Global Tourism Solutions (UK) Ltd

NORTH SOMERSET COUNCIL
STEAM REPORT 2014

NORTH SOMERSET COUNCIL

STEAM REPORT 2014

CONTENTS

Global Tourism Solutions (UK) Ltd

OVERVIEW OF STEAM

1. INTRODUCTION

The Scarborough Tourism Economic Activity Monitor is derived from a model developed by David James and Frank Hart in the process of developing a ten-year tourism policy for the province of Saskatchewan, Canada, in 1981. In 1985, following the establishment of Canada's National Task Force on Tourism Data, Messrs. Hart and James were appointed co-Chairmen of the Working Party to consider Local Area Statistics. This work focused on the city of Edmonton, Alberta, Canada, and became the first attempt to develop the effective use of supply-side generated local area tourism statistics drawing on the model developed in Saskatchewan in 1981. Encouraged by the successful experiment in Edmonton, the outputs of which were accepted by Edmonton City Council and its Convention and Tourism Authority, a part experiment focused on the City of Toronto's convention business followed. This experiment provided much needed data for the Toronto Convention Bureau.

In 1988, David James was appointed Director of Tourism and Amenities for Scarborough Borough Council and it was in that context that the Local Area Tourism Statistics model was transferred to the UK. The model was first run on behalf of Scarborough Borough Council in 1990. In 1991, the North Yorkshire County Council, together with the District Councils in the County, embarked on a pilot programme to evaluate the now-named "Scarborough/Scottish Tourism Economic Activity Monitor" (STEAM). At the same time, STEAM was adopted by a number of Local Authorities in England, Scotland and Wales.

2. VALIDATION OF STEAM

The STEAM process has been validated within the context of a number of public and private initiatives which have taken place since 1987 in respect of tourism statistics.

In 1987, a Tourism Statistics Advisory Group (TSAG) was established by the Employment Department to establish a forum to create strategic oversight of statistics relevant to tourism and leisure. Very early in its work it identified the need to review present and future needs for national tourism statistics, and in order to do this needed to establish commercial user needs.

In 1990, The Tourism Society, with the support and involvement of the Employment Department, by means of a small working group, established a forum to be held on 18 April 1991, which assembled over seventy senior managers. The forum, chaired by Liam Strong, Director of Marketing and Operations at British Airways, and in the presence of Viscount Ullswater, then Minister for Tourism, unanimously established the Joint Industry Committee for Tourism Statistics (JICTOURS). The press release issued that day stated:

> "The agreement reached at this meeting represents the best opportunity the commercial sector has had to improve UK tourism statistics for over a decade. JICTOURS will develop a costed package of development proposals for tourism statistics to be agreed, implemented and funded in partnership between Government (Employment Department), Commercial Users in the industry and Tourist Boards."

JICTOURS established sub-groups to consider the sector needs for Tourism Statistics, one sector being "Local Authorities". Its paper defined the sector, its needs, use of existing data, key terms/categories to be measured, willingness to pool data and model criteria. This last element stated the following:

"It is understood that, at least in the foreseeable future, national surveys will never be conducted on a scale (size of samples) which will make it possible to disaggregate data at District level. Accepting that as a fact of life, Districts wish to see the development of approved statistical models for <u>estimating volume,</u> value and expenditure and basic tourism characteristics. Such models, to be endorsed as suitable for tourist board and government purposes, would have to be relevant to the different types of authority noted in Section 1.
They would draw on available survey data, be used to produce estimates according to agreed statistical criteria and be adjusted to meet local circumstances.

Because such models could be capable of application in different authorities around Britain it is recommended that their construction should be part of the JICTOURS recommendations."

Following meetings between Professor Victor Middleton, Chairman of JICTOURS, Brian Batty, Employment Department, and David James, it was agreed that a JICTOURS Local Statistics Tourism Group (LSTG) should be formed made up of representatives from the National Tourist Boards, Regional Tourist Boards, the Association of District Councils, the British Resorts Association, various Local Authorities and, initially, the Employment Department, subsequently, the Department of National Heritage. JICTOURS – LSTG commissioned an independent study of STEAM, which was carried out by Professor Stephen Wanhill of the University of Wales. The main objectives were:

1. **To conduct a critical analysis of the working process of the model highlighting both its strengths and weaknesses.**

2. **To comment on the quality of information (accommodation occupancy, stock levels, tariff rates, necessary for the model to be run on a reliable and consistent basis).**

3. **To comment on the sensitivity analysis completed and to make suggestions for any further work on sensitivity analysis required.**

4. **To comment on the methodology for estimating indirect expenditure and in particular the estimates produced by the model on tourism employment.**

5. **To comment on the computer programmes used to generate the estimate produced by STEAM.**

6. **To comment on the "adjustment processes" which take place with the tourism experts in the area once the provisional results are produced by the model.**

7. **To make any other comments the researchers consider necessary. For example, definitions, future improvements and the need for additional national, regional and local benchmarks to further improve the output of the model.**

As much of the model, its formulae and its processes are commercially confidential, and are required to remain so, it was necessary that Professor Wanhill was given full access to the model, its workings and all background material. At the JICTOURS – LSTG meeting, 23 December 1993, his findings were presented in full, but where it involved the formulae of the model it was on the basis of strict confidentiality to the members of JICTOURS – LSTG. Subsequently the Department of National Heritage and the National Tourist Boards of England, Scotland and Wales each received the full text of his report. In brief, Professor Wanhill's report can be summarised best by himself:

"The report's overall conclusion is that STEAM is mathematically acceptable as a model of tourism flows, but never can be, and does not pretend to be, a statistically robust measurement of tourism in the manner of randomly drawn sample surveys of visitors. The thorough study is supportive of the model but also makes a number of recommendations to improve STEAM."

At its next meeting, 23rd February 1994, following confirmation that the recommendations to improve STEAM had been adopted, it was agreed *"no further testing needed to be initiated for the group's purposes. David James sought and obtained the group's endorsement of the STEAM model."*

During 1995, Professor Victor Middleton prepared a report for the British Resorts Association, "Measuring the Local Impact of Tourism". The STEAM model and methodology was made available to the author. The report reviewed a variety of modelling approaches, their strengths and weaknesses, and, for STEAM, stated,

"It seems probable that supply side (bottom up) models, of which this is the leading example in the UK, will be needed to fulfil the management requirements of local authorities who have decided to play a significant role in managing tourism locally."

