

## BRIEFING PAPER 2

### THE IMPACT OF VISITORS TO STRATHCLYDE UNIVERSITY ON THE SCOTTISH ECONOMY

by Iain McNicoll, Department of Economics/  
Fraser of Allander Institute, University of Strathclyde

#### INTRODUCTION

To an ever increasing extent, Universities seek to improve the efficient use of their capital resources, both human and physical. However, probably one of the few areas in which the typical university will have any significant spare capacity, and then only at certain times, is in its accommodation space, both academic (such as lecture theatres) and residential (such as halls of residence).

Strategies of increasing utilization of accommodation capacity will vary among institutions, but the portfolio will usually include the provision of short-term residential courses, conference facilities, and 'packages' for vacationing tourists.

For the present paper, the crucial point is that, to the extent that any of these strategy elements is successful in attracting visitors from outside Scotland, then the local expenditures of these visitors will generate Scottish economic activity through conventional regional multiplier processes. Put simply, acting in this role, universities are de facto part of the local 'tourist business', and the contribution of tourism to Scottish income and employment is well-known and well-documented.

This paper explores this theme by considering, as a case study, the impact of visitors to Strathclyde University on the Scottish economy. However, it is not claimed that Strathclyde is unique in any relevant sense; on the contrary, most of the fundamental arguments, though not the specific quantitative estimates, will apply to other Higher Education Institutions.

#### EXPENDITURE BEHAVIOUR OF STRATHCLYDE VISITORS

The results in this section are based on a survey of

Strathclyde visitors undertaken by A.J. Shirran in the summer of 1993.<sup>1</sup> With the assistance of the University's Residence and Catering Department, Shirran distributed 700 purpose-designed expenditure questionnaires to residential visitor parties during the period June to August. 155 useable replies were obtained (a response rate of 22%), covering approximately 2% of Strathclyde's total 1992/93 visitor bed nights. Shirran does not report any formal indicators of the survey's statistical reliability, but clearly the smallish sample size and modest response rate imply that the results be treated with caution, though no obvious sources of bias or error were found.

In presenting her expenditure results, Shirran divided the overall sample into 4 distinct visitor types, according to broad geographical origin and purpose of visit. Shirran's categories, each of which contained over 30 individual observations, were: UK Business (UKB), Overseas Business (OSB), UK Vacation (UKV) and Overseas Vacation (OSV). 'Business' included visits for academic/education purposes.

Average per diem expenditures for each of these four visitor types is given in table 1.

John Myerscough<sup>2</sup> estimated, for Glasgow in 1990, much lower daily expenditure figures of £48.0 for UK vacation visitors and £74.0 for overseas vacation visitors. Apart from possible errors in either set of survey results, there are two economic factors which could plausibly help to explain at least the direction of the differences in the Myerscough and Shirran results. Firstly, Myerscough's figures relate to expenditures on Glasgow goods and services, while Shirran's refer to the whole of Scotland. Secondly, the average number of nights spent in Glasgow by the Myerscough sample were 5.2 for UK visitors and 6.0 for overseas visitors. Equivalent figures for

Shirran's sample were 3.7 nights and 2.4 nights respectively, and Shirran's detailed results indicated that per diem expenditure fell sharply with increasing period of residence.

Fundamentally, it may be that the Myerscough and Shirran samples are in fact drawn from distinct populations i.e. the vacational visitor who chooses to reside in Strathclyde University is not representative of the typical visitor to Scotland (or, at least, Glasgow). The significant differences in average periods of residence would tend to support this. Though interesting, this line of thought cannot be pursued in the present paper.<sup>3</sup> For the remainder of this study, it is assumed that Shirran's results do adequately reflect actual expenditures made by resident visitors to Strathclyde University.

Returning to table 1, the most striking feature is the extent to which total expenditure is so much more closely related to geographical origin of visitor rather than purpose of visit. Additionally, the table reveals marked differences in the expenditure patterns of different visitor types.

