further econometric analysis and additional data. The responses from the counterfactual scenario do allow some revision of the total economic loss to the H.I.E of the total closure of all five sites, previously calculated to be £14,208,740. If skiing was unavailable at all five sites, those who would have stayed at home or skied elsewhere would not have visited the H.I.E constituency, as skiing appears to have been the main purpose of their visit. On the other hand, those who state that they would have partaken in another mountain recreation or something else in the H.I.E constituency may have been planning a visit to the area regardless of the availability of skiing. Taking this approach, the economic loss to the H.I.E constituency, if all five sites were to close is £12,756,270. These estimates are based on the 1995 \ 1996 ski season which was a relatively good year in terms of weather conditions with 504,000 visitors (Mackay, 1995). According to our estimates therefore, a poor winter may be expected to result in the loss of 50% of skier days (see figure 1) and around £6m to the H.I.E economy.

#### 4. CONCLUSION

Given the degree of substitutability between sites, it might be difficult to justify further public subsidy of improvements to commercial ski developments on the basis of additional income and employment. On the other hand, skiing does make a substantial overall contribution to the H.I.E. economy and the case can be made that continued public investment is necessary to maintain existing incomes and employment, particularly in the winter months. Infrastructural upgrading has had the benefit of improving the quality of skiing in Scotland. Figure 2 shows the real price of skiing at Cairngorm from 1970. Rather surprisingly, it appears that, in common with the other centres, little of the quality improvement has been reflected in increases in real prices. With overall demand static, in effect, the investment in Scotland can best be viewed as an attempt to maintain market share through quality improvement in the light of increasing competition from Europe and North America.

There has been a tendency in the public debate surrounding the funicular development to concentrate on additional employment and output, comparing these benefits with the potential loss in welfare of conservationists, ornithologists and others who value the Cairngorm as an important natural asset. This debate has proceeded somewhat to the

exclusion of the issue of maintaining existing winter employment and income as well as the potential welfare gains of skiers. Has an implicit interpersonal judgement been made that the welfare of, say, ornithologists should have a greater weight than that of skiers? Unlike the funding of manufacturing developments, investment in recreational activity carries a double dividend in that it both maintains employment and improves the quality of life. Perhaps a full Cost Benefit Analysis of skiing in Scotland could lead to a more informed debate in which the issues of environmental costs and consumer satisfaction would be more fully examined.

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Table 1

Expenditures Attributable To Skiing		
	Gross Expenditure of Visiting Skiers	Net Expenditure of Visiting Skiers
Glencoe	£ 799,390	£ 11,680
Glenshee	£ 4,065,487	£696,868
Cairngorm	£ 5,791,666	£549,184
Nevis Range	£ 2,322,108	£205,519
The Lecht	£ 1,230,089	£ 73,567
<b>Total</b>	<b>£14,208,740</b>	

Table 2

Net Expenditure Of Resident Skiers	
Glencoe	£ 18,699
Glenshee	£ 10,697
Cairngorm	-£165,393
Nevis Range	-£ 37,109
The Lecht	£ 18,987

Table 3

Site Multiplacands Net of Transfer	
Glencoe	£11,680 - £30,379
Glenshee	£696,868 - £707,565
Cairngorm	£549,184 - £383,791
Nevis Range	£205,519 - £168,410
The Lecht	£73,567 - £92,554

Figure 1 (Compiled from data from Mackay Consultants)

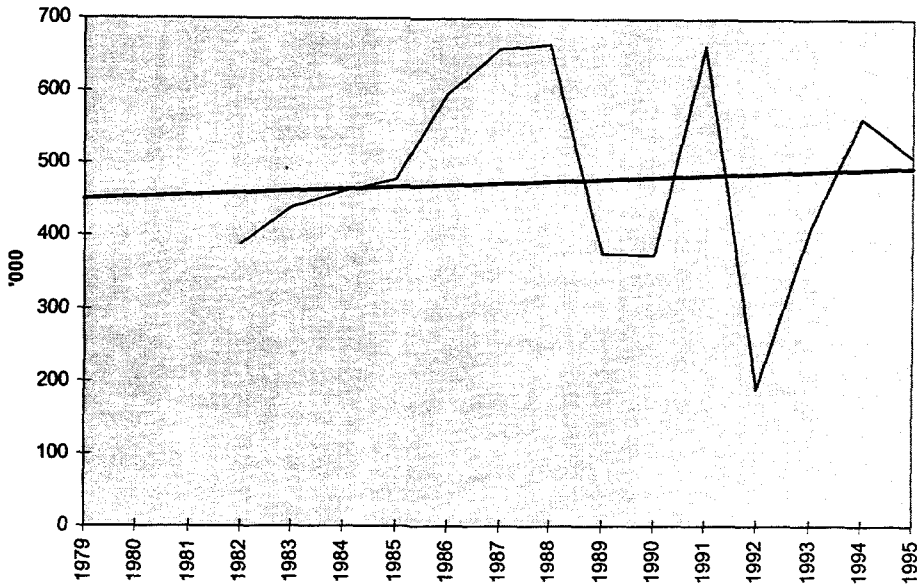
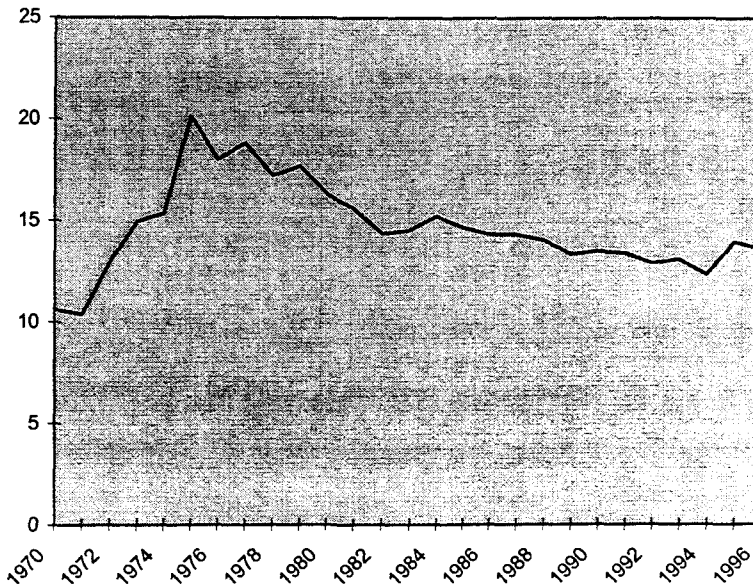


Figure 2 Real Price of Skiing at Cairngorm





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