

Evaluation of the LM3 Tool as an Indicator for Leakage in the Tourism Sector

Experiences and lessons from applying the Local Multiplier-3 as an indicator of regional economic leakage

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Table of Contents

List of Figures

1. INTRODUCTION	2
1.1 PROBLEM FORMULATION	2
1.2 OBJECTIVE.....	2
1.3 RESEARCH QUESTIONS:.....	2
1.4 METHODOLOGY:.....	3
1.5 LIMITATION.....	3
2. ECONOMIC LEAKAGE AND THE TOURISM VALUE CHAIN	4
3. THE CONCEPT OF THE ECONOMIC MULTIPLIER.....	7
3.1 THE LOCAL MULTIPLIER 3 TOOL	7
3.2 THE ECONOMIC MULTIPLIER CALCULATION	8
4. CASE STUDIES	9
4.1 NORTHUMBERLAND COUNTY COUNCIL LM3 PROJECT	10
4.1.1 <i>Northumberland County</i>	10
4.1.2 <i>Economy and current condition</i>	10
4.1.3 <i>Experience with the LM3 tool</i>	10
4.1.4 <i>Findings of the Northumberland County LM3 study</i>	11
4.2 IMPROVEMENT MEASURES.....	11
4.3 WEST SOMERSET RAILWAY	12
4.3.1 <i>Findings of the West Somerset Railway LM3 study</i>	13
5. DISCUSSION - TOURIST SECTOR APPLICATION OF THE LM3	14
6. CONCLUSION	16
REFERENCES.....	17

List of Figures

Figure 2-1 Tourism Value Chain.....	5
Figure 2-2 Tourism Destination Life Cycle.....	5
Figure 3-1 Sample leakage over successive rounds of spending.....	8
Figure 4-1 Northumberland and Somerset Counties.....	9

1. Introduction

Tourism is presently the largest industry in the world, accounting for about 11% of world GDP and 8% of employment. Further, the coming years are likely to bring with them significant growth in tourist visits are projected to double by the year 2020 relative to 2005 (World Tourism Organisation, 2002). While tourism can provide a basis for economic development, it has been argued that tourist development, and especially mass tourism, can also impose substantial costs on host regions. In addition to costs for host communities, the economic benefits that drive tourism development are often lost to outside parties through a number of pathways. These losses have been termed 'economic leakage'. While it is unlikely that it is possible -or even desirable- to eliminate economic leakage, it is clearly useful for communities that host tourism development to be able to measure leakage that may be occurring in their communities and take steps to increase the benefits to local communities. One means to gauge the rate of economic leakage in a community is to assess where money flows and how much of it remains and how much leaves the community over time.

1.1 Problem Formulation

Excessive economic leakage from tourism destinations can be considered as a characteristic of an unsustainable tourism development. While there is as yet no generally accepted definition of the term economic leakage (let alone what might be 'excessive'), user friendly tools to assess impacts of spending by tourists and the businesses that cater to them will be important to enable local communities to track benefits they receive from tourism activities in their region.

The New Economics Foundation in the United Kingdom has developed a tool, referred to as the Local Multiplier 3 or 'LM3', based on the concept of the economic multiplier, which is an established methodology to measure impacts from expenditure in an economy (New Economics Foundation, 2002). The LM3 tool was developed in cooperation with the United Kingdom Countryside Agency as a methodology for understanding monetary flows in local economies. While the LM3 tool is described in detail in the New Economics Foundation publication entitled *The Money Trail: Measuring your impact on the local economy using LM3*, the lessons from the early experiences with the tool have not been evaluated with respect to application to the tourist industry.

1.2 Objective

The objective of this paper is to provide a summary of the LM3 tool, and prepare two case studies based on application of the tool in UK communities. Based on these case studies the potential for application of the tool in the Åre resort community in central Sweden as an indicator of economic leakage from tourist spending will be evaluated. Key objectives of the case studies will be to explore issues connected to the application of the tool, and in particular to determine whether communities have been able to use the tool to measure effectiveness of measures aimed at reducing economic leakage in their communities.

1.3 Research questions:

In order to achieve the above objectives this paper will address the following research questions:

1. What is the LM3 tool and how can it be applied to local regions in assessing economic leakage?
2. What were the key findings where the LM3 tool has been applied?

3. Was there any influence of the LM3 project on policies to reduce economic leakage? What policies were put in place? How successful are the policy measures believed to be?
4. What can be learned from the experiences applying the LM3 tool with respect to potential application to assessing economic leakage in the tourism sector?

1.4 Methodology:

This paper was undertaken with a preliminary review of the concept of the economic multiplier and the LM3 tool developed by the New Economics Foundation. Based on United Kingdom communities where the LM3 tool has been applied, case studies were prepared by gathering background information on the regions using information available via internet and through personal interviews. The case studies were similarly prepared through personal telephone and e-mail interviews with individuals connected to the projects.