For the purposes of estimating the contribution of Strathclyde's visitors to the Scottish economy in 1992/93, it is necessary to estimate the aggregate volume of expenditures made by these visitors in that year. The University's Residence and Catering Department was able to provide figures for the total number of bed-nights purchased by each of Shirran's visitor categories as follows: 15020 (UK Business), 13693 (UK Vacation), 4796 (Overseas Business) and 6000 (Overseas Vacation). It is important to note that these figures do not include all the bednights provided by Strathclyde to visitors. In particular, certain components of the University's residential capacity (such as the Strathclyde Graduate Business School) are managed outside the Residence Department, and bed-night sales for such units are not included in the above figures. Furthermore, for a variety of reasons, the University may choose to accommodate visitors in private sector accommodation (hotels, guest houses, etc.), and again, the bed-nights of these visitors are excluded from the above totals.

In the absence of information on these 'excluded' categories, the present report is based on the information provided by Residence and Catering. Thus, multiplying table 1 per diem expenditures by REC's bed-night sales provides the estimated aggregate 1992/93 expenditures by Strathclyde visitors, shown in Table 2. To the extent that certain University-provided bed-nights are excluded,

then, ceteris paribus, the table 2 expenditures are underestimates.<sup>4</sup>

## THE IMPACT OF STRATHCLYDE VISITOR EXPENDITURE ON SCOTTISH ECONOMIC ACTIVITY

In any applied regional 'impact' analysis, it is necessary: (a) to estimate the initiating monetary injection into the local economy, and (b) to have a model of regional economic activity generation through which the total (direct plus multiplier) effects of the initial injection can be measured.

In the present study, the model employed is a 1989 Scottish input-output system, originally constructed by the author in collaboration with Scottish Enterprise. This model is not elaborated further in the present paper, since it has been discussed in detail elsewhere,<sup>5</sup> and since its use here is entirely conventional.

In the present context, more consideration must be given to the estimation of the initial injection made by Strathclyde visitors. Most importantly, the expenditure figures in table 2 cannot be used directly for this purpose, for both methodological and technical reasons.

Methodological issues arise from the fact that Table 2 measures gross visitor expenditure in Scotland, while the visitor injection should be estimated as net expenditure on Scottish goods and services. Technically, for modelling purposes Table 2 expenditures are inappropriately specified in terms of, for example, implied unit price and sectoral classification. More specifically, in adapting the results of Table 2 for use in the model, it is necessary to address the following:

- (a) UK figures in Table 2 include expenditures by visitors resident in Scotland.
- (b) All estimates in Table 2 include expenditures on imports.
- (c) Table 2 is expressed in terms of expenditure categories at purchasers' prices, whereas the model requires expenditure estimates by industrial classification at producers' prices.<sup>6</sup>

Although (b) is clearly a methodological issue, and (c) a technical one, they were in fact resolved together. By design, Shirran used Family Expenditure Survey (FES) categories, and a great

deal of work has already been done in converting total visitor expenditures according to this scheme to expenditures on Scottish goods and services by Standard Industrial Classification (SIC). Since, courtesy of the Scottish Office Input-Output Team, the present author had access to these 'mappings', it was not particularly difficult to convert Table 2 to the required format (i.e. excluding imports/at producers' prices).<sup>7</sup>

The inclusion of residents of Scotland as part of the net injection (point a) is more problematic; indeed, somewhat controversial. In some reports, authorities have argued that spending by Scottish resident visitors should be included, on the basis that equivalent expenditures would otherwise be made outside Scotland (formally, this assumes Scottish resident visitors' expenditure in Scotland is 100% additional). On the other hand, a number of authors, including the present one, have preferred to exclude these expenditures, conservatively arguing that resident visitor spending would otherwise be made elsewhere in Scotland (i.e. a formal assumption of 100% displacement). In reality, the net expenditure of the average Scottish resident visitor will lie somewhere in between, but in the present study we are compelled, albeit reluctantly, to accept 100% additionality. To the extent that this is incorrect, it will tend to overestimate the injection of Strathclyde's visitors to the Scottish Economy.<sup>8</sup>

Having made the necessary adjustments to the data in Table 2, the resulting estimates of net Strathclyde visitor expenditures on Scottish goods and services (by industry group) are shown in Table 3. As can be seen, the Scottish content of total expenditure is high for all visitor groups: from 82.1% for overseas business to 88.3% for overseas vacation. Following the conventions of the Scottish input-output table, expenditures on SIC 6 include the actual values of food and drink purchased in hotels, restaurants and bars. Expenditures on SIC's 8+9 are primarily on personal services and entertainment.