Concurrently, in Denmark, an evaluation process was conducted on behalf of the Danish Ministry of Business and Industry by the Danish Tourist Board. STEAM is handled in Denmark, on behalf of GTS (UK) Ltd, by the Bornholm Research Centre.

In 1996, the Department for Culture, Media and Sport, in conjunction with the National Tourist Boards and the University of North London, set out to review the existing situation concerning local area statistics with a view to publishing guidance for Local Authorities. This evolved and was concluded by the DCMS publishing a set of Guidance Notes on Local Area Statistics which was published in 1998.

The development of STEAM in England since 1993 has been a period of steady sustained growth with, presently, nearly 200 clients, including East Midlands Tourism, the Northwest Regional Development Agency, One NorthEast, most National Parks, and numerous Local Authorities. These Local Authorities are of all sizes ranging from Rutland to Birmingham, and all types, whether urban, rural, resort or industrial.

In Scotland, during the three year period ending 1997, Scottish Enterprise Network (SEN), in conjunction with its thirteen Local Enterprise Companies, embarked on a practical evaluation of STEAM examining not only the capacity of the model, but the robustness of the local variable inputs. Considerable collateral primary research was commissioned by SEN concerning rates of daily expenditure, length of stay, and stays with friends and relatives. This led, subsequently, to a five-year contract on behalf of a partnership led by the Scottish Tourist Board, Scottish Enterprise, Highlands & Islands Enterprise, the Local Enterprise Companies and the Area Tourist Boards. Latterly, this contract has been renewed by VisitScotland until 2008 with an option for two more years.

In 1997, Tourism South and West Wales was licensed by GTS (UK) Ltd to operate STEAM throughout Wales and TSWW provided STEAM reports for nineteen Welsh Unitary Authorities for a four-year period. Since 2002, GTS (UK) Ltd now provides a continuing service for all 22 Welsh Unitary Authorities, two National Parks in Wales and the Statistical Directorate of the National Assembly for Wales. These programmes are co-ordinated in Wales by the company's Projects Manager (Wales).

Since 2007, STEAM has been expanding its development in Northern Ireland with, presently, two Tourism Partnership Areas and 15 Local Councils benefiting from STEAM reports.

3. A BRIEF OUTLINE OF STEAM

3.1 STEAM - The Model

STEAM is a spreadsheet model, which is more of a process in which the values of the relationships or equations defined on the spreadsheet are specified at each stage by the user. Thus, although the logic of the model is constant, the nature of data input will alter from area to area depending on the amount of survey material available and qualitative expert opinion concerning the structure of the tourism sector in the local economy. It is not a statistically estimated model in the manner of an input-output model of the local economy. The model is designed to provide a robust indicative base for monitoring trends based on monthly and annual outputs within acceptable statistical confidence levels. This statement forms the background to the objectives of the study and the methodological processes applied.

STEAM approaches the measurement of tourism at the local level from the supply side, which has the benefit of immediacy and relative inexpensiveness. The traditional measurement of tourism activity is from the demand side, but, as is well known, surveying visitors is both time-consuming and costly. This is further complicated when economic impact assessment is made, which requires surveys of businesses and the consumption patterns of local people. STEAM is not designed to provide a precise and accurate measurement of tourism in a local area, but rather to provide an indicative base for monitoring trends. The confidence level of the model is calculated to be within the ranges of plus or minus 10% in respect of the yearly outputs and plus or minus 5% in respect of trend.

STEAM reports are produced on behalf of clients by a technical team located at the GTS (UK) Ltd Data Processing Centre in New Holland and also in Swansea. A rigorous quality control regime is in place to ensure the highest standards are consistently maintained.

3.2 The STEAM Outputs

STEAM quantifies the local economic impact of tourism, from both stay and day visitors, by

- *Analysis of bed stock (by category month by month, year on year);*
- *Analysis of bed stock seasonal availability (by category of accommodation);*
- *Estimates of revenue generated by tourists (by category of accommodation and distribution by activity by month);*
- *Categories of serviced accommodation will be: under 10 rooms; 11-50 rooms; over 50 rooms; over 100 rooms;*
- *Categories of non-serviced accommodation: Camping and Caravanning (Touring); Caravanning (Static); Flats, Chalets and Cottages; Hostels; Schools and Colleges;*
- *Estimates of number of tourists and number of tourist days (by category of accommodation by month);*
- *Estimates of employment supported by tourism;*
- *Estimates of traffic implications of tourism (by month);*
- *Trend information annually for all output categories by zone.*

3.3 STEAM Inputs

At a minimum, the implementation of STEAM depends on:

- **Information on occupancy percentages each month for each type of accommodation;**
- **Bed stock for each type of accommodation within the areas to be surveyed;**
- **Attendance at attractions/major events by month;**
- **TIC visitor figures by month.**

The model is built up from the above basic information, by drawing on data from published or unpublished sources, local interviews and supplementary trade enquiries to define the economic parameters within which the local tourism sector operates. The specific information set out above is obtained from a variety of sources:

a) Bed Stocks
The STEAM model can accommodate up to nine sub-categories of Serviced Accommodation, and the same for Non-Serviced Accommodation. The type and number of such sub-categories of tourist accommodation are specified in conjunction with the client using definitions compatible with national definitions. The sources of information in building such a database are Local Authority Tourist Guides, Tourist Boards, Internet, Yellow Pages.

b) Number of Establishments
The same categories and sub-categories are used as for "Bed Stocks" and use the same sources of information.

c) Use of Tourist Accommodation
This information is primarily obtained from the Tourist Board occupancy surveys and, on occasion, augmented by information obtained from Local Authority occupancy surveys and information provided, in confidence, by groups of accommodation providers.

d) Tourist Accommodation: Employment
STEAM has developed a large array of data sets which provide core employment data by type and size of accommodation providers and the occupancy thresholds which trigger incremental levels of employment.

e) Staying with Friends and Relatives
Through primary research, STEAM has created an array of proxy variables which can be used in various types and sizes of destination. Wherever and whenever practicable these various proxy variables are benchmarked by additional local research in differing destination types.

f) Day Visitors

STEAM Tourist Day Visitors are regarded as those day visiting whose stay is three hours or more for a non-routine purpose originating outside the local area, whether from home or from a non-resident accommodation outside the object area. National and regional day visitor surveys present ongoing opportunities for benchmarking provided they are statistically valid in the context of the local area.