1.5 Limitation

This paper will briefly summarise the theory behind the economic multiplier concept as applied in traditional economics followed by a description of the LM3 tool as developed by the New Economics Foundation. Application of the LM3 tool will be reviewed through compiling case studies where the tool has been applied in Northumberland County Council and the West Somerset Railway. The paper does not evaluate the validity of the economic multiplier concept nor the methodology applied in the LM3 tool.

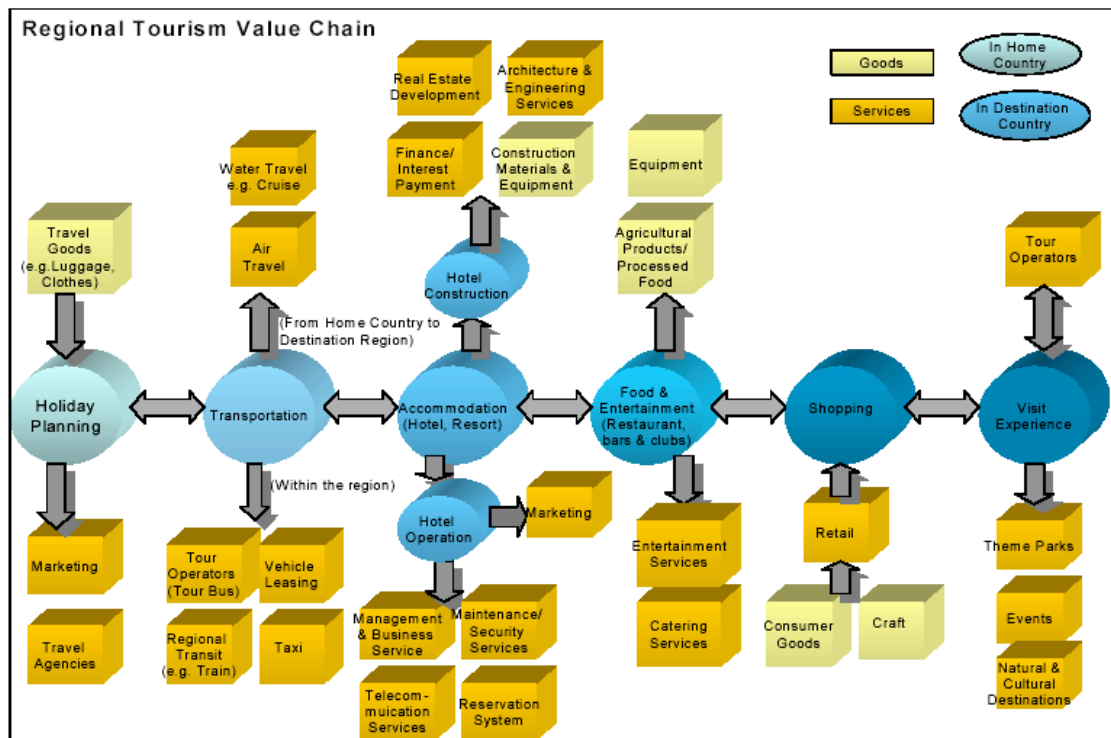
2. Economic leakage and the tourism value chain

The concept of economic leakage in the tourism industry has been studied to some degree, although not extensively. While there is not presently a generally accepted formal definition of the term, a number of similar definitions have been proposed in the literature and all generally speak to losses of financial or other resources that are subtracted from tourist expenditures (Supradist, 2004). Irrespective of the definition of 'leakage', three general types of economic leakage have been described in the literature (Gollub, Hosier & Woo, n.d.). These include:

1. **External Leakage** – leakage caused by tourist expenditure outside the region and the connected industry, including foreign investor profit repatriation, external debt amortisation costs, external intermediate actors (e.g. foreign travel booking agents, airlines) and promotional costs in overseas markets supplying tourists. The leakage to external intermediaries is sometimes characterised as a type of leakage in itself, and has been referred to as 'pre-leakage'.
2. **Internal Leakage** – leakage caused by import of foreign produced goods for re-sale and import of foreign labour and capital. The magnitude of this type of leakage is governed by the tourism demand for goods and services produced externally, e.g. name brand alcoholic beverages or clothing.
3. **Invisible Leakage** – leakage caused by tax avoidance, informal currency exchanges, off-shore savings and investments. Invisible leakage is also caused by degradation of environmental and cultural features of the destination which lead to a reduced quality of life for host communities as well as a decline in the value of the destination over time with respect to tourist appeal.