The figures in table 3 are our estimates of the initial monetary injection made by Strathclyde visitors, and incorporating these into the input-output model allows the direct and multiplier effects on Scottish economic activity to be calculated. The results, measured in terms of sectoral gross outputs and aggregate labour income, are shown in Table 4.

In aggregate terms, 1992/93 Strathclyde resident visitors generated £7.1 million of Scottish sectoral output and £2.5 million of employment income in

Scotland.<sup>9</sup> Of total output impact, 60.8% was generated by UK visitors (business and vacation), and 49.9% was generated by business visitors (UK and overseas).

Sectorally, there was a strong orientation of output impact towards service industries (SIC's 6-9, including the University), with 76.1% of total. However, all other sectors also benefitted; for example, 12.3% of output generated was in local manufacturing (SIC's 2-4). The main 'output' benefit to Strathclyde University itself was in terms of its accommodation receipts, though it also received net revenues from on-campus restaurants and bars (subsumed in SIC 6 in Table 4).<sup>10</sup> However, it is clear that the large majority of Scottish output generated was in sectors other than the University itself. This result reflects the facts that: (a) significant fractions of visitor expenditures were made directly outside the University; and (b) the University re-spent most of its visitors receipts on goods and services of other Scottish sectors.

The input-output model also provided estimates of physical Scottish employment generated by Strathclyde's visitors, via appropriate sectoral employment-output coefficients. In total, it is calculated that 174.5 full-time equivalent (FTE) jobs were created, including those in the University itself. This figure includes self-employed, and is based on the assumption that 1 part-time job = one-third of a full-time job.

Comparing Tables 2 and 4, it can be concluded that, on average, each £1 of Strathclyde visitor expenditure generated £1.76 of Scottish sectoral gross output.<sup>11</sup> In terms of individual average visitor types, the range of outputs generated per £1 expenditures was fairly narrow: from £1.70 for overseas business visitors to £1.80 for overseas vacation visitors.

However, the volume of Scottish output generated per day of residence differed more significantly according to origin/purpose of visit. Per diem output impact per average visitor was as follows:

|                   |   |        |
|-------------------|---|--------|
| UK Business       | : | £155.6 |
| Overseas Business | : | £252.9 |
| UK Vacation       | : | £145.0 |
| Overseas Vacation | : | £262.9 |

These results reflect both differences in the average levels of daily expenditures (a 'magnitude' effect) and differences in the total output generated per average £1 of expenditure (a 'pattern' effect).

Clearly, overseas visitors generated significantly more Scottish output per day than those from the UK, whatever the purpose of visit. However, Shirran's study also indicated that on average, for the same purpose of visit, UK visitors had longer residence in Strathclyde. Thus, the output impacts per average trip by equivalent categories of UK and overseas visitor were more similar, as follows:

|                   |   |         |
|-------------------|---|---------|
| UK Business       | : | £812.2  |
| Overseas Business | : | £1153.2 |
| UK Vacation       | : | £536.5  |
| Overseas Vacation | : | £631.0  |

## CONCLUSIONS

To an increasing degree, Universities are seeking to increase the utilization of their accommodation capacities by attracting residential visitors, other than their own staff and students, for a variety of purposes. Clearly, the immediate aim of the University is to increase its own net revenue flow; however, to the extent that a University is successful in attracting visitors from outside its host region, then the local expenditures of these visitors represents an injection into the host economy which will generate multiplier effects on regional activity. In short, since Universities are acting as part of the 'visitor business' in this aspect of their operations, it is legitimate to estimate the local economic impact of this trade in the same way as has been done for hotels, holiday complexes, and other 'tourist facilities'.

Pursuing this idea, the present paper estimated the impact of resident visitors to Strathclyde University on the Scottish economy in 1992/93, based primarily on the results of a purpose designed visitor expenditure survey undertaken by Ms A Shirran. Shirran's results themselves reveal interesting differences in visitor behaviour according to geographical origin and purpose of visit in terms of the level and pattern of expenditure and duration of residence. However, in the present paper, the primary purpose was to integrate Shirran's results into a suitable model to estimate the impact of aggregate visitor expenditure on Scottish economic activity.