Information is also obtained on a monthly basis from attractions and events in an area which, together with Tourist Information Centre visitors, provides additional local benchmarking information concerning seasonality and monthly changes, year on year.

g) Rates of Daily Expenditure

Following primary research commissioned by Scottish Enterprise in 1996 from System Three (now TNS), a series of subsequent tourism expenditure surveys have been commissioned over the years by local authorities in conjunction with GTS structured specifically for the STEAM input demands. Whilst commissioned for specific areas, the consistency and frequency of these surveys has allowed the development of proxy values for other areas not able to afford such surveys.

h) Economic Multipliers

Multipliers, in respect of both tourist economic impacts and employment generated indirectly, are calculated using multipliers created by the Surrey Group for an array of destination types.

i) Indexing

STEAM Reports are all indexed so that year on year real comparisons can be made rather than inflation affected. Within each report, Appendices 1 and 2 provide non-indexed outputs so that tourism economic impacts for both the present and past years can be compared in actual values.

j) Benchmarking

STEAM takes advantage of all available benchmarking sources, including the United Kingdom Tourist Statistics, the International Passenger Survey, the United Kingdom Leisure Day Visitor Survey, the National Online Manpower Information Service, Local Surveys and those prepared commercially from time to time.

4. STEAM REPORT FORMAT

4.1 Introduction

Each STEAM Report consists of four main sections:
- Numeric Executive Summary
- Comparison Tables
- Appendices
- Charts

4.2 Numeric Executive Summary (NES)

This page provides an annual headline summary for the reporting year which consists of five segments. Each segment makes comparisons between the current year and the previous year concerning each of the main topics which are summarised below:

a) Analysis by Sector of Expenditure

This segment of the NES identifies the distribution of visitor spending into the local economy. The year on year comparison eliminates inflationary effects by use of the Retail Price Index (RPI).

b) Revenue by Category of Expenditure

This segment illustrates the revenue generated in the local economy by the four main categories of visitor. (The RPI is also used).

c) Tourist Days

This segment identifies, by category of visitor, the annual number of Visitor Days spent in the local (study) area. Visitor Days are calculated by multiplying the staying visitors by average length of stay and adding the Day Visitors.

    d) Tourist Numbers
    The count of all visitors annually, regardless of their length of stay.

    e) Sectors in which Employment is Supported
    This information is provided in the form of full time equivalents (FTE's) by category of employment. The employment indicated in STEAM reporting is only that generated by estimated visitor spending. There are employment generators other than STEAM; for example, residents' spend.

4.3 Comparison Tables (CT Pages)

This section of the report provides the monthly STEAM present and previous year outputs which form the basis for the previous section (NES). In addition, it provides monthly estimates of vehicle numbers and the days they spent in the study area.

4.4 Appendices

Appendix 1 (This Year) and **Appendix 2 (Last Year)** contain the full details by month and by year of:
- Economic Impact
- Population
- Employment
- Tourist Days/Tourist Numbers
- Vehicle Days/Vehicle Numbers
- Bed Stock

Appendix 3
Provides a glossary of terms which is self-explanatory.

Appendix 4
Considers the relationship of direct and indirect effects of tourism.

Appendix 5
Sources some of the data available by which the employment generated by visitor expenditure can be estimated.

Appendix 6
Reviews Day Visitors and their impacts.

Appendix 7
Report on statistical confidence levels in STEAM.

4.5 Charts

Provides an indicative group of charts. These charts illustrate the capacity of the Excel spreadsheet to generate them. Appendices 1 and 2 of the electronic report are the basis for their generation.

5. Contact:

David J. James, TD, FTS, FRSA
Managing Director
Global Tourism Solutions (UK) Ltd
Grove House
9D Throxenby Lane
Scarborough
North Yorkshire
YO12 5HN

Tel: 01723 506310
Email: gtsuk.djj@btconnect.com

All £'s 2014 indexed
(RPI Factor 13/14 +1.0277)

NORTH SOMERSET COUNCIL
STEAM Report 2014
Numeric Executive Summary

Issued 10 August 2015

Analysis by Sector of Expenditure			
(£'s millions)	**2014**	**2013**	**% change**
Accommodation	48.72	49.80	-2
Food & Drink	68.25	64.60	6
Recreation	26.54	25.20	5
Shopping	94.38	89.40	6
Transport	36.25	34.39	5
Total Direct Revenue	**274.13**	**263.38**	**4**
Indirect Expenditure	160.50	154.50	4
VAT	54.83	52.68	4
TOTAL	**489.46**	**470.56**	**4**

Economic Impact Generated by:			
(£'s millions)	**2014**	**2013**	**% change**
Serviced Accommodation	126.50	127.99	-1
Non-Serviced Accommodation	45.51	38.88	17
SFR	10.54	10.17	4
Day Visitors	306.91	293.53	5
TOTAL	**489.46**	**470.56**	**4**

Tourist Days Generated By:			
(Thousands)	**2014**	**2013**	**% change**
Serviced Accommodation	920.99	879.90	5
Non-Serviced Accommodation	878.84	752.72	17
SFR	210.26	202.80	4
Day Visitors	7,999.79	7,650.67	5
TOTAL	**10,009.88**	**9,486.09**	**6**

Tourist Numbers Generated By:			
(Thousands)	**2014**	**2013**	**% change**
Serviced Accommodation	300.19	276.51	9
Non-Serviced Accommodation	176.35	144.10	22
SFR	83.76	81.07	3
Day Visitors	7,999.79	7,650.67	5
TOTAL	**8,560.10**	**8,152.35**	**5**

Sectors in which Employment is supported by Tourism Activity			
(FTE's)	**2014**	**2013**	**% change**
Direct Employment			
Accommodation	1,296	1,306	-1
Food & Drink	1,203	1,153	4
Recreation	568	546	4
Shopping	1,516	1,455	4
Transport	285	274	4
Total Direct Employment	4,868	4,735	3
Indirect Employment	1,828	1,782	3
TOTAL	**6,695**	**6,517**	**3**

Economic Impact Analysis by Category of Tourist and by Industrial Sector

North Somerset 2014

Analysis by Category by Sector of Expenditure

Serviced Accommodation Analysis by Sector of Expenditure (£'s millions)	2014
Accommodation	42.67
Food & Drink	10.66
Recreation	3.23
Shopping	8.46
Transport	4.88
Total Direct Revenue	**69.90**
VAT	13.98
Total Direct Expenditure	**83.88**

Non-Serviced Accommodation Analysis by Sector of Expenditure (£'s millions)	2014
Accommodation	6.05
Food & Drink	6.90
Recreation	2.37
Shopping	7.81
Transport	3.35
Total Direct Revenue	**26.48**
VAT	5.30
Total Direct Expenditure	**31.78**