The various types of economic leakage can occur at different parts of the process of providing the tourism product, be it an activity/experience or a product or service purchased while on holiday. Gollub has described the various activities that must occur as part of providing a tourism experience as a tourism value chain. Specifically, the value chain is defined as a 'continuum of related economic activities associated with visitors that can be carried out at least in part within a region' (Gollub, Hosier, Woo, n.d.). Main activities described by Gollub in the value chain include holiday planning, transportation, accommodation, food & entertainment, shopping and 'visit experience' (natural environment, theme parks etc.). Each phase presents opportunities for host destinations to capture an element of the benefits from tourism expenditure and/or experience a leakage. Figure 2-3 presents Gollub's value chain.

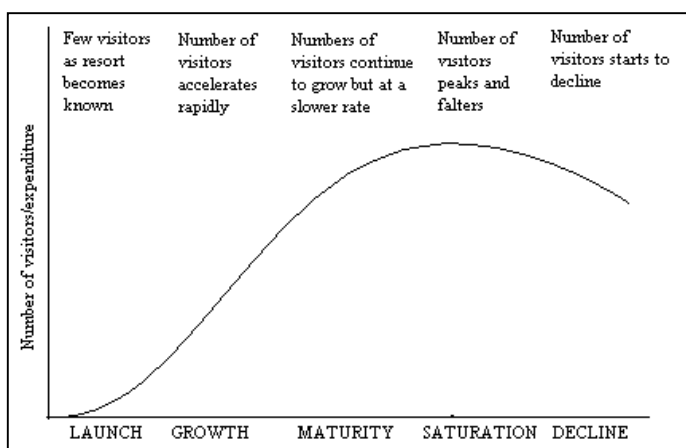
Figure 2-1 Tourism Value Chain



Source: Taken from Gollub, Hosier & Woo, N.D

In addition to the opportunities for leakage at the various stages of the value chain, it has been noted that tourism destinations tend to pass through successive stages of development from initial discovery, growth, maturity, saturation and decline (Budeanu, A., 1999). The process of moving from one stage to another likely occurs at different rates in different destinations and will depend on factors such as the type of tourism activities on offer, rate of growth in the tourism demand in a region, resilience of the cultural and environmental attractions for tourists and destination capacity to innovate in order to sustain demand and attract new and repeat visitors. Figure 2-2 illustrates a typical development of a tourism destination with respect to numbers of visitors and/or expenditures in a region.

Figure 2-2 Tourism Destination Life Cycle



Source: Taken from Budeanu, A., A Tour to Sustainability, as adapted from Holloway, C., The Business of Tourism, 5th Edition, 1998, Addison Wesley Longman Ltd., Singapore

Gollub describes four stages of development of a tourist destination economic cluster serving a destination and notes that economic leakage is connected to the stage of development of a destination. While applying slightly different terminology, the four stages can be related to the life-cycle presented in Figure 2-2 above. The following is a brief summary of economic leakage at each stage of the destination life-cycle as described by Gollub.

- **Seed Stage** (launch stage) where leakage increases sharply due to investments in infrastructure, which are required to develop the region.
- **Emerging Stage** (growth stage) where leakage declines due to returns on investments and new employment & tax revenues are realised. Gollub notes that at this stage, there is generally a lesser involvement of all inclusive package operators that are active in the region and ‘world class’ assets are often few in number.
- **Expanding Stage** (maturity stage) where leakage again increases as a proportion of total revenues due to increased visibility of the destination attracting greater numbers of visitors which stimulates further imports of capital, products and services, as well as goods and labour.
- **Transforming Stage** (saturation stage) where the destination could follow one of three paths towards:
 - **Lagging region** (decline stage) where revenues are rising slower than the growth of visitors and visitor expenditure. This is caused by infrastructure debt payments, imports of foreign goods and services and foreign ownership of tourism assets. Gollub notes that such regions have often invested heavily in infrastructure provision without capitalising on the opportunity to provide value-added goods and services. These regions have invested resources only to serve as a ‘platform’ for the business of other investors.
 - **Static region** retaining a stable level of tourism visitors and expenditure, which could be an indication of overly aggressive leakage prevention policies and where local capacity does not exist to adequately meet tourist demand for goods and services.
 - **Dynamic region**, sustained growth of tourism revenues in step with the growth in tourist expenditure and numbers of visitors.

The purpose of the above discussion has been to briefly introduce the various types of economic leakage that have been described, to introduce the concept of the tourism value chain and the various actors contributing to the tourism industry and that leakage tends to occur in different ways at different phases of the destination life-cycle. These concepts will be important in the analysis of the suitability of the LM3 tool for assessing economic leakage in tourism destinations as well as provide an indication of how the tool could best be applied, should an evaluation of the Åre ski destination based on the LM3 model be undertaken.