Subject to the data and methodological caveats expressed in the main text, the point estimates of the impact of 1992/93 resident visitors to Strathclyde on the Scottish economy were as follows:

Sectoral Gross Output (inc. University) : £7.1 m  
Household Labour Income (inc. University): £2.5 m  
FTE Employment (inc. University) : £174.5

Additionally, the study revealed that, although Strathclyde benefitted in terms of accommodation and on-campus catering receipts, the large majority of Scottish impact was realised outside the University itself.

In summary, this case study has indicated that, though not central to its own 'mission', the involvement of a University in the visitor market may bring useful spin-off benefits to its host region in the form of local economic activity generation.

## REFERENCES

John Myerscough (1991) Monitoring Glasgow 1990, Report to Glasgow City Council, Strathclyde Regional Council and Scottish Enterprise.

McNicoll I H (1992) A New Approach to Modelling the Scottish Economy, Scottish Enterprise, Glasgow.

McNicoll I H (1993) The Impact of Strathclyde University on the Economy of Scotland, Strathclyde University, Glasgow.

Surrey Research Group (1993) Scottish Tourism Multiplier Study 1992, ESU Research Paper No.31, The Scottish Office, Edinburgh.

**Table 1**  
**Average Per Diem Strathclyde Resident Visitor Expenditure 92/93 (£)**

| Item/Visitor                    | UKB         | OSB          | UKV         | OSV          |
|---------------------------------|-------------|--------------|-------------|--------------|
| Accommodation                   | 28.4        | 39.0         | 29.9        | 39.2         |
| Restaurants<br>(inc. on campus) | 13.8        | 17.7         | 4.3         | 16.7         |
| Packaged Food                   | 3.7         | 6.6          | 1.3         | 5.3          |
| Drink                           | 9.0         | 9.3          | 1.0         | 7.8          |
| Own Car                         | 7.9         | 5.9          | 0.8         | 0.0          |
| Car Hire                        | 8.3         | 11.3         | 0.0         | 19.6         |
| Public Transport                | 2.6         | 5.9          | 2.4         | 19.8         |
| Personal Services               | 0.6         | 1.8          | 9.5         | 2.0          |
| Personal Goods                  | 1.9         | 17.4         | 9.8         | 9.4          |
| Entertainment                   | 6.7         | 11.9         | 15.3        | 7.8          |
| Souvenirs                       | 3.8         | 22.0         | 9.2         | 18.2         |
| <b>Total</b>                    | <b>86.7</b> | <b>148.8</b> | <b>83.5</b> | <b>145.8</b> |

**Table 2**  
**Total 1992/93 Expenditures in Scotland by Strathclyde Residential Visitors**

| £000              |               |              |               |              |
|-------------------|---------------|--------------|---------------|--------------|
| item/Visitors     | UKB           | OSB          | UKV           | OSV          |
| Accommodation     | 426.6         | 187.0        | 409.4         | 235.2        |
| Restaurants       | 207.3         | 84.9         | 58.9          | 100.2        |
| Packaged Food     | 55.6          | 31.7         | 17.8          | 31.8         |
| Drink             | 135.2         | 44.6         | 13.7          | 46.8         |
| Own Car           | 118.7         | 28.3         | 11.0          | 0.0          |
| Car Hire          | 124.7         | 54.2         | 0.0           | 117.6        |
| Public Transport  | 39.1          | 28.3         | 32.9          | 118.8        |
| Personal Services | 9.0           | 8.6          | 130.1         | 12.0         |
| Personal Goods    | 28.5          | 83.5         | 134.2         | 56.4         |
| Entertainment     | 100.6         | 57.1         | 209.5         | 46.8         |
| Souvenirs         | 57.1          | 105.5        | 126.0         | 109.2        |
| <b>TOTALS</b>     | <b>1302.4</b> | <b>713.7</b> | <b>1143.5</b> | <b>874.8</b> |