SFR (Staying with Friends & Relatives) Analysis by Sector of Expenditure (£'s millions)	2014
Food & Drink	2.13
Recreation	0.72
Shopping	2.11
Transport	1.13
Total Direct Revenue	**6.09**
VAT	1.22
Total Direct Expenditure	**7.31**

Day Visitors Analysis by Sector of Expenditure (£'s millions)	2014
Food & Drink	48.55
Recreation	20.23
Shopping	76.00
Transport	26.88
Total Direct Revenue	**171.66**
VAT	34.33
Total Direct Expenditure	**205.99**

Analysis by Sector of Expenditure (£'s millions)	2014
Accommodation	48.72
Food & Drink	68.25
Recreation	26.54
Shopping	94.38
Transport	36.25
VAT	54.83
Total Direct Expenditure	**328.96**
Indirect Expenditure	160.50
Total Economic Impact	**489.46**

STEAM *Bedstock Analysis*

Accommodation Category	North Somerset 2014		North Somerset 2013	
	Establishments	Beds / Sleeping Spaces	Establishments	Beds / Sleeping Spaces
Serviced Accommodation				
+30 room hotels	22	2809	23	3041
10-30 room hotels	26	902	27	950
<10 room hotels/others	102	1119	105	1126
Serviced Total	*150*	*4830*	*155*	*5117*
Non-Serviced Accommodation				
Self catering	69	1016	73	1028
Static caravans/chalets	0	2445	0	1904
Touring caravans/camping	39	2427	35	2310
Non-Serviced Accommodation Total	*108*	*5888*	*108*	*5242*
TOTAL	**258**	**10,718**	**263**	**10,359**

Economic Impact	Expenditure									£000's			TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Direct Expenditure	9,052	8,918	12,346	32,712	30,581	34,036	41,840	51,785	52,672	21,808	12,327	20,883	328,960
Indirect Expenditure	4,395	4,358	6,050	15,981	14,921	16,603	20,375	25,218	25,713	10,674	6,028	10,187	160,502
Total	13,448	13,275	18,396	48,692	45,502	50,639	62,214	77,003	78,385	32,482	18,355	31,069	489,461

Economic Impact	Expenditure and Revenue									£000's			TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Direct Revenue	7,544	7,431	10,289	27,260	25,484	28,364	34,866	43,154	43,893	18,173	10,272	17,402	274,133
Indirect Expenditure	4,395	4,358	6,050	15,981	14,921	16,603	20,375	25,218	25,713	10,674	6,028	10,187	160,502
VAT	1,509	1,486	2,058	5,452	5,097	5,673	6,973	8,631	8,779	3,635	2,054	3,480	54,827
Total	13,448	13,275	18,396	48,692	45,502	50,639	62,214	77,003	78,385	32,482	18,355	31,069	489,461

Economic Impact	Generated by Category of Visitor									£000's			TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Serviced Accommodation	5,325	5,921	8,224	11,933	12,941	11,868	14,693	18,182	11,587	10,513	7,209	8,106	126,503
Non-Serviced Accommodation	1,668	1,696	1,923	3,679	4,849	4,790	6,591	7,917	5,142	2,955	2,039	2,262	45,511
SFR	1,040	472	625	1,229	550	650	1,079	1,630	718	628	470	1,448	10,541
Day Visitors	5,414	5,187	7,624	31,851	27,161	33,332	39,851	49,275	60,937	18,386	8,636	19,253	306,906
Total	13,448	13,275	18,396	48,692	45,502	50,639	62,214	77,003	78,385	32,482	18,355	31,069	489,461

Economic Impact	Sectors in which expenditure is made									£000's			TOTAL
Direct Expenditure	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Accommodation	1,983	2,209	3,017	4,393	4,824	4,493	6,166	7,564	4,480	3,917	2,676	2,995	48,717
Food & Drink	1,780	1,680	2,318	6,908	6,297	7,184	8,641	10,723	11,574	4,384	2,385	4,375	68,248
Recreation	641	605	847	2,694	2,451	2,827	3,389	4,210	4,646	1,666	883	1,682	26,540
Shopping	2,238	2,092	2,929	9,582	8,554	10,010	12,055	14,919	16,930	5,922	3,107	6,042	94,378
Transport	902	846	1,179	3,683	3,358	3,850	4,616	5,738	6,263	2,285	1,222	2,308	36,250
Total Direct Expenditure	7,544	7,431	10,289	27,260	25,484	28,364	34,866	43,154	43,893	18,173	10,272	17,402	274,133
VAT	1,509	1,486	2,058	5,452	5,097	5,673	6,973	8,631	8,779	3,635	2,054	3,480	54,827
Indirect Expenditure	4,395	4,358	6,050	15,981	14,921	16,603	20,375	25,218	25,713	10,674	6,028	10,187	160,502
Total	13,448	13,275	18,396	48,692	45,502	50,639	62,214	77,003	78,385	32,482	18,355	31,069	489,461

Population													Avg
Total Population	76,923	76,923	76,923	76,923	76,923	76,923	76,923	76,923	76,923	76,923	76,923	76,923	**76,923**

Employment	Supported by tourism activity in these Categories									FTE's			FTE's
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**FTE's**
Serviced Accommodation	1,249	1,280	1,378	1,683	1,677	1,566	1,692	1,999	1,548	1,497	1,331	1,331	**1,519**
Non-Serviced Accommodation	341	339	382	545	658	647	718	821	678	474	384	394	**532**
SFR	113	51	68	134	60	71	118	178	78	68	51	158	**96**
Day Visitors	576	552	811	3,389	2,890	3,546	4,240	5,242	6,483	1,956	919	2,048	**2,721**
Total Direct Employment	2,279	2,222	2,639	5,750	5,285	5,830	6,767	8,241	8,787	3,996	2,685	3,932	**4,868**
Indirect Employment	601	595	827	2,184	2,039	2,269	2,784	3,446	3,513	1,459	824	1,392	**1,828**
Total	2,879	2,817	3,466	7,933	7,323	8,098	9,551	11,686	12,301	5,455	3,509	5,324	**6,695**