3. The Concept of the economic multiplier

The concept of the economic multiplier was first employed by John Maynard Keynes to measure the total economic effect of an economic input into an economy (NEF, 2002). Keynes noted that as the additional, or ‘marginal’ input, of money enters an economy through, for example a large infrastructure project, demand for labour and material will increase. Employees employed by the project and firms that sell goods or services to the project will in turn further stimulate demand for additional goods and services as they spend their earnings. As the original investment passes through the economy, the total economic benefits that are realised are greater than the value of the original input. However, since a portion of the money inevitably ceases to circulate within the local economy because of savings, purchases of imported goods or interest payments on debt to outside banks, subsequent rounds of spending tend to result in a gradual loss of the value of the original input. Accordingly, it stands to reason that the more money turns over within a community or region before being lost through outside expenditures, the greater the multiplier effect provided by the original investment.

Factors that increase economic multipliers are high levels of economic development and diversity that can meet the local demand for goods and services in a region. Conversely, payment for imported goods and services, debt repayments to external creditors and savings of local residents reduce the economic multiplier (McIntosh, Robert. 1979).

Importantly, economic multiplier analyses measure the effect of marginal inputs at given points of entry, be that an organisation or a specific group of individuals. The analysis tracks the flow of money from that point of entry as it passes from one actor to another in the economy under consideration and sums the benefit received by each actor to a given end point. There will be no single ‘economic multiplier’ for a given region, but different multipliers based on the point of entry of the original input.

3.1 The Local Multiplier 3 Tool

At the national or regional level, economic multipliers are calculated using large datasets and complex mathematical models of how money flows between economic sectors in an economy. At the local level, it is unlikely that sufficient information and expertise will be normally available to undertake such an analysis. To provide a user-friendly tool that enables local decision makers to understand money flows within communities, the New Economics Foundation (NEF) in the United Kingdom developed the Local Multiplier 3 tool which provides an approximation of a local multiplier in a manner that is accessible to non-experts such as community volunteers and local decision makers (NEF, 2002).

The tool guides users through a process of tracking expenditures of a local business, such as a hotel or supermarket, or expenditures of a group of individuals, such as welfare recipients or tourists. For a national government undertaking a study for an economically diverse nation or region, the pathways and effects of successive rounds of spending can be complex and detailed studies are required in order to make informed decisions about economic policy. However, in a study of local multipliers for Bed and Breakfast accommodations in one region of the UK, the NEF noted that about 85% of the original inputs were lost after the third round of spending (NEF, 2002). Because of this, the LM3 tool applies the assumption that most of the value is captured by studying the first three rounds of spending, which, while possibly underestimating the multiplier score, data collection and analysis is substantially simplified.

The three rounds of spending considered in the LM3 methodology are:

Round 1 – initial input received by local business, organisation or group of individuals

Round 2 – spending by the entity in round one on salaries and supplies (organisations) or spending on food, rent/mortgage, clothing entertainment etc. (individuals)

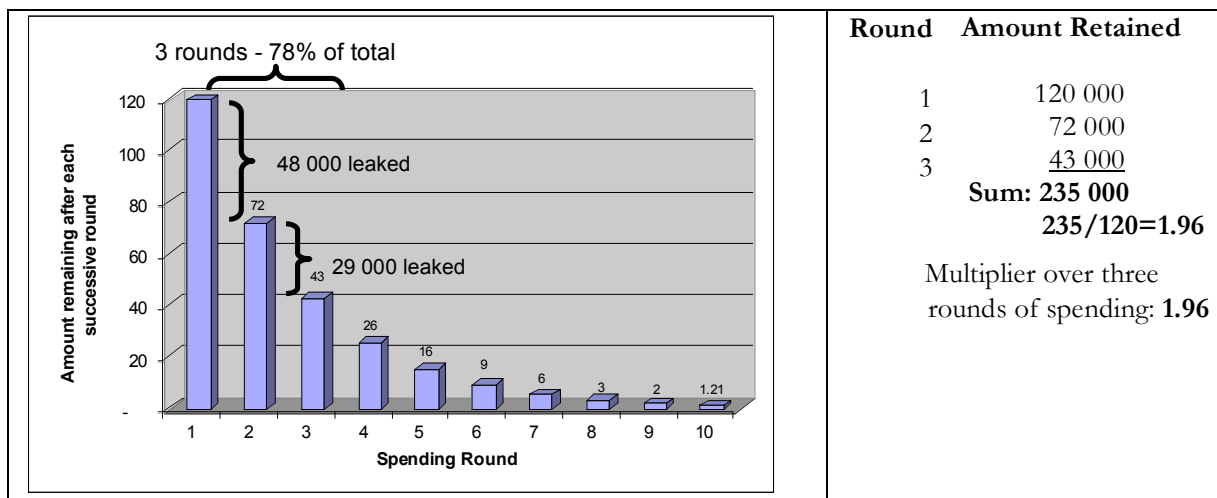
Round 3 – spending of the organisations or individuals within the region under study that received money in round 2