| <b>Table 3</b>   |               |              |              |              |
|--|---------------|--------------|--------------|--------------|
| <b>Net Strathclyde Visitor Expenditures on Scottish Goods and Services 1992/93</b> |               |              |              |              |
| <u>SIC</u> <sup>+</sup>  | £000          |              |              |              |
|  | <u>UKB</u>    | <u>OSB</u>   | <u>UKV</u>   | <u>OSV</u>   |
| 0  | .2            | 2.4          | 1.6          | 2.4          |
| 1  | 41.0          | 12.9         | 17.1         | 8.4          |
| 2  | 0.3           | 0.9          | 14.9         | 0.6          |
| 3  | 9.9           | 4.3          | 9.5          | 5.5          |
| 4  | 43.2          | 61.2         | 73.5         | 67.3         |
| 5  | 60.8          | 26.7         | 58.5         | 33.6         |
| 6 <sup>+</sup>   | 443.1         | 220.0        | 181.4        | 221.1        |
| 7  | 46.5          | 31.3         | 40.0         | 122.7        |
| 8+9  | 249.8         | 126.1        | 353.2        | 185.1        |
| Labour Income <sup>0</sup>   | 227.6         | 99.8         | 218.8        | 125.7        |
| <b>Totals</b>  | <b>1126.4</b> | <b>585.6</b> | <b>968.5</b> | <b>772.4</b> |

+ key to SIC: 0 = agriculture, forestry, fishing; 1 = energy/water; 2 = extraction of minerals and chemicals; 3 = metal goods, engineering and vehicles; 4 = other manufacturing; 5 = construction; 6 = distribution, hotels and catering; 7 = transport and communications; 8+9: banking, insurance, other services.

0 University Employees, through re-spending of accommodation receipts.

\* Includes on-campus cafes and bars.

| <b>Table 4</b>  |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|
| <b>Strathclyde Visitor Impact on Scottish Output and Income 1992/93</b> |               |               |               |               |               |
|   | (£000)        |               |               |               |               |
| <u>SIC</u>  | <u>UKB</u>    | <u>OSB</u>    | <u>UKV</u>    | <u>OSV</u>    | <u>Totals</u> |
| 0   | 39.5          | 26.7          | 34.5          | 31.1          | 131.8         |
| 1   | 123.7         | 59.1          | 96.5          | 66.0          | 345.3         |
| 2   | 21.4          | 13.6          | 37.7          | 16.2          | 88.9          |
| 3   | 40.6          | 20.7          | 38.7          | 26.3          | 126.3         |
| 4   | 173.4         | 139.2         | 186.5         | 163.5         | 662.6         |
| 5   | 102.1         | 47.7          | 94.1          | 60.4          | 304.3         |
| 6 <sup>+</sup>  | 663.5         | 331.5         | 358.3         | 363.9         | 1717.2        |
| 7   | 140.7         | 80.3          | 109.9         | 194.0         | 524.9         |
| 8+9   | 605.4         | 307.0         | 620.0         | 418.0         | 1950.4        |
| University Total <sup>*</sup>   | 426.6         | 187.0         | 409.4         | 235.2         | 1258.2        |
| <b>Gross Output</b>   | <b>2336.9</b> | <b>1212.8</b> | <b>1985.5</b> | <b>1574.7</b> | <b>7109.9</b> |
| <b>Labour Income</b>  | <b>835.6</b>  | <b>418.4</b>  | <b>720.7</b>  | <b>543.5</b>  | <b>2518.2</b> |

+ includes on-campus restaurants and bars

\* accommodation receipts only

## NOTES

1. Shirran, A.J., The Expenditure Patterns of Summer Residents in Strathclyde University Accommodation, Thesis presented for MSc in Business Economics, Strathclyde 1993.
2. John Myerscough: Monitoring Glasgow 1990, 1991.
3. Comparisons of the Myerscough and Shirran results do suggest some areas of further research. For example, the total per trip expenditures for vacational visitors (UK and overseas) are quite similar. If correct, this would suggest either that Strathclyde residents have higher-than-average per capita income or that visitors have in mind a pre-determined expenditure budget for their stay in Glasgow, and, depending on their chosen duration of residence, adjust their expenditure pattern accordingly.
4. However, qualitatively, it is known that the extent of underestimation is small (i.e. a maximum of single figure percentage points).
5. McNicoll (1992)
6. Basically, producer's prices = purchaser's prices less net expenditure taxes less trade and transport margins.
7. Additionally, the author had compiled a survey-based breakdown of Strathclyde's own
8. Having noted the author's preference to exclude all expenditures by Scottish residents, it is
9. This latter figure includes employers NI and pension contributions.
10. It is important to note that this does not lead to double-counting of expenditures or impacts.
11. In a study for Edinburgh 1991, Surrey Research Group (1993) estimated that, on average, each