Employment	Sectors in which employment is supported									FTE's			FTE's
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**FTE's**
Accommodation	1,221	1,228	1,256	1,402	1,357	1,291	1,310	1,474	1,291	1,284	1,240	1,192	**1,296**
Food & Drink	376	355	490	1,461	1,332	1,519	1,828	2,268	2,448	927	504	925	**1,203**
Recreation	165	155	217	691	629	725	870	1,080	1,192	428	227	432	**568**
Shopping	431	403	565	1,847	1,649	1,930	2,324	2,876	3,264	1,142	599	1,165	**1,516**
Transport	85	80	111	348	317	364	436	542	592	216	115	218	**285**
Total Direct Employment	2,279	2,222	2,639	5,750	5,285	5,830	6,767	8,241	8,787	3,996	2,685	3,932	**4,868**
Indirect Employment	601	595	827	2,184	2,039	2,269	2,784	3,446	3,513	1,459	824	1,392	**1,828**
Total	2,879	2,817	3,466	7,933	7,323	8,098	9,551	11,686	12,301	5,455	3,509	5,324	**6,695**

Tourist Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep 000's	Oct	Nov	Dec	TOTAL
Serviced Accommodation	38.7	43.0	59.7	87.4	94.6	86.8	106.8	132.1	84.3	76.5	52.3	58.8	921
Non-Serviced Accommodation	35.0	34.8	39.5	74.8	97.9	96.2	112.3	135.0	103.9	60.2	42.1	47.1	879
SFR	20.8	9.4	12.5	24.5	11.0	13.0	21.5	32.5	14.3	12.5	9.4	28.9	210
Day Visitors	141.1	135.2	198.7	830.2	708.0	868.8	1,038.7	1,284.4	1,588.4	479.2	225.1	501.8	8,000
Total Tourist Days 000's	235.6	222.5	310.3	1,016.8	911.5	1,064.7	1,279.4	1,584.1	1,790.9	628.4	329.0	636.7	10,010

Tourist Numbers

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep 000's	Oct	Nov	Dec	TOTAL
Serviced Accommodation	15.2	16.5	23.0	30.2	29.6	31.0	27.1	39.3	27.5	25.2	17.7	17.9	300
Non-Serviced Accommodation	7.5	7.6	8.1	16.5	23.7	21.2	16.2	19.2	25.3	12.7	9.6	8.7	176
SFR	6.9	4.7	6.2	8.2	5.5	6.5	7.2	10.8	7.2	6.3	4.7	9.6	84
Day Visitors	141.1	135.2	198.7	830.2	708.0	868.8	1,038.7	1,284.4	1,588.4	479.2	225.1	501.8	8,000
Total Tourist Numbers 000's	170.7	163.9	236.1	885.1	766.8	927.6	1,089.2	1,353.8	1,648.3	523.4	257.1	538.1	8,560

Vehicle Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep 000's	Oct	Nov	Dec	TOTAL
Serviced Accommodation	8.9	12.8	18.6	19.4	22.9	20.7	24.1	29.8	19.1	22.6	15.7	13.3	228
Non-Serviced Accommodation	8.2	8.7	9.6	18.1	25.7	25.1	28.0	33.7	26.6	14.0	10.1	10.8	219
SFR	5.9	2.7	3.5	6.9	3.1	3.7	6.1	9.2	4.1	3.6	2.7	8.2	60
Day Visitors	33.5	36.7	53.9	186.8	159.3	223.4	233.7	289.0	377.2	130.1	61.1	119.2	1,904
Total Vehicle Days 000's	56.5	60.9	85.6	231.2	211.0	272.9	292.0	361.7	427.0	170.2	89.5	151.5	2,410

Vehicle Numbers

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep 000's	Oct	Nov	Dec	TOTAL
Serviced Accommodation	3.5	4.9	7.2	6.7	7.1	7.5	6.1	8.9	6.2	7.4	5.2	4.0	75
Non-Serviced Accommodation	1.8	1.9	2.0	4.1	6.4	5.7	4.1	4.8	6.6	3.0	2.3	2.1	45
SFR	2.0	1.3	1.8	2.3	1.6	1.8	2.0	3.1	2.0	1.8	1.3	2.7	24
Day Visitors	33.5	36.7	53.9	186.8	159.3	223.4	233.7	289.0	377.2	130.1	61.1	119.2	1,904
Total Vehicle Numbers 000's	40.7	44.8	64.9	199.9	174.4	238.4	245.9	305.8	392.1	142.2	69.9	128.0	2,047

BED STOCK (number of beds) — Average Available Sleeping Spaces

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAX
Serviced Accommodation	4,662	4,688	4,715	4,830	4,830	4,830	4,830	4,830	4,830	4,804	4,689	4,543	4,830
Non-Serviced Accommodation	4,398	4,398	5,713	5,884	5,888	5,888	5,888	5,888	5,888	5,884	5,143	4,398	5,888
Total BED STOCK (number of beds)	9,060	9,086	10,428	10,714	10,718	10,718	10,718	10,718	10,718	10,688	9,832	8,941	10,718

Economic Impact	Expenditure									£000's			TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Direct Expenditure	8,650	9,138	12,056	30,047	28,577	33,153	38,266	46,291	49,665	20,354	12,269	19,072	**307,539**
Indirect Expenditure	4,222	4,494	5,932	14,693	13,961	16,212	18,650	22,546	24,291	9,985	6,031	9,318	**150,336**
Total	12,873	13,633	17,987	44,740	42,538	49,365	56,916	68,837	73,956	30,340	18,300	28,391	**457,874**

Economic Impact	Expenditure and Revenue									£000's			TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Direct Revenue	7,209	7,615	10,046	25,039	23,815	27,627	31,888	38,576	41,387	16,962	10,224	15,894	**256,282**
Indirect Expenditure	4,222	4,494	5,932	14,693	13,961	16,212	18,650	22,546	24,291	9,985	6,031	9,318	**150,336**
VAT	1,442	1,523	2,009	5,008	4,763	5,525	6,378	7,715	8,277	3,392	2,045	3,179	**51,256**
Total	12,873	13,633	17,987	44,740	42,538	49,365	56,916	68,837	73,956	30,340	18,300	28,391	**457,874**

Economic Impact	Generated by Category of Visitor									£000's			TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Serviced Accommodation	5,817	6,981	8,760	11,004	12,608	13,337	13,166	14,750	12,455	10,249	8,172	7,237	**124,536**
Non-Serviced Accommodation	1,294	1,347	1,536	3,076	4,272	4,238	5,621	6,602	4,209	2,364	1,577	1,695	**37,831**
SFR	989	459	599	1,149	523	634	1,006	1,492	684	591	452	1,314	**9,893**
Day Visitors	4,772	4,845	7,093	29,512	25,135	31,157	37,123	45,994	56,607	17,135	8,099	18,145	**285,615**
Total	12,873	13,633	17,987	44,740	42,538	49,365	56,916	68,837	73,956	30,340	18,300	28,391	**457,874**