3.2 The economic multiplier calculation

As previously discussed, money entering an economy will stimulate demand for further goods and services as recipients of the money re-spend their earnings. The successive amount of the economic benefit realised locally will depend on how much of the original input is spent locally vs. externally over each successive round of spending. To illustrate the calculation through a simple example, consider a hotel with an annual income of €120 000 can be considered. If the hotel purchases goods and services from its first tier suppliers such that 60% of the €120 000 in revenue is directed to local employees and suppliers, this second round of spending results in €72 000 retained by the local economy. If these first tier suppliers and employees of the hotel in turn spend a similar portion of their earnings locally in the third spending round, €43 000 would remain in the local economy. If the money was traced across ten rounds of spending, nearly all the money would have left the region. By summing the amounts retained locally over all ten rounds of spending we see a total local benefit of €298 000. Dividing by the original input of €120 000, we arrive at a multiplier of 2.48.

Since pursuing the spending until it is fully leaked from a region would be complex and costly, there is a need to decide how many rounds of spending will suffice for the analysis. As noted by the NEF in its analysis of bed and breakfast accommodation in the UK, the majority, in this case 79%, of the value derived from the original spending is captured by examining just three rounds of spending. By summing the portion of spending that remains within the region after these three spending rounds and dividing by the original input we arrive at the multiplier of 1.96, which can be deemed a reasonable indication of the economic multiplier for a region. Figure 3-1 illustrates this reasoning.

Figure 3-1 Sample leakage over successive rounds of spending



Source: adapted from *The Money Trail: Measuring your impact on the local economy using LM3*, NEF (2002)

4. Case studies

Economic multiplier studies based on the New Economics Foundation LM3 methodology have been undertaken by a number of organisations since the tool was published in 2002. The two case studies below have been compiled to briefly profile experiences with the tool with the objective of assessing the experience of undertaking an LM3 study and to hopefully determine how the tool might be applied in the tourism context.

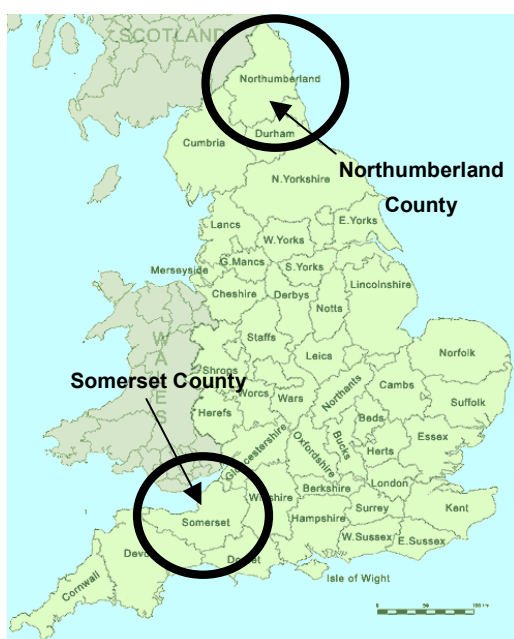
The first case study is the Northumberland County Council, in the United Kingdom, where an in depth LM3 study was undertaken by the County in cooperation with the NEF. Results of the study and actions taken by the County are to set to be published in May, 2005, by the New Economics Foundation. The case study below was compiled from a number of sources including e-mail and telephone interviews with representatives of the New Economics Foundation and the Northumberland County Council, and internet resources.

While the case differs from the tourist sector substantially in that the Council is both a government agency and one of the most significant economic actors in the region, the case is considered relevant as it will provide insight into the practicalities of applying the tool in practice. Further, measures implemented by the Council are of interest as they may be relevant to large tourist operations in improving local impacts of their operations.

The second case study is the West Somerset Railway, a heritage steam driven railway operating in southwest England. This case is relevant for investigation as it is primarily a tourist operation, which will provide both insight of a private organisation applying the LM3 tool as well as its application to the tourism sector. Information from this case study was compiled based on a published study entitled West Somerset Railway: Local Economic Impact Study, International Centre for Research and Consultancy (ICRC), Manchester Metropolitan University, 2004.

Figure 4-1 illustrates the location of the case studies in Northumberland and Somerset Counties, United Kingdom.

Figure 4-1 Northumberland and Somerset Counties



Source: Pictures of England available <http://www.picturesofengland.com/mapofengland/counties-map.html>

4.1 Northumberland County Council LM3 Project

In early 2004, the Northumberland County Council decided to measure and improve the economic impact on the county economy through its procurement policy for food supply contracts for school, social service, residential & day care programs and civic catering services purchased by the County.

4.1.1 Northumberland County

Located in northeast border with Scotland, Northumberland County is the sixth largest English county with a land area of about 5 200 km². With a regional population of roughly 300 000 is also one of the least densely populated regions of England. Over half of the population resides in about 10 urban areas comprising about 5% of the land area in the southwest region of the county while the remainder reside in smaller rural towns and villages (Northumberland County Council homepage – The County, 2005). The County is home to a considerable number of cultural heritage sites including Roman forts, early Christian sites and more castles and fortified structures than any other English county, including a medieval wall designated as a World Heritage Site (NCC homepage - Annual Library Plan, 2002).

The County Council delivers services in partnership with six local district councils in the county. Functions provided by the local district councils include normal municipal services such as property tax administration, disabled and elderly care, local planning functions, housing standards and refuse collection. The County Council cooperates with the local district councils to provide services in the areas of community services, economic development, community safety, environmental protection/sustainability, and road and highway maintenance (NCC homepage - District Council Services, 2005).

4.1.2 Economy and current condition

The two mainstays of the Northumberland economy for generations have been coal mining and agriculture with nearly 75% of land area currently dedicated to agriculture and forestry. Major agricultural products include a sheep flock of about 1.5 million as well as beef and dairy farming. Coal mining in the County, once the primary industry in the region, employed some 30 000 miners in the 1950s and producing some 6% of the United Kingdom's coal is all but disappeared (NCC, 2002).

Presently, the County faces a challenging economic situation with the disappearance of the coal industry and, more recently, challenges to the agricultural and tourism sectors from Foot and Mouth Disease (NCC, 2002). GDP per capita ranks in the lowest quartile of UK regional authorities, which is reflected in earnings in the seventh lowest of the UK's 133 County and unitary authorities. In absolute terms, 35% of employees' weekly earnings are less than €359 (£250), the 'Decency Threshold' established by the Council of Europe (NCC, 2002). In addition to low earnings, unemployment in the County is high, running at roughly 10% for men and 5% for women (Department of Environment, Food and Rural Affairs, 2004).

Of the twenty largest employers in the County, all of the top five fall within the public sector and four of the remaining fifteen are also public sector employers. Large private employers include Alcan Aluminium, Pfizer and Procter & Gamble. (NCC, Key Statistics, 2005). Because of this, like many rural areas the role of the public sector in Northumberland is very significant in terms of employment and economic impact.

4.1.3 Experience with the LM3 tool

At the suggestion of the One Northeast Agency, a UK central government funded regional development agency, the Northumberland County Council decided to measure and improve the local

impact of its £245 million (€352 million) procurement budget for goods, services and infrastructure works (Mitchell, B., NCC. 2005, March 16 telephone interview).

In order to undertake the project, the County Council received funding support from the Northumberland Strategic Partnership, a separate National government funded agency with a mandate to support local renewal (Mitchell, B., NCC. 2005, March 16 telephone interview). Based on this support the County Council allocated a full time appointment in its procurement department in January, 2004. The role of the position was to conduct an LM3 study to benchmark current economic impact resulting from the County Council's procurement budget and pursue measures to improve the local economic impact (Mitchell, B., NCC. 2005, March 16 telephone interview).

4.1.4 Findings of the Northumberland County LM3 study

To gather the required information, the County Council conducted a mail survey of firms that supply the Council with goods and services to determine where the suppliers in turn spend their money. Of all suppliers surveyed the Council received 400 correctly completed responses, which corresponded to a response rate of 31% representing over 75% of County procurement spending (Mitchell, B., NCC. 2005, March 16 telephone interview). Notably, the Council indicates that response rates were markedly lower for large suppliers offering services nationally and that the lower response rate might be attributable to concerns about broader UK regional renewal policies which promote procurement of locally produced goods (Mitchell, B., NCC. 2005, March 16 telephone interview). Nonetheless, the County considered the response to the survey to be sufficient to provide a meaningful indication of the LM3 score for their procurement spending.

Following the analysis, the County Council learned that locally based suppliers on average re-spent far more locally than suppliers based outside the region. In all, 76% of Council procurement spending on locally sourced goods and services was re-spent locally over the three rounds of spending that were measured, whereas only 36% of council spending was re-spent locally for suppliers based outside the County (Mitchell, B., NCC. 2005, March 16 telephone interview). In terms of LM3 scores, considering all suppliers yielded an LM3 score of 2.19, whereas spending on local and non-local suppliers yielded LM3 scores of 2.76 and 1.36 respectively (Mitchell, B., NCC. 2005, March 16 telephone interview).

4.2 Improvement measures

Using the results of their initial LM3 study as a baseline for assessing policies to improve the local benefits of Council procurement spending, the council began to investigate how they could improve their impact (Sacks, 2005 March 7). In order to prevent discriminatory practices, public procurement is strictly regulated by European Union Procurement Directives, legislation within the UK and County Council Finance and Contract Rules (Sacks, 2005 March 7). However, contrary to widely held belief, governments are entirely within the law to reach out to local suppliers during the procurement process, provided that similar services are offered to non-local potential suppliers (Sacks, 2005 March 7).