Economic Impact	Sectors in which expenditure is made									£000's			
Direct Expenditure	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**TOTAL**
Accommodation	2,181	2,619	3,261	4,126	4,774	5,066	5,618	6,333	4,815	3,878	3,056	2,728	**48,454**
Food & Drink	1,619	1,619	2,172	6,300	5,801	6,817	7,879	9,645	10,750	4,016	2,261	3,974	**62,854**
Recreation	582	582	793	2,467	2,265	2,677	3,108	3,820	4,317	1,533	837	1,541	**24,523**
Shopping	2,005	1,981	2,714	8,778	7,873	9,415	11,057	13,587	15,686	5,437	2,911	5,542	**86,987**
Transport	821	814	1,106	3,368	3,101	3,651	4,226	5,191	5,819	2,099	1,159	2,108	**33,464**
Total Direct Expenditure	7,209	7,615	10,046	25,039	23,815	27,627	31,888	38,576	41,387	16,962	10,224	15,894	**256,282**
VAT	1,442	1,523	2,009	5,008	4,763	5,525	6,378	7,715	8,277	3,392	2,045	3,179	**51,256**
Indirect Expenditure	4,222	4,494	5,932	14,693	13,961	16,212	18,650	22,546	24,291	9,985	6,031	9,318	**150,336**
Total	12,873	13,633	17,987	44,740	42,538	49,365	56,916	68,837	73,956	30,340	18,300	28,391	**457,874**

Population													Avg
Total Population	76,270	76,270	76,270	76,270	76,270	76,270	76,270	76,270	76,270	76,270	76,270	76,270	**76,270**

Employment	Supported by tourism activity in these Categories								FTE's				FTE's
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**FTE's**
Serviced Accommodation	1,304	1,357	1,435	1,570	1,634	1,661	1,646	1,711	1,616	1,521	1,404	1,328	**1,516**
Non-Serviced Accommodation	313	313	353	503	624	616	663	742	612	432	350	350	**489**
SFR	112	52	68	130	59	72	114	169	78	67	51	149	**94**
Day Visitors	529	537	786	3,269	2,784	3,451	4,112	5,095	6,270	1,898	897	2,010	**2,636**
Total Direct Employment	2,257	2,258	2,642	5,473	5,102	5,800	6,535	7,718	8,576	3,919	2,703	3,837	**4,735**
Indirect Employment	601	639	844	2,090	1,986	2,306	2,653	3,207	3,456	1,421	858	1,326	**1,782**
Total	2,858	2,898	3,486	7,564	7,088	8,106	9,188	10,925	12,032	5,339	3,561	5,163	**6,517**

Employment	Sectors in which employment is supported								FTE's				FTE's
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	**FTE's**
Accommodation	1,262	1,268	1,298	1,333	1,334	1,334	1,334	1,335	1,334	1,327	1,283	1,230	**1,306**
Food & Drink	357	357	478	1,387	1,277	1,501	1,735	2,124	2,367	884	498	875	**1,153**
Recreation	156	155	212	659	605	715	831	1,021	1,153	410	224	412	**546**
Shopping	403	398	545	1,762	1,580	1,890	2,220	2,727	3,149	1,091	584	1,112	**1,455**
Transport	81	80	109	331	305	359	416	511	572	207	114	207	**274**
Total Direct Employment	2,257	2,258	2,642	5,473	5,102	5,800	6,535	7,718	8,576	3,919	2,703	3,837	**4,735**
Indirect Employment	601	639	844	2,090	1,986	2,306	2,653	3,207	3,456	1,421	858	1,326	**1,782**
Total	2,858	2,898	3,486	7,564	7,088	8,106	9,188	10,925	12,032	5,339	3,561	5,163	**6,517**

Tourist Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Serviced Accommodation	40.7	48.9	61.4	78.9	90.1	95.0	92.9	104.2	87.8	72.2	57.1	50.6	880
Non-Serviced Accommodation	28.3	28.6	32.6	64.5	88.8	87.7	98.5	115.6	87.7	49.8	33.8	36.7	753
SFR	20.3	9.4	12.3	23.5	10.7	13.0	20.6	30.6	14.0	12.1	9.3	26.9	203
Day Visitors	127.8	129.8	190.0	790.5	673.3	834.6	994.4	1,232.0	1,516.3	459.0	216.9	486.0	7,651
Total Tourist Days 000's	217.2	216.7	296.2	957.5	863.0	1,030.2	1,206.5	1,482.4	1,705.8	593.2	317.1	600.3	9,486

Tourist Numbers

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Serviced Accommodation	14.3	16.7	21.1	27.0	27.8	33.7	22.3	29.4	27.1	23.3	18.8	15.0	277
Non-Serviced Accommodation	5.3	5.4	5.9	13.9	21.3	19.1	13.5	15.6	20.0	10.0	7.4	6.5	144
SFR	6.8	4.7	6.1	7.8	5.4	6.5	6.9	10.2	7.0	6.1	4.6	9.0	81
Day Visitors	127.8	129.8	190.0	790.5	673.3	834.6	994.4	1,232.0	1,516.3	459.0	216.9	486.0	7,651
Total Tourist Numbers 000's	154.2	156.6	223.1	839.3	727.8	893.9	1,037.1	1,287.2	1,570.4	498.4	247.8	516.6	8,152

Vehicle Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Serviced Accommodation	9.4	14.6	19.1	17.5	21.8	22.7	21.0	23.5	19.9	21.5	17.3	11.5	220
Non-Serviced Accommodation	6.7	7.3	8.0	15.7	23.7	23.2	24.8	29.0	22.7	11.6	8.1	8.4	189
SFR	5.7	2.7	3.5	6.7	3.0	3.7	5.8	8.7	4.0	3.4	2.6	7.6	57
Day Visitors	30.4	35.2	51.6	177.9	151.5	214.6	223.7	277.2	360.1	124.6	58.9	115.4	1,821
Total Vehicle Days 000's	52.2	59.8	82.1	217.8	200.0	264.2	275.4	338.4	406.7	161.1	87.0	143.0	2,288