Using food supply contracts for school and care facilities as a test case for policies to improve local benefits from Council spending without contravening EU, UK or Council procurement rules, the council undertook a number of measures designed to better engage local suppliers. First, the Council held information seminars to reach out to current and potential food suppliers to explain the tendering process and encourage networking to increase the potential of small suppliers to successfully win Council contracts (Mitchell, 2005). In addition, the Council engaged with local business support organisations such as the Business Link for Northumberland, a government funded resource tasked with providing business advice to small land medium sized firms, and the Northumbria Larder, an regional agricultural products business association (Mitchell, 2005). This exercise served both to provide technical assistance on completing the tendering process to all potential suppliers which

resulted in engaging some firms that previously had not considered the County Council as a potential client (Sacks, 2005 March 7).

To further increase the capacity for smaller local suppliers to bid on Council contracts, tenders were broken into smaller lots based on service region and food category, rather than for a small number of large contracts. Additionally, the tender evaluation criteria were revised to weigh 60% of the evaluation criteria on food quality, which included sustainability and locally grown organic food components, and 40% on price (DEFRA, 2005). Importantly, while additional tendering lots has resulted in increased administrative work for the Council procurement staff, Council indicates that the process has increased the quantity and quality of received tenders as well as an opportunity for the Council to better mix and match food supply services to best meet its needs across different regions (Sacks, 2005 March 7).

Overall, of the €4.33 million (£3 million) County Council food supply contract, about half was awarded to local suppliers providing an additional benefit of €5.8 million (£4.1 million) to the Northumberland economy annually (NEF, 2005). Based on the success of the food supply contracts initiative, the County Council has decided to extend the measures it has taken to its broader procurement process with a goal to increase the proportion of local suppliers to the Council by 10% by 2008 relative to the 2004 baseline (Mitchell, B., NCC. 2005, March 16 telephone interview).

The Council has implemented a creative mechanism designed to raise awareness and gather information in order to facilitate information gathering by requiring that tendering documents provided by suppliers indicate the intended proportion of local spending planned to meet the contract deliverables (Mitchell, B., NCC. 2005, March 16 telephone interview). Further, the County has also indicated that in some cases, future procurement contracts will require suppliers to contribute actively toward social and economic renewal in the region where the good or service is being provided (Mitchell, 2005). In such cases, even where local suppliers are unable to successfully compete with outside service providers, some additional benefits will continue to be realised by the local regions. A final noteworthy outcome of the County Council LM3 study is the interest that the project generated on the part of private sector firms active in the region, two of which decided to undertake similar studies on their contribution to local communities (Mitchell, B., NCC. 2005, March 22 telephone interview). At the time of drafting this report, the organisations were unable to share their experiences respecting the application of the LM3 tool.

4.3 West Somerset Railway

The West Somerset Railway is a private sector corporation that operates a steam driven heritage railway in the southwest of England. The rail line passes along 32 km (20 miles) of restored rail line encompassing ten restored heritage rail stations between the towns of Bishops Lydeard and Minehead, Somerset (West Somerset Railway, 2005). The following is a summary of the publication entitled *West Somerset Railway: Local Economic Impact Study*, International Centre for Research and Consultancy, Manchester Metropolitan University, 2004.

To gain an understanding of the value of the heritage rail line, the Somerset County Council, two local district councils and the West Somerset Railway commissioned the International Centre for Research and Consultancy (ICRC) at Manchester Metropolitan University to determine the current local economic benefits and assess future potential of additional investment by the railway (ICRC, 2004). Part of the project included an economic multiplier study based on the New Economics Foundation LM3 model. With respect to the LM3 component of the project, the study was to determine the local multiplier effect of spending connected to the railway, increased demand for services from nearby businesses and to assess the potential benefit connected to additional investment in the railway (ICRC, 2004).

4.3.1 Findings of the West Somerset Railway LM3 study

The analysis was based on the fiscal year 2002, when the company employed twenty six full time employees, fourteen part time seasonal employees as well as enjoying the services of 600 skilled volunteers (ICRC, 2004). The company also draws support from the West Somerset Railway Association, a charity organisation that supports the railway by providing financial support, volunteers as well as retaining ownership of engine restoration facilities and a small number of the steam locomotives that operate on the restored rail line. Additional services the Association provides include volunteer based youth training opportunities and ownership and operation of luxury dining cars line (West Somerset Railway Association, 2005). Altogether, the Association employs four full time and one part time employee (ICRC, 2004).

To evaluate the local economic multiplier for the railway, the ICRC measured how money connected to the West Somerset Railway was spent across three rounds of spending consistent with the LM3 methodology. Information on passenger spending (round one) and on railway spending on salaries, goods and services (round two) was drawn from the financial accounts of the railway for the year ending December 31, 2002. Rather than survey all spending, the ICRC chose to survey fourteen of the railway's largest suppliers altogether accounting for 60% of local procurement spending as a representative sample. The final information for the analysis required gathering of information on spending by railway employees and by suppliers to the railway (round three) for spending that can be attributed to the railway. In each round, spending toward non-local suppliers, defined as any locale not on the rail line route, and payments such as taxes and insurance were deducted from the analysis (ICRC, 2004).