Vehicle Number

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Serviced Accommodation	3.3	5.0	6.6	6.0	6.7	8.1	5.1	6.7	6.1	6.9	5.6	3.4	69
Non-Serviced Accommodation	1.3	1.3	1.4	3.5	5.8	5.2	3.4	3.9	5.3	2.4	1.8	1.6	37
SFR	1.9	1.3	1.7	2.2	1.5	1.8	1.9	2.9	2.0	1.7	1.3	2.5	23
Day Visitors	30.4	35.2	51.6	177.9	151.5	214.6	223.7	277.2	360.1	124.6	58.9	115.4	1,821
Total Vehicle Numbers 000's	36.8	42.9	61.3	189.6	165.5	229.8	234.2	290.7	373.6	135.6	67.6	122.9	1,950

BED STOCK (number of beds) — Average Available Sleeping Spaces

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAX
Serviced Accommodation	4,943	4,969	5,002	5,117	5,117	5,117	5,117	5,117	5,117	5,091	4,976	4,817	5,117
Non-Serviced Accommodation	3,869	3,869	5,076	5,238	5,242	5,242	5,242	5,242	5,242	5,238	4,558	3,869	5,242
Total BED STOCK (number of beds)	8,812	8,838	10,078	10,355	10,359	10,359	10,359	10,359	10,359	10,329	9,534	8,686	10,359

GLOSSARY OF TERMS

Average direct daily expenditure   derived from total direct revenue divided by the total number of visitor days

Average revenue per head   derived from total revenue divided by the total number of visitors

Bed stock   number of bed spaces

Category of expenditure   denotes areas of economic impact generated by: Accommodation, Food & Drink, Recreation, Shopping and Transport

Category of visitor   visitors are categorised according to type of accommodation used (+50 Room Hotels, 11-50 Room Hotels, <10 Room Hotels; Self-Catering, Touring/Camping) or as 'Day Visitors' or 'SFRs'

Commercial accommodation   denotes +50 Room Hotels, 11-50 Room Hotels, <10 Room Hotels, Guest Houses/B&Bs, Self-Catering, and Touring/Camping

Day visitors:
- Tourist day visits   tourist day visits are defined as visits commencing from a home location for a non-routine purpose, for a duration of not less than 3 hours outside the normal habitat of the visitor. For STEAM purposes, day visits emanating from outside of the reporting area commencing from a location other than their permanent residence are also measured

- Intra-district tourist day visits   in addition to tourist day visits, as defined for STEAM purposes, intra-district day visits are those by persons residing within a district making day visits within that district

- Leisure day visits   in addition to tourist day visits, as defined for STEAM purposes, a leisure day visit is a trip taken from a person's home and not taken whilst staying away from home. Trips must be round trips taken from a person's home within the same day without spending a night away from home. The usual convention is that there is no minimum stay requirement; however, for the purposes of this report, a minimum stay of 3 hours is required

Direct revenue   denotes visitor expenditure within a zone or Borough area

Expenditure	denotes expenditure on direct items (Accommodation, Food & Drink, Recreation, Shopping and Transport) and indirect items
FTE	denotes full-time equivalent jobs
GTS (UK) Ltd	Global Tourism Solutions (UK) Ltd
High season	from April through to October
Indirect revenue	denotes secondary expenditure within a zone or Borough area. Measured in STEAM through the application of proxy variable multipliers derived from the Scottish Tourism Multiplier Study (1992)
Low season	from November through to March
Non-commercial accommodation	denotes resident households used as accommodation by SFR
Non-serviced accommodation	denotes Self-Catering, and Touring/ Camping
Peak month	the month where the majority of the Borough's volume, value or bed space availability occurs
Revenue	denotes income derived from expenditure
STEAM	Scarborough Tourism Economic Activity Monitor
Serviced accommodation	denotes +50 Room Hotels, 11-50 Room Hotels, <10 Room Hotels, and Guest Houses/B&Bs
Touring/Camping	Touring Caravans and Camping
Tourist	denotes someone staying overnight
SFR	Staying with Friends and Relatives
Visitor	denotes the aggregate of tourists, Day Visitors and SFR
Visitor activity	denotes visitor numbers and/or visitor days (i.e. visitor volume)
Visitor days	denotes the total number of visitors multiplied by the average length of stay
Visitor numbers	denotes the total number of visitors (Tourists, Day Visitors and SFR)
Zone	denotes sub-Borough area as defined by the Borough representatives

ECONOMIC EFFECTS

[Source: "A Guidance Pack from the Department for Culture, Media & Sport" 1998]

1. Indicators of the economic effects of tourism activity in the local area are likely to include estimates of local income, jobs and business linkages. The direct measurement of tourism activity, especially of tourism expenditure, presents only a partial picture of the economic impact of the tourism activity in an area:

   • The gross *direct* economic impact of tourism is the total value of tourism spending in the area. This covers the 'front-line' effects, looking at tourism spending in hotels, restaurants, shops, taxis, i.e. any business that receives visitor expenditure directly. The net direct impact, however, needs to take into account the value of goods and services that are imported into the area in order to supply the tourist with goods and services.

   • *indirect* effects arise from the generation of economic activity by subsequent rounds of expenditure (*e.g. as hotels purchase food and drinks from local suppliers and use the services of local laundries, builders, banks, utility companies, etc.*) Not all these effects will arise in the local area since some such expenditure will go to suppliers elsewhere in the region or nationally.

   • *induced* effects arise from the spending of income accruing to local residents from wages and profits during the direct and indirect rounds.

   • *leakages* of expenditure out of the local economy: such as savings and taxation, as well as the costs of imports of goods and services from outside the area already mentioned above.

   • *opportunity costs:* to take into account the cost of using scarce resources for tourism as opposed to alternative uses, as, for example, spending on the provision of tourist information centres, car parking and other facilities used by visitors. When tourism substitutes one form of expenditure and economic activity for another, this is known as the displacement effect.

   • *investment activity* arising from capital investment in new facilities for visitors by private or public sectors (which also involve some consideration of opportunity cost.)

2. These are complex issues. There is guidance from HM Treasury on economic impact assessments. Employment effects are similarly difficult to measure precisely, but one simple approach is to track employment in 'tourism related industries'.

3. In conclusion, there is a frequently occurring temptation to attribute over-precision to the ability to measure indirect effects. Wherever appropriate and possible, STEAM reports separate direct and indirect estimates.

EMPLOYMENT

STEAM, both as a model and a process, takes advantage of various sources of information both to drive the model and benchmark the outputs. Such sources of information include:

- Some sub-regional estimates of numbers employed in tourism-related industries are available from NOMIS (National Online Manpower Information System) at the University of Durham. Some data are available quarterly from NOMIS, which allows the marked seasonal patterns in tourism employment to be taken into account.

- Local business surveys which give average numbers of core staff per type and size of establishment. Employment can be estimated by applying these averages to the local stock data.