Based on direct passenger spending of £1 469 080 (€2 119 701), railway local spending on suppliers & salaries of £692 424 (€999 177) in round two, and supplier local spending of £648 299 (€935,246) an LM3 score of 1.9 for the railway was arrived at by the study. The ICRC pointed out, however that the results likely understate the actual figure by an estimated 10% since only direct paying customers are included within the analysis and a considerable number of visitors come to the region as sightseers to view a passing steam engine or to admire one of the restored stations (ICRC, 2004).

5. Discussion - tourist sector application of the LM3

Importantly, the concept of the economic multiplier is based on tracing marginal inputs to an economy from a defined economic entity such as an institution, business or group of individuals as a start point. It is important to point out that there is no single 'economic multiplier' for an entire region, but rather different multipliers which will depend on where the marginal input occurs in an economy and how that money is in turn spent.

From the above case studies, some key benefits of applying the LM3 tool can be seen. These include providing local decision makers with a simple tool to evaluate local economic multipliers and evaluate a region's performance over time as steps are taken to improve local conditions. In both of the case studies above, the aim of the LM3 study was to measure the economic multiplier effects of the actions of well defined organisations. In the instance of a tourism destination, there is likely merit in evaluating the local economic multipliers for large or dominant players in a tourism destination. However, as summarised in Section 2 above, economic leakage from tourism destinations can occur at various points in the tourism value chain and is likely to change in magnitude over time and in relation to the phase of the life cycle of the destination in question. This suggests that to gain an understanding of economic leakage in the tourism sector it is necessary to select the tourist as the initial point of the analysis which, although likely increasing the complexity and cost of data collection, will provide a better picture of the local multiplier effect of overall holiday spending by tourists. Such an analysis will require identifying a representative sample of tourists and devising means to gather data on their holiday spending patterns, then tracing that spending over two further spending rounds. Moreover, selecting the visitor as the start point for the analysis rather than a business organisation will reach visitors that do not formally partake in major attractions in the region such as purchasing a ski lift ticket or spending an evening at a major hotel. As noted in the West Somerset Railway case study, a good number of visitors can visit for sightseeing purposes and the economic benefit of these visitors would be lost to the analysis were restricted to the effects of a major attraction. The interest of the Åre region in diversifying the tourism appeal toward non-traditional attractions further supports the case for surveying tourists directly to understand the benefits (or lack of benefit) of tourist spending in the analysis.

There are two issues connected to the timing of any potential LM3 study in a highly seasonal tourism destination that merit discussion. Firstly, given that economic leakage is likely to change over time depending upon the stage in the destination life cycle within which a region stands, the time frame for which the results of an LM3 study will remain valid are an important consideration when basing decisions on the results. The West Somerset Railway study indicated that national input-output tables, which indicate supply chain structures between industries rather than firms and form the basis of large scale economic multiplier studies, are generally updated on a five year basis (ICIC, West Somerset Railway Study 2004). At the local level, it is unclear how long the results would remain valid, however the present rapid state of development in the Åre tourism industry suggests a time interval shorter than five years is reasonable.

A second issue connected to timing is the season within which an LM3 study is undertaken. Given the need to diversify the tourist base to expand activities such as summer mountain biking and outdoor adventure tourism in the area, it may be a worthwhile exercise to investigate local economic multiplier effects based on summer activities as compared to the traditional winter ski vacation. This information would enable the community to target investment and promotion efforts toward activities with maximum benefit for the region.

A final observation that was noted by the Northumberland County Council is the benefits associated not only with the quantification of local economic impacts associated with a particular business or organisation, but the awareness raising effect of querying suppliers about how their money is spent

within the region. As noted in Section 4.2, two private firms active in the Northumberland County region were prompted to assess the local economic impacts of their operations, which while details are not presently available, they provide an example of one means by which firms can demonstrate their local worth to host communities.

6. Conclusion

Tourism is a large and growing industry and present destination communities with opportunities for economic development and improved living standards. However, tourism development brings along with it costs that can at times exceed the benefits for host communities. One way to ensure benefits are realised by host communities is to prevent excessive economic leakage from the region which should contribute to spreading the benefits of tourism among local residents more equitably as compared to a situation where substantial leakage results in locals experiencing only the costs associated with tourism. The LM3 tool developed by the New Economic Foundation provides a relatively simple methodology to enable local decision makers to quantify local economic multipliers for tourism activities, which can be seen as a reasonable indicator of economic leakage. In the case of the Åre ski resort community, the tool is one method for the community to evaluate economic leakage that may be associated with the tourist development in their region.

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