- STEAM makes adjustments to the core staff in accordance with occupancy percentages above certain thresholds. This takes account of the times when temporary or part-time staff will be required.

- Employment resulting from tourist expenditure upon food and drink, recreation and leisure, shopping and transport, is more the stuff of 'multipliers' than direct estimation.

- The Office for National Statistics (ONS) publishes quarterly statistics covering employment in the following tourism related industries. (These are used to provide the official estimates for employment in the tourism related industries.)

Standard Industrial Classification (1992) Class
55.1 Hotels
55.2 Camping sites and other provision of short stay accommodation
55.3 Restaurants
55.4 Bars, public houses and nightclubs
63.3 Travel agencies and tour operators
92.5 Library, archives, museums and other cultural activities
92.6 Sporting activities
92.7 Other recreational activities

(Note that some of these categories are combined in the ONS tables but the data may be available from NOMIS)

DAY VISITORS AND THEIR IMPACTS IN STEAM

Defining Tourist Day Visits

STEAM defines a tourist day visit as one which crosses a boundary from one area into another area, for a period of at least three hours for non-routine leisure purposes.

The Source of Tourist Day Visitor Estimates

- STEAM uses as its baseline, elements of research undertaken by CURDS[1] (Centre for Urban and Regional Development Studies) and the TORG (Transport Operations Research Group) as the start point for calculation of local authority tourism day visitor volume estimates.
- The CURDS / TORG report was commissioned by the Departments of Employment and National Heritage and the method used in the research became established as the method of estimating the number of leisure day visits to each English local authority district. This was for the purpose of calculating the related element local government Standard Spending Assessment.
- These *leisure day visits* are defined as <u>non-routine</u> trips undertaken (away from home, but not involving an overnight stay) for one of four broad leisure purposes:
  - o Outdoor activities
  - o Visiting primary attractions (inc. shopping, eating out, sport, theatre)
  - o Visiting scarce attractions (inc. sightseeing, shows, museums, zoos)
  - o Visiting friends and relatives
- The research splits these into *intra* (source and destination of visitor within the district) and *other* (source of visitor from outside the district)
- Both *intra* and *other* trips are longer than 3 hours duration and are for "leisure purposes" as defined in the 1988/89 Leisure Day Visit Survey.
- STEAM uses the *other* data by district as the source data for the baseline day visitor estimates, thus excluding trips made by visitors originating from within the destination district.

Seasonality and Trends in Day Visitor Volume

- The baseline day visitor figure is further affected by a set of statistics to vary it from year to year and to spread the annual figure across the months, as required in the STEAM modelling process.
- The process of spreading the annual figure across the months utilises Tourist Information Centre visitor numbers and Visitor Attractions data. To be suitable for the task, these statistics must be:
  - o available for the full 12 months of the year, and
  - o be consistently measured for at least two years
- The process of identifying the change in tourist numbers from year to year (on a month-on-month basis) again utilises Tourist Information Centre visitor numbers and visitor numbers to attractions - these statistics are checked for consistency before use. Both monthly and annual estimates of visitor numbers can be utilised in the model.

Expenditure by Tourist Day Visitors

STEAM uses visitor expenditure data from visitor surveys to assist in the calculation of expenditure by all types of visitor. In the vast majority of cases this derives from survey work undertaken by Taylor Nelson Sofres (TNS) in England, Scotland and Wales on behalf of national agencies and other partners, including Global Tourism Solutions (UK) Ltd (GTS).

---

[1] Both at the University of Newcastle upon Tyne

As new sources of expenditure data become available, GTS re-assesses the expenditure assumptions in the Model, and where appropriate, updates these assumptions based on new data (where it is sufficiently robust). In this way, the expenditure data used to produce this report replaces previously available TNS survey data from Scotland. Where new survey data shows significant changes in Rates of Daily Expenditure (RatODEs), GTS, with its clients, assesses the need to update previous economic impact estimates, to ensure consistency across an established trend period.

The STEAM Model applies Rates of Daily Expenditure based on visitor expenditure on:
- o Food and Drink
- o Recreation
- o Shopping
- o Transport

Additionally, for *staying visitors*, expenditure on tourist accommodation is estimated using accommodation capacity information (bed stock), accommodation tariffs and performance data (occupancy).

The baseline expenditure data is updated annually to reflect the impact of inflation, using the Retail Price Index (RPI)

STATISTICAL CONFIDENCE LEVELS IN STEAM

STEAM is a model, so any level of confidence in the results depends on the sampling errors in the data inputs.   So how do we test STEAM?

- Quality control to ensure there are no data entry errors and that data inputs are *fit for purpose*
- Critical to all models is: 'Do random shocks[2] destabilise them or do they converge?' We have evaluated STEAM for convergence and shown that it does so quite easily.   Thus the *Law of Large Numbers* holds, in that any disturbances amongst the component parts are smoothed out when it comes to aggregation, so any outliers in the input data do not have a disproportionate impact on the overall results.
- On behalf of GTS (UK) Ltd, Professor Stephen Wanhill has tested the aggregate data from 2000-2004 in the model by devising *Psuedo Sampling Errors* and by examining in detail the outputs for all of Wales (selected for this exercise on the basis of size and length of trend series).   At Fisher's 95% Confidence Level this gave us +/- 5.06% for expenditure, +/- 3.01% for employment and +/- 3.56% for tourist days, based on our estimate of the percentage of coverage of the known accommodation stock and day visits in Wales as a whole.

Should more stringent confidence levels be applied (99.9% for example), the sampling error remains low, being +/- 8.49% for expenditure, +/- 5.05% for employment and +/- 5.97% for tourist days, again based on our estimate of the percentage of coverage of the known accommodation stock and day visits in Wales as a whole for the period 2000 to 2004.

Sir Ronald Fisher[3] devised these standard statistical confidence tests for quality control purposes in the 1920s. The choice of 95% confidence level to test statistical results has subsequently become an accepted standard practice. It means that we can be 95% confident that the true result lies within the boundaries +/- given.

By way of comparison, the 95% confidence level sampling errors in the 2004 International Passenger Survey were +/- 3.1% for expenditure, +/- 3.0% for tourist numbers and +/- 4.6% for tourist nights. This is at a UK level – at infra-national and regional levels these errors would be higher.

We are satisfied that STEAM offers reliable and robust outputs which our clients can place their confidence in, year on year.

---

[2] Caused by unusual or eccentric events
[3] Sir Ronald Aylmer Fisher (1890 – 1